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Karine Peschard

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## Seed wars and farmers' rights: comparative perspectives from Brazil and India

Karine Peschard 

Drawing on interviews with Indian and Brazilian farmers' rights activists, lawyers, agronomists and plant breeders, this article aims at better understanding how farmers' rights are protected on paper and implemented on the ground in these two countries. Brazil and India offer important case studies because they are biologically megadiverse countries, and because small farmers represent an important segment of the rural economy. In this article, I show that India has adopted an ownership approach to farmers' rights, while Brazil leans towards a stewardship approach. Based on an examination of the progress made in enforcing these rights, I further argue that the stewardship model adopted by Brazil is more conducive to the realization of farmers' rights, and I explore why this is the case. Finally, I show how farmers' rights provisions in the Brazilian and Indian legislations represent fragile gains that could be curtailed by several bills currently under discussion in the field of seed and plant variety protection.

**Keywords:** seed wars; farmers' rights; plant genetic resources for food and agriculture; plant variety protection; Brazil; India

### 1. Introduction

The concept of farmers' rights was developed in the 1980s to appease growing conflicts over plant genetic resources, often referred to as the seed wars (Mooney 2011).<sup>1</sup> The rationale was to counterbalance new intellectual property rights (IPR) regimes over plant genetic resources with the rights of farmers to access and use those same resources (Borowiak 2004). Andersen (2006, 5) offers the following working definition:

farmers' rights consist of the customary rights that farmers have had as stewards of agro-biodiversity since the dawn of agriculture to save, grow, share, develop and maintain plant varieties, of their legitimate right to be rewarded and supported for their contribution to the global pool of genetic resources as well as to the development of commercial varieties of plants, and to participate in decision-making on issues that may affect these rights.<sup>2</sup>

<sup>1</sup>The expression 'seed wars' was first used in an article in the *Wall Street Journal* in 1984 (Paul 1984), and was popularized by Kloppenburg and Kleinman (1987), Ewens (2000) and Aoki (2008).

<sup>2</sup>As Andersen (2006) notes, this is a 'lowest denominator' definition that avoids controversial issues such as the right to sell seeds. On the controversies surrounding the definition of farmers' rights, see Borowiak (2004, 529–30), Andersen (2005a, 2–24) and Peschard (2014b, 1088–90).

Farmers' rights are slowly making their way into international law. They are recognized in Article 8(j) of the United Nations Convention on Biological Diversity (CBD), and in Article 9 of the Food and Agriculture Organization (FAO) International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA, hereafter the Seed Treaty).<sup>3</sup> Farmers' rights to seeds and genetic resources are gaining new impetus with the proposed international Declaration of the rights of peasants and other people working in rural areas. This declaration is an initiative of the transnational agrarian movement La Via Campesina and has been under negotiation at the United Nations (UN) since 2010 (Edelman and James 2011; Golay 2015). The UN draft declaration covers a wide range of rights, including the right to seeds, to biological diversity, and to traditional knowledge and practices.<sup>4</sup> Once adopted, this declaration will give farmers' rights recognition within the international human rights system (Golay 2013; Claeys 2015). The UN declaration still being under negotiation, the present discussion is limited to farmers' rights as defined in the Seed Treaty.

There was a surge of interest and publications on farmers' rights in the early 2000s following the adoption of the Seed Treaty and the passage of the first national farmers' rights laws (Andersen 2005a). In the last decade, however, the issue has fallen into neglect as the focus shifted to other related issues such as access and benefit-sharing (ABS).<sup>5</sup> As a consequence, studies of the implementation of farmers' rights are few and far between, even though implementation represents the main issue of contention.<sup>6</sup>

Yet the debate over farmers' rights is of continued relevance. The equity and justice principles underpinning farmers' rights are more pertinent than ever in a context in which farmers' rights over genetic resources are being eroded by the steady expansion of IPR over plant varieties. Moreover, with climate change, there is a growing consensus that *in situ* or on-farm strategies are the most efficient way to preserve agricultural resources. Unlike *ex situ* strategies, such as gene banks, *in situ* strategies form a dynamic process in which varieties are continuously adapting to changing environmental conditions, and knowledge about their production is preserved (Brush 2000). Agricultural biodiversity is concentrated on small farms rather than large agribusiness farms, hence the importance of protecting small farmers' access to, and rights over, plant genetic resources.

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<sup>3</sup>Article 8(j) of the CBD establishes the obligation to preserve and promote the knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biological diversity, as well as the right to benefit-sharing. Article 9 of the Seed Treaty reaffirms these obligations with respect to plant genetic resources for food and agriculture specifically, and establishes the right to participate in national decisions. In both cases, these provisions are subject to national legislation. The Treaty also makes provision for *in situ* and on-farm conservation and sustainable use of plant genetic resources (Art. 5 and 6). On the international governance of plant genetic resources, see Halewood, López Noriega, and Louafi (2013).

<sup>4</sup>Article 22 (Right to Seeds) and Article 23 (Right to Biological Diversity) of the draft declaration recognize, among others, (1) the right of peasants to save, store, transport, exchange, donate, sell, use and re-use farm-saved seeds, crops and propagating material; (2) the collective use and rights to agricultural biodiversity and the right to associated knowledge; (3) the right to protect peasants' seeds and livestock systems from genetic contamination, biopiracy and theft; (4) the right to exclude from IPR genetic resources, agricultural biological diversity and associated knowledge and technologies that are owned, discovered or developed by their own communities (UNHRC 2015).

<sup>5</sup>Access and benefit-sharing (ABS) refers to the fair and equitable sharing of the benefits arising from the use of genetic resources.

<sup>6</sup>A notable exception is the Farmers' Rights Project, a 10-year international project (2005–2014) on the realization of farmers' rights carried out by the Fridtjof Nansen Institute (Andersen and Winge 2013).

This contribution addresses the outstanding questions and controversies surrounding farmers' rights by comparing how Brazil and India protect these rights on paper and implement them in practice. Brazil and India offer particularly rich grounds for comparison because they took different approaches to implementing policies that protect farmers' rights. India stands out for opting for a *sui generis* system in the form of the Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act (GoI 2001). Brazil has not yet passed specific legislation regulating farmers' rights, but has introduced provisions relating to farmers' rights and varieties in its Plant Variety Protection Act (1997) and revised Seed Act (2003). Brazil is also in the process of implementing a National Policy on Agroecology and Organic Production (PNAPO) which, depending on how it is operationalized, could open interesting avenues for the realization of farmers' rights (Barcellos 2012).

In comparing the implementation of farmers' rights in Brazil and India, I draw on Andersen's (2006, 5) distinction between the ownership and stewardship approaches. The ownership approach focuses on rewarding farmers for their contribution to the preservation of plant genetic resources. Underlying this approach is the idea that farmers, like commercial breeders, should be granted property rights on their knowledge. Those who defend this view conceive of farmers' rights within the conventional property rights framework. ABS principles are seen as instrumental to the creation of an incentive structure for farmers' continued contribution to the preservation of agricultural biodiversity. In contrast, the stewardship approach is a more comprehensive approach whose objective is to ensure that farmers have the conditions to continue to act as stewards of biodiversity on their own terms. It favors the creation of a legal space outside the conventional legal framework. To give a concrete example, while proponents of the ownership approach support the granting of breeders' rights to farmers, proponents of the stewardship approach seek to exempt farmers' varieties from the breeders' rights system.

In this contribution, I show that India has adopted an ownership approach to farmers' rights, while Brazil leans towards a stewardship approach. Based on an examination of the progress made in enforcing these rights, I further argue that the stewardship model adopted by Brazil is more conducive to the realization of farmers' rights, and I explore why this is the case. In doing so, I question the prevailing claim that India's legislation is among the most progressive farmers' rights legislations worldwide.<sup>7</sup>

In the next section, I provide some background information on the politics of agricultural biodiversity in Brazil and India, and show why these two countries provide important case studies for the implementation of farmers' rights. Next, I review and contrast the laws enacted in both countries, with an emphasis on the recognition of farmers as breeders, the right to seeds and other key components of farmers' rights. I then move beyond the legal framework to review the current state of implementation of these laws in each of the two countries. In the last section, I discuss current legislative and policy developments that may impact farmers' rights. I conclude by drawing lessons from the experience of Brazil and India regarding the formulation and implementation of farmers' rights.<sup>8</sup>

<sup>7</sup>The Indian farmers' rights legislation is often referred to in the literature, by both researchers and activists, as the most progressive, liberal, far-reaching or advanced worldwide. See, for example, Santilli (2012, 225), Prajesh (2015, 16), Farmers' Rights Project (n.d.), MS Swaminathan Research Foundation (n.d.).

<sup>8</sup>For this contribution, I conducted 20 interviews in India in February–March 2013, December 2014 and December 2015. In Brazil, where I have been researching IPRs, seeds and farmers' rights since 2006, six follow-up interviews were carried out in Brasilia and Rio de Janeiro in March 2014. Interviews were conducted with key individuals from different sectors – farmers' rights activists,

## 2. The politics of plant genetic resources in Brazil and India

Both Brazil and India are biologically megadiverse countries, a term used to refer to a group of 17 countries that are located in subtropical and tropical regions and harbor the majority of the Earth's species. With 15–20 percent of the world's biological diversity, Brazil is considered the most biologically diverse country in the world (CBD n.d.[1]). It counts two globally identified biodiversity hotspots – the Atlantic forest and the Cerrado; it is the center of origin and diversity for a number of cultivated plants, such as manioc and peanut; and it is home to at least 43,020 known plant species. India is the center of origin and diversity for a large number of food crops, notably rice. It counts four biodiversity hotspots – Himalaya, Indo-Burma, Western Ghats and Sri Lanka, Sundaland – and 45,500 documented species of plants (CBD n.d.[2]). Biologically megadiverse countries also tend to be culturally megadiverse, and Brazil and India are important repositories of traditional knowledge associated with biological diversity.

Both countries have a strong tradition of publicly funded agricultural research, and are home to some of the most important national plant germplasm collections worldwide.<sup>9</sup> In India, the National Gene Bank holds over 400,000 samples representing 1586 species (NBPGR n.d.). In Brazil, Embrapa Genetic Resources and Biotechnology – part of the Brazilian Agricultural Research Corporation – holds 100,000 seed samples representing 600 species (Embrapa n.d.).

As biologically megadiverse countries and large agricultural producers, Brazil and India are key players in the contentious global negotiations over agricultural trade and genetic resources.<sup>10</sup> Brazil and India have been actively involved in international negotiations over the CBD, the Seed Treaty and the Nagoya Protocol on Access and Benefit-sharing. Both countries are parties to the CBD. India ratified the Seed Treaty in 2003, and Brazil did so in 2008. The Treaty came into force internationally in 2004. India ratified the Nagoya Protocol in 2012, while Brazil has signed the Protocol but has not yet ratified it.<sup>11</sup>

The development and commercialization of transgenic plant varieties has been a driving force in the strengthening of IPR over plants, and the resulting restrictions on farmers' right to save seeds (Kloppenborg 2004). By redefining plants as human inventions rather than as products of nature, genetic engineering opened the door to the introduction of utility patents on higher life forms (*Ex parte Hibberd* 1985). Stronger IPR allowed the consolidation of a multinational seed and agbiotech industry that then pressed for the imposition of global IPR regimes over plant varieties. Industry succeeded with the signing of the 1995 World Trade Organization Agreement on Trade-Related Aspects of Intellectual Property Rights (WTO/TRIPS) that makes it compulsory for countries to provide intellectual protection for plant varieties. The scope of IPR regimes over plant varieties was also expanded with the adoption of a strengthened UPOV Convention in 1991.<sup>12</sup> In addition, TRIPS-plus provisions

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researchers, lawyers, agronomists and plant breeders – on how they view the legislation and the progress made in its implementation.

<sup>9</sup>Public agricultural research in Brazil and India is conducted under the authority of the Brazilian Agricultural Research Corporation (Embrapa) and the Indian Council of Agricultural Research (ICAR), respectively.

<sup>10</sup>In the last decade, Brazil and India increased their cooperation through forums such as IBSA (India–Brazil–South Africa), created in 2003, and BRIC (Brazil–Russia–India–China), launched in 2009.

<sup>11</sup>Brazil was one of the main proponents of the Nagoya Protocol and among the first countries to sign it. However, ratification of the Protocol is pending in the Brazilian Congress since 2012, where it faces opposition from the agribusiness lobby (Terra de Direitos 2014, 7).

<sup>12</sup>The International Union for the Protection of New Varieties of Plants (UPOV) is an inter-governmental organization that enforces IPR on plant varieties, known as plant breeders' rights.

that go beyond the minimum requirements of the TRIPS Agreement are now routinely included in the negotiation of bilateral and regional trade agreements.

Besides the changes in IPR regimes and the seed industry precipitated by breakthroughs in plant genetic engineering, transgenic crops and farmers' rights are linked in other, subtler, ways.<sup>13</sup> In some regions, transgenic varieties are rapidly displacing conventional and farmers' varieties, therefore compounding the loss of agrobiodiversity.<sup>14</sup> Of particular concern for agrobiodiversity is the transfer of transgenes to non-transgenic crops, as well as Gene Use Restriction Technology (GURTs). Both Brazil and India have passed provisions prohibiting GURTs. However, these provisions have been under pressure in Brazil, where several bills aimed at lifting this ban have been introduced in Congress.<sup>15</sup> The consolidation of the agbiotech industry has also been accompanied by a decline in the public plant breeding sector and its reorientation toward fundamental rather than applied research (Heisey, Srinivasan, and Thirtle 2001). These considerations are highly relevant to farmers' rights, since they directly impact farmers' access to plant genetic resources and the on-farm conservation of agrobiodiversity.

Brazil and India did not provide for plant variety protection prior to their entry into the WTO. To comply with TRIPS requirements, Brazil passed plant variety protection legislation in 1997, and India in 2001 (these are discussed in greater detail in the next section). Under pressure from the seed industry, Brazil and India also introduced legislation to overhaul their seed regulatory system. Contrary to plant variety protection laws, which apply to commercial varieties, seed laws apply to all seeds, including seeds in the public domain. Although Brazil and India have had seed laws in place since the mid-1960s to regulate the production, commercialization and use of seeds, these seed laws have been revised in recent years with the explicit aim of creating a regulatory environment conducive to the growth of the seed industry (GRAIN 2005b; La Via Campesina and GRAIN 2015).

Increasing restrictions on the use and circulation of seeds, in particular the introduction of plant variety protection, spurred a public debate on the need for legislation to protect farmers' rights over, and access to, plant genetic resources. Farmers' rights are a particularly salient issue in Brazil and India because a significant proportion of farmers rely on farm-saved seeds and informal seed networks.<sup>16</sup> In India, it is commonly stated that the informal sector is responsible for up to 80 percent of seed provision, mostly farm-saved seeds (Koonan 2014, 2).<sup>17</sup> In Brazil, the percentage of seeds sourced from local seed systems varies greatly depending on the crop, ranging from 15 percent for maize to 50 percent

<sup>13</sup>For a discussion of changes in the seed industry in Brazil, see Wilkinson and Castelli (2000); in India, see Rangnekar (2003) and Kochupillai (2011).

<sup>14</sup>On the adoption of Bt crops by farmers in India, see Stone (2007), Shah (2008), McKinney (2013) and Roy (2014).

<sup>15</sup>The latest is Bill 1117/2015, introduced in Congress in April 2015 and under review as of December 2015.

<sup>16</sup>There are few reliable statistics on farmers' seed sourcing – whether in the public sector, the private sector, civil society organizations, informal exchange or seed saving. Determining if a farmer buys or saves seeds is not as straightforward as it may appear. For example, a farmer may buy a composite, high-yielding variety, which he then saves for two to three years before purchasing it again when its performance decreases (Ghose 2004, 4).

<sup>17</sup>Based on her research among farmers in Jharkhand, India, Ghose (2004) argues that seed acquisition mechanisms among farmers have been changing rapidly since the late 1990s and that this figure is overstated.

for soybeans and as high as 85 percent for beans (Santilli 2009, 145–6).<sup>18</sup> In both Brazil and India, small farmers supply the major part of the internal food demand (Müller and Patel 2004, 20; MDA 2008, 5).

There was no mention of farmers' rights in the initial draft of the Indian Plant Variety Protection bill introduced in 1993. Indian non-governmental organizations (NGOs) mobilized public opinion and their campaign led to unprecedented demonstrations by farmers (*beej satyagraha* or seed protest) in March 1993 (Seshia 2002, 2745). After the draft bill was revised but failed to pass, it was referred to a Joint Parliamentary Committee. This committee held public consultations throughout India from January to August 2000, and drafted legislation that finally became law in 2001 (Sahai n.d.; Rangnekar 1998). The PPV&FR Act is substantially different from the initial version of this legislation. Civil society pressure resulted in several gains, including the *sui generis* system and the inclusion of a chapter on farmers' rights (Randeria 2007, 13–4). Notably, India is the only country in the world that recognizes farmers' right to sell seeds of protected varieties, a highly controversial issue (Sahai 2001). The inclusion of farmers' rights in the Indian legislation was largely the accomplishment of a number of small but effective NGOs, foremost the Gene Campaign.

Similarly, initial drafts for plant variety protection legislation introduced in Brazil in the 1990s did not contemplate farmers' rights. The limited farmers' rights provisions that were eventually included in the Plant Variety Protection Act (1997) and revised Seed Bill (2003) were only secured after an arduous struggle by civil society organizations. Criticism of the bill in the 1990s was led by environmental, consumer, and family farming and agroecology NGOs, along with a group of opposition deputies (Araújo 2010, 75–6).<sup>19</sup> They were not able to stop the adoption of the bill, but they succeeded in amending certain articles.<sup>20</sup> In Brazil, the debate over farmers' rights follows the agribusiness/family farming divide that permeates Brazilian society.<sup>21</sup> In this polarized context, farmers' rights have been defended by the agroecology movement, a broad coalition of NGOs and rural social movements that support family farming and agroecological practices, with some institutional support from the Ministry of Agrarian Development (MDA). On the other hand, the Ministry of Agriculture and the agribusiness lobby have sought to limit the scope of farmers' rights provisions in the legislation.<sup>22</sup> Significantly, in both Brazil and India, farmers' rights provisions were only introduced in the protection of plant variety and seed legislation following the political mobilization of civil society.

<sup>18</sup>These figures are estimates based on the Brazilian Seed Producers Association (ABRASEM) statistics on the use of commercial seeds for different crops in the 2006–2007 harvest.

<sup>19</sup>These organizations included Consultancy and Services for Projects in Alternative Agriculture (AS-PTA), an NGO that works with family farmers to promote agroecology; the Brazilian Institute for Consumer Protection (IDEC), Brazil's oldest and largest consumer protection organization; and Greenpeace Brazil.

<sup>20</sup>For a discussion of an earlier failed attempt at introducing plant breeders' rights in Brazil in the 1970s, see Peschard (2010, 103–5).

<sup>21</sup>This divide is reflected, at the institutional level, by the fact that Brazil has two agricultural ministries: the Ministry of Agriculture (MAPA), geared to the interests of agribusiness and large landowners; and the Ministry of Agrarian Development (MDA), which promotes public policies for agrarian reform, family agriculture and food security. The two ministries do not have the same political influence, nor do they enjoy the same financial and human resources.

<sup>22</sup>Large landowners and agribusiness interests are represented by the *bancada ruralista* (its official name is the Parliamentary Front in Support of Agriculture and Livestock), the largest lobby group in Congress.

### 3. Farmers' rights in Brazil and India: an overview of the legislation

#### 3.1. The Brazilian Plant Variety Protection Act (1997) and Seed Act (2003)

The Brazilian Plant Variety Protection Act was drafted with the explicit objective of adhering to the UPOV. The Brazilian legislation is essentially based on the 1978 Act of the UPOV Convention (Araújo 2010, 57).

The Brazilian Plant Variety Protection Act does not explicitly recognize farmers as breeders (Santilli 2009, 169). However, the revised Seed Act, passed in 2003, provides some recognition for varieties cultivated by family farmers, land reform settlers and Indigenous people. Indeed, the Seed Act defines local, traditional or creole<sup>23</sup> cultivars as:

[those cultivars that are] developed, adapted or produced by family farmers, land reform settlers or Indigenous people, with well-determined phenotypic traits that are recognized as such by the respective communities and which, in the understanding of the [Ministry of Agriculture], and considering sociocultural and environmental descriptors, are not substantially similar to commercial cultivars. (República Federativa do Brasil 2003, Art. 2, XVI, my translation)

The Brazilian Seed Act establishes that family farmers, agrarian reform settlers and Indigenous people who multiply seeds or seedlings for distribution, exchange or commercialization among themselves are exempt from registration with the National Registry of Seeds and Seedlings (RENASEM) (Art. 8.3), as well as with the National Registry of Cultivars (RNC) (Art. 11.6).<sup>24</sup> Article 48 also states that there should be no restrictions on the inclusion of local, traditional and creole cultivars in public programs of seed distribution and exchange developed in collaboration with family farmers. These provisions of the Seed Act were a direct result of the participation of civil society in the process of revising the law, and were hailed as a victory by small farmers' organizations (Londres 2006).

The Brazilian Plant Variety Protection Act recognizes the right of farmers to keep and plant seeds for their own use (the so-called farmers' privilege). According to Article 10, a farmer who (1) stores and plants seeds for his/her own use, or (2) uses or sells the product of his/her plants as food or raw material (except for reproductive purposes) is not deemed to infringe upon the plant breeder's right. An exception is made for small rural producers, who can also multiply seeds to give away or exchange, but only in dealings exclusively with other small rural producers (República Federativa do Brasil 1997).<sup>25</sup> However, the Brazilian Seed Act imposes strict conditions for 'own use' seeds – that is, seeds saved from the farmer's harvest for replanting. Such seeds can only be sowed on the farmer's property

<sup>23</sup>In recent years, rural social movements have used the expression 'Creole seeds' (*Semente Crioula*, in Portuguese) to reassert the value and legitimacy of farmers' varieties in the face of their growing marginalization. See Delgado and Rodrigues-Giralt (2014).

<sup>24</sup>The Brazilian Seed Act establishes that the production, processing and marketing of a cultivar is conditional on registration in the RNC. Criteria for registration include distinctiveness, homogeneity and stability (thus excluding, by definition, farmers' varieties); its value for cultivation and use (VCU); and the existence of a 'maintainer' responsible for making the cultivar available. Both protected cultivars and cultivars in the public domain can be registered in the RNC. The Brazilian Seed Act also establishes that any private or corporate person involved in the production, processing, packaging, storage, testing, marketing, import or export of seeds and seedlings must be registered with RENASEM (Santilli 2009, 148–55).

<sup>25</sup>The Brazilian Plant Variety Protection Act defines a small rural producer as someone who exploits a parcel of land using mainly family labour as opposed to hired labour, and resides on his property or nearby. To avoid the inclusion of unproductive large estates (*latifúndios*), properties in this category may not exceed size limits set forth in the Act (República Federativa do Brasil 1997, Art. 10.3).



in the following season, and the quantity of seeds that can be saved is determined in the National Registry of Cultivars (República Federativa do Brasil 2003, Art. 2, XLIII).<sup>26</sup>

### 3.2. *The Indian PPV&FR Act (2001)*

India's legislation is unique worldwide because it combines plant breeders' rights with elements of the CBD and Seed Treaty. Under pressure from civil society, India developed a *sui generis* legislation – that is, legislation 'of its own kind'. Farmers' rights are acknowledged in the very title of India's law – the Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001 – and a full chapter is devoted to farmers' rights. The PPV&FR Authority, established in 2005, is responsible for implementing the Act.<sup>27</sup>

In India, farmers are recognized as breeders and generally have the same rights guaranteed to public and private breeders. Farmers can register their varieties and are entitled to IPR protection. Farmers' varieties are defined as (1) those that have been traditionally cultivated and developed by farmers in their fields, or (2) those that are wild relatives or landraces<sup>28</sup> of a variety about which farmers possess common knowledge (GoI 2001, Art. 21). The criteria for registration are the same as for public and private breeders – distinct, uniform and stable – except for the novelty criterion, which does not apply to farmers' varieties. Farmers are also exempted from paying a processing fee to the PPV&FR Authority.

Rights to seeds are more extensive under the Indian PPV&FR Act, which allows a farmer to save, use, sow, re-sow, exchange, share or *sell* seeds, *including from protected varieties*, as well as harvested materials, 'in the same manner as he was entitled before the coming into force of this Act' (GoI 2001, Art. 39 iv, emphasis added).<sup>29</sup> Farmers can thus sell branded seeds of a protected variety as long as they are not labeled as such. This provision is usually understood as meaning that farmers can sell seeds in a generic form without a label but cannot compete with breeders and seed companies by selling under a brand name (Cohen and Ramanna 2007).

The Indian legislation goes much further than its Brazilian counterpart in granting rights to farmers beyond the basic right to seeds. The PPV&FR Act includes a number of innovative provisions pertaining to farmers' rights. For example, farmers cannot be held responsible for infringing on plant breeders' rights if they can demonstrate that they did so unknowingly. This provision is meant to protect farmers who are not yet aware of the new plant breeders' rights legislation. Moreover, seed companies are obligated to inform farmers of the expected yield of their varieties, and farmers are entitled to compensation if the seeds do not perform as advertised.

The PPV&FR Act also includes provisions for benefit-sharing. Farmers who are engaged in the conservation of genetic resources and their improvement through selection

<sup>26</sup>According to Santilli (2009, 165), these restrictions on the use of saved seeds have less to do with the stated purpose of the act – to guarantee seed quality – than with restricting the informal seed market.

<sup>27</sup>For a description of the regulatory bodies responsible for implementation, see Gautam et al. (2012, 16–25).

<sup>28</sup>*Wild relatives* are wild plant species closely related to crops; *landraces* are genetically diverse varieties, adapted locally by farmers in traditional farming systems in the absence of formal plant breeding.

<sup>29</sup>A farmer is defined in the PPV&FR Act as any person who cultivates crops himself or herself, or through direct supervision; or who conserves and adds value to wild species or traditional varieties through the selection and identification of their useful properties (GoI 2001, Art. 2k).

are entitled to receive benefits through the National Gene Fund. Upon registering varieties, private and public breeders must declare if they have used genetic resources maintained by Indigenous people or farmers' communities. Indigenous and farmers' communities are entitled to benefits, and can file claims to the National Gene Fund when they believe that genetic resources from their communities have been used without their authorization. Any person or governmental or non-governmental agency can make a claim on behalf of a community (Peschard 2014b).

### 3.3. *The Brazilian and Indian legislation: a comparison*

As this concise review of their respective legislation shows, the rights conferred to farmers under India's legislation are much more extensive than in Brazil. Moreover, they apply to all farmers, whereas the farmers' rights recognized in Brazil only extend to small rural producers. The Indian legislation formally recognizes farmers as breeders alongside public and private breeders, and farmers are entitled to IPR protection of their varieties, in line with the ownership approach to farmers' rights. In Brazil, farmers are not explicitly recognized as breeders, and the Plant Variety Protection Act does not make provisions for the registration of farmers' varieties. Family farmers, land reform settlers, and Indigenous people can claim limited rights to the varieties they cultivate, but these rights are subordinated to the rights of commercial breeders.

The right to sell seeds was the most controversial provision in the process of elaborating plant variety protection legislation in both Brazil and India (Sahai 2001; Santilli 2009, 207; Araújo 2010, 83–4). In India, farmers' rights activists fought successfully to secure the right for all farmers to sell seeds. In Brazil, small farmers' organizations and advocates introduced several amendments aimed at securing a limited right to sell seeds for small rural producers, but agribusiness interests ultimately prevailed in prohibiting any sale of protected seeds without the authorization of the breeder and the payment of royalties. In the next two sections, I assess the progress made in implementing farmers' rights in India, and then in Brazil.

## 4. **The Indian PPV&FR Act: the limits of the ownership approach**

The first farmers' varieties to obtain registration under the PPV&FR Act, in 2009, were three varieties of rice – 'Tilak Chandan', 'Indrasan' and 'Hansraj' (PPV&FR Authority 2010). The applicants were three farmers from the State of Uttarakhand, through the agency of the intellectual property officer of a local public agricultural university.<sup>30</sup> Three more varieties were registered in 2012, which consisted of one variety of rice ('Dadaji HMT') and two of bread wheat ('Kudrat 9' and 'Wheat Ravi No.1') (PPV&FR Authority 2013a). Until 2012, the number of farmers' varieties registered – six – was extremely low. The pace of farmers' variety registration picked up in 2013, with 46 varieties of rice registered (PPV&FR Authority 2013b). Another 459 farmers' varieties of rice were

<sup>30</sup>Given the collective nature of farmer breeding, it is problematic to attribute private ownership of a variety to an individual farmer. Alternatively, some varieties are also registered in the name of a farming community. However, this is also problematic, since other farming communities may have rights to the same variety (Suman Sahai, Gene Campaign, interview with the author, New Delhi, 8 December 2014).

granted registration in 2014, and 32 in the first quarter of 2015 (PPV&FR Authority 2015c).<sup>31</sup>

Rice accounts for an overwhelming number of farmers' applications (76 percent) and certificates (98 percent) (PPV&FR Authority 2015a, 2015c). This reflects the great diversity of rice varieties cultivated in India, a center of origin for the crop. The other farmers' varieties registered so far are bread wheat (three varieties), sorghum (one), chickpea (one), Indian mustard (one) and pigeon pea (three). This brings the total number of farmers' varieties registered under the Act to 543.<sup>32</sup> In comparison, a total of 875 certificates have been issued for public and state agricultural university varieties, and 355 for private varieties (PPV&FR Authority 2015c).<sup>33</sup>

The recent increase in the number of both applications for registration and certificates issued for farmers' varieties under the Act warrants an explanation. On the one hand, the increase in applications reflects an increased awareness of the legislation among farmers. The PPV&FR Authority has sponsored a number of initiatives in this regard, such as the creation of a Farmers' Cell to conduct 'training-cum-awareness' programs in farmers' communities. Farmers represent the largest category of applicants; they are responsible for more than half of the applications submitted to the PPV&FR Authority – that is, more than the public and private sectors together. Although more research is needed into farmers' motives for registering their varieties, commonly cited reasons are the desire for public recognition of their work as breeders, the hope of getting state support for their work with seeds, and the hope that registration can prevent biopiracy (Bhutani 2015b).

On the other hand, the increase in the number of registration certificates issued for farmers' varieties also reflects an improvement in the application-to-registration ratio for farmers' varieties.<sup>34</sup> The number of applications for registration must be distinguished from the number of varieties registered under the Act, since the rate of registration success varies among different categories of applicants. The registration success rate for farmers' varieties was initially very low (around 2 percent of applications were successfully registered).<sup>35</sup> As of May 2015, it had increased to 11 percent, on a par with the success rate for private varieties (13 percent), but much lower than the success rate for public varieties (63 percent).<sup>36</sup>

One of the main critiques of the PPV&FR legislation is that farmers' varieties must fulfill the same criteria (distinctiveness, uniformity and stability, or DUS) developed for commercial varieties. This is problematic, since commercial cultivars presuppose a high level of genetic uniformity and stability not found, nor considered desirable, in farmers' varieties bred for diversity and resilience. Criteria have been modified for farmers' varieties whereby farmers submit half the quantity of seed material required for a commercial

<sup>31</sup>Data on the registration of plant varieties is constantly updated on the PPV&FR Authority website. The discussion in this section is based on the data published in May 2015.

<sup>32</sup>As of May 2015, 92 crop species are available for registration, with new crops regularly added to the list (PPV&FR Authority 2015d).

<sup>33</sup>One hundred and forty applications are pending due to legal issues. They mainly concern new varieties, with some cases involving extant varieties. So far, no application for the registration of a farmer's variety has been challenged (PPV&FR Authority 2015b).

<sup>34</sup>It must also be noted that the PPV&FR Authority has increased the number of centers that carry DUS testing – from 94 in 2011–12 to 133 in 2013–14 – and therefore its ability to process applications (PPV&FR Authority 2012, 2014).

<sup>35</sup>It is important to keep in mind that there are several reasons why applications do not get registered. For example, an application may be rejected before it gets to DUS testing because it is incomplete.

<sup>36</sup>Compiled by the author from PPV&FR Authority (2015a, 2015c).

variety, and the number of ‘off types’ (any seed or plant that deviates in one or more characteristics from the variety as described) cannot exceed double the number of off-types specified for a new variety (GoI 2009). However, these accommodations do not resolve the underlying problem of the inadequacy of DUS criteria for farmers’ varieties.

If the number of applications and registrations for farmers’ varieties is taken as a yardstick of success, the PPV&FR Authority can be said to be successful in establishing an effective system for the protection of farmers’ rights and varieties. However, as I have argued (Peschard 2014b), the fact that farmers’ varieties are being registered under the Act is not in itself an indicator, let alone a guarantee, of the realization of farmers’ rights. In the remainder of this section, I will flesh out this argument by discussing some of the shortcomings of the legislation with regard to the protection of traditional knowledge, benefit-sharing and the right to participation in decision-making – the three pillars of farmers’ rights established by the Seed Treaty.

In theory, registration can act as a defensive strategy to prevent farmers’ varieties from being privately appropriated without compensation. In practice, however, it is extremely difficult to know, let alone prove, that a farmer’s variety has been used in the development of a commercial variety. In cases where a farmer’s variety is used in a public or private breeding program, it goes through successive cycles of selection, making it virtually impossible to trace back to the specific landrace from which it is derived. Moreover, the registration of farmers’ varieties is a double-edged sword. On the one hand, registering farmers’ varieties can pre-empt biopiracy by establishing prior art – that is, evidence that the variety is already known. On the other hand, documenting and characterizing farmers’ varieties in publicly available databases can also make it easier for companies to identify useful traits in farmers’ varieties.

The registration of farmers’ varieties has not resulted in a single instance of benefit-sharing so far. Stated differently, benefit-sharing mechanisms have not been acted upon as yet, since no company has disclosed the use of a farmer’s variety registered under the Act in the development of a commercial cultivar. This may change with the recent increase in the number of farmers’ varieties registered. It is unlikely, however, since the lack of benefit-sharing is not due to insufficient funds, but to the entirely voluntary nature of benefit-sharing mechanisms and the lack of incentives. Benefit-sharing is entirely dependent on public and private breeders’ willingness to acknowledge their use of farmers’ varieties.<sup>37</sup> Under these conditions, it is unlikely that a seed company would enter into a benefit-sharing agreement.

One case that has received public attention illustrates the problem with benefit-sharing. In the early 1980s, D.R. Khobragade, a farmer from the state of Maharashtra, developed a new variety of rice by careful selections from a popular public sector variety called Patel 3 (Bavadam 2011). His variety, known as HMT, became extremely popular. In 1994, a state agricultural university collected seeds of the HMT variety from Khobragade, improved them and released the new variety as PKV HMT. Khobragade filed an application to register HMT under the PPV&FR Act in 2009, and a certificate was issued in 2012. The same year, the university obtained a certificate of registration for PKV HMT under the category of extant variety (PPV&FR Authority 2015c). Interestingly, in the Certificate of Registration for PKV HMT, the university does not declare the existence of any contributor or the use of community knowledge in the development of the plant variety. There is no question that Khobragade developed the variety that was later improved upon by the university.

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<sup>37</sup>Suman Sahai, Gene Campaign, interview with the author, New Delhi, 8 December 2014.

However, he has not received any material benefits for his contribution to the development of PKV HMT. As Kochupillai (2015) shows in her detailed legal analysis of the case, he might not be entitled to any benefits based on a strict legal interpretation of the PPV&FR Act. For example, the PPV&FR Act establishes that farmers are entitled to benefits from the Gene Fund if they engage ‘in the conservation of genetic resources of land races and wild relatives of economic plants’.<sup>38</sup> However, Khobragade developed HMT by selecting and breeding a public sector variety. Moreover, a breeder must disclose in the application the use of genetic material conserved by any tribal or rural families in the breeding or development of such variety. Strictly speaking, Khobragade did not conserve the HMT variety by continuous cultivation of a landrace or wild relative but developed it by repeated selections from a public sector variety. As Kochupillai (2015) concludes, unless a court gave a purposive rather than strictly legal interpretation of the Act, Khobragade would not be entitled to any benefits.

Since 2012, the PPV&FR Authority has given three Plant Gene Savior awards annually to a small number of farmers and farmers’ communities in recognition of their contribution to the preservation of agricultural biodiversity (PPV&FR Authority 2012).<sup>39</sup> As an NGO critique of the awards points out:

To even label them merely ‘genome saviors’ is to reduce the holistic nature of what farmers do, to a phrase they would neither understand nor appreciate. Seeds and plants are not ‘genomes’ to farmers, but they are life, livelihoods and the very basis of a sustainable life. (Green Foundation 2013, 5)

The National Gene Fund is funded by plant breeders (be it a research institute, domestic company or foreign multinational) through the fees charged for issuing a plant variety registration certificate. Moreover, ‘the Act makes it clear that the reward is for only those farmer varieties that have some “economic value” for breeders and that have been used as base material or donor crop for further development by breeders’ (Green Foundation 2013: 5).<sup>40</sup> For those reasons, critics argue that the awards to farmers in fact result from the privatization of farmers’ genetic material (Campaign for community control over biodiversity 2007). Moreover, recipients of the award represent an extremely small number of farmers nationwide (a maximum of five awards, 10 rewards and 20 recognitions are awarded each year). While this program may act as an incentive, it does not amount to benefit-sharing.

In addition to the right to the protection of traditional knowledge and the right to benefit-sharing, the third pillar of farmers’ rights is the right to participation in decision-making. Despite the fact that civil society formally has a say in the implementation of the PPV&FR legislation, this has not so far translated into meaningful participation. Farmers’ right to participation is defined in the Seed Treaty as ‘the right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture’ (FAO 2001, Art.9.2c). The PPV&FR Authority includes representatives from the government, an agricultural

<sup>38</sup>See note 28 for a definition of landraces and wild relatives.

<sup>39</sup>The three awards are the Community Award, Farmer Reward and Farmer Recognition.

<sup>40</sup>Under section 39(1)(iii), ‘the farmer who is engaged in the conservation of genetic resources of land races and wild relatives of economic plants and their improvement through selection and preservation’ is entitled to ‘recognition and reward from the National Gene Fund [ ... ] provided that the material so selected and preserved has been used as donors of genes in varieties registrable under the Act’ (GoI 2001).

university, the seed industry, a farmers' organization, a women farmers' organization and an indigenous organization. However, these positions are government nominations and, according to NGOs, small farmers are not adequately represented in the PPV&FR Authority (Andersen 2005b, 40). In a telling illustration, none of the farmers' rights activists whom I interviewed could name the farmers' representative or, in some cases, were even aware that there was one.

While farmers enjoy significant rights under the PPV&FR Act, important questions remain as to the effectiveness of its implementation. More than a decade after the legislation was passed, the Act has not produced tangible results in terms of the protection of farmers' rights over genetic resources or of the preservation of agrobiodiversity. Benefit-sharing has not yet happened. Farmers who register their varieties do not derive any benefit or assistance. Finally, farmers do not participate significantly in decision-making at the national level. As one critic observes, the PPV&FR Act may more adequately be described as a 'farmer-friendly' law rather than truly progressive legislation (Bhutani 2015a).

The PPV&FR Act gives the same formal recognition to farmers as to public and private breeders. However, when it comes to its implementation, farmers face an uneven playing field, tilted in favor of commercial varieties. This is the case with the application to farmers' varieties of DUS criteria developed to meet the needs of the commercial seed sector. The PPV&FR Act also encourages farmers to submit varieties that offer traits that are potentially of interest to the commercial seed sector, since this is a prerequisite to generate benefit-sharing from the private sector (even though, as we have seen, this is not happening).<sup>41</sup> However, this does not support the objective of preserving agrobiodiversity for its own sake:

It appears that the Indian PPV&FR Act, despite its apparent good intentions, primarily promotes formal innovations and supports informal innovations only if these contribute in a direct and/or continuous manner to formal innovations. It does not promote agrobiodiversity conservation and informal innovations as such, other than to a very limited extent via the Plant Genome Savior Community Recognition Award by giving recognition to farmers engaged in the preservation of traditional varieties. (Kochupillai 2015)

It will be interesting to see how these different trends and developments evolve in coming years. Increased awareness of the legislation could lead farmers to assert their rights more forcefully. However, for the vast majority of small farmers, there are innumerable barriers to doing so. And while there has been a greater number of applications, some farmers are developing a more critical stance towards registration. For example, the recently created India Seed Sovereignty Alliance announced in March 2014 that it would not put its efforts, nor encourage anyone, to register with the PPV&FR Authority. This decision is based on a rejection of the IPR framework, as well as on the view that registration in itself, without active screening of patent applications, is not sufficient to prevent biopiracy (National Seed Savers Meet 2014).

## 5. Brazil: towards a stewardship approach?

By its own admission, Brazil has so far made little headway in implementing its obligations related to farmers' rights under the Seed Treaty. As Coradin and Sampaio (2011, 306)

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<sup>41</sup>Mrinalini Kochupillai, Senior Research Fellow, Max Planck Institute for Innovation & Competition, personal communication, 23 December 2015. See also Kochupillai (2014).

observe regarding the development of national policies for the realization of farmers' rights in Brazil:

Informal discussions which took place in 2009/2010 have shown that it will not be a simple task to implement such policies because of the many stakeholders involved and the different views and concerns expressed by each group of participants. Brazil will continue to make its best efforts to discuss and implement these rights.

A report published in 2009 by Embrapa and the Ministry of Agriculture states that 'Brazil has not yet passed specific legislation regulating farmers' rights, which [ ... ] stem from the recent (2006) ratification by Brazil of the International Treaty on Plant Genetic Resources for Food and Agriculture' (Embrapa and MAPA 2009, 123). Brazil implemented the CBD ABS provisions through Provisional Measure MP 2.186/2011. However, it is yet to address provisions related to farmers' rights in the CBD and Seed Treaty.

With the exception of government programs such as PNAPO, still in its incipient stage, initiatives to defend and promote farmers' rights have mostly stemmed from farmers' movements and civil society organizations. As Fernandes remarked back in 2007:

The concept of 'farmers' rights', as understood in various international forums [ ... ] is clearly expressed in [Brazilian peasant organizations'] understanding that seeds constitute simultaneously material and economic goods, as well as cultural goods that are part of farmers' common heritage and a condition of their very existence. (2007, 2, my translation)

Indeed, the realization of farmers' rights in Brazil has clearly been a grassroots rather than a top-down process, and many of the initiatives that now fall under this heading predate the farmers' rights debate. Brazil has a strong experience of grassroots initiatives in the area of participatory breeding, community seed banks, seed fairs and farmers' cooperatives for the production of seeds (De Boef et al. 2007). Since the creation of the National Articulation of Agroecology (ANA),<sup>42</sup> in 2002, initiatives for the preservation of biodiversity and farmer-selected seeds have come under the umbrella of its working group on biodiversity, whose task is to 'identify, promote and better articulate the various national initiatives in the field and ensure farmers' right to the free use of agricultural biodiversity' (ANA 2007).<sup>43</sup>

Civil society organizations have played a key role in monitoring bills and policies that impact farmers' rights. For example, in the discussions leading to the adoption of the revised Seed Act, a significant advance in the realization of farmers' rights was achieved with the inclusion, at the initiative of civil society organizations, of local, traditional and creole cultivars. With the development of commercial seed breeding, farmer-selected varieties had been marginalized, to such an extent that they were no longer even considered seeds, under the legislation, but 'grains'. This was made possible by redefining a cultivar as being distinct, uniform and stable in its characteristics. Farmer-selected varieties, by contrast, are genetically unstable, which is precisely what makes them highly adapted to

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<sup>42</sup>ANA is a horizontal and decentralized network of civil society organizations involved in concrete experiences promoting agroecology, family farming and sustainable rural development. See ANA (n.d.).

<sup>43</sup>There is no exhaustive compilation of grassroots initiatives. A sample of community initiatives for the local production, use and conservation of biodiversity, compiled by ANA for its second National Agroecology Meeting, in June 2006, identified 212 experiences nationally (Fernandes 2007, 3). On the issue of seeds specifically, it listed 47 initiatives in 14 states, involving 10,000 families and 51 species (Santilli 2009, 327–9).

specific soils and cultivation systems. Beyond its symbolic importance, the recognition of local, traditional and creole cultivars gave farmers access to rural credit and crop insurance.

In order to implement access to crop insurance, the government established a national registry of entities working to recover, manage and preserve farmers' varieties (MDA 2006). Importantly, inscription in the national registry does not confer property rights (Santilli 2009, 164). Indeed, farmers' rights activists in Brazil have been steadfast in opposing an ownership approach to farmers' rights, and even this limited form of registry is controversial among small farmers' organizations. While some organizations support it, many do not, out of concern over the private appropriation of farmers' varieties. As a result, only 59 varieties and 38 organizations have been registered so far, and the registry is at a standstill.<sup>44</sup>

This political awareness and position on the issue of ownership has developed in the course of the last decade. As one farmer's rights activist puts it,

There is no need for registration; there should be no registry, no property rights. I think that this is increasingly clear. This is something that has developed in the last decade. During that period, the movement in defence of agroecology and family agriculture has matured, and along with it the idea that this is not in our interest. Registration really only serves to limit our possibilities; it is used to create restrictions, to prohibit rather than to allow. This is not unanimous, but it is really the prevailing view now.<sup>45</sup>

This position is reiterated in public declarations and documents, as for example in the final political statement of the regional seed and biodiversity fair held in the state of Paraná in 2014:

We are determined to continue to fight for policies and public programs [ ... ] that promote the conservation of agrobiodiversity, its *free use and circulation*. For this reason, we take a firm stance *against any type of registry or regulation* that limits the diversity and permanent evolution of genetic resources conserved and adapted by peasant families. (Declaração Política 2014, translation and emphases are mine)

As another farmers' rights activist observes, in the absence of progressive legislation, Brazilian activists have developed grassroots initiatives in the 'legal gaps' available to them, all the while fighting regressive bills and policies.<sup>46</sup> For example, when the decree implementing the Seed Act was passed, it introduced restrictions on the circulation of seeds that were not present in the Seed Act itself (República Federativa do Brasil 2004, Art. 4.3). Indeed, according to the Seed Act (Art. 8.3), family farmers, land reform settlers and Indigenous people who multiply seeds or seedlings for distribution, exchange or commercialization among themselves are exempt from inscription in RENASEM. However, the decree restricted this right to 'organizations formed exclusively of family farmers, land reform settlers and Indigenous people who multiply seeds and seedlings from local, traditional or creole cultivars for distribution to their members'. Farmers' rights activists denounced this provision as illegal since a decree is meant to implement the law and cannot modify its content (Santilli 2009, 448).<sup>47</sup> They won their case eight years later, when the decree

<sup>44</sup>Carolina Starr, Ministry of Agrarian Development, personal communication, 25 November 2014.

<sup>45</sup>Flavia Londres, ANA, interview with the author, Rio de Janeiro, 21 March 2014.

<sup>46</sup>Gabriel Fernandes, AS-PTA, interview with the author, Rio de Janeiro, 10 March 2014.

<sup>47</sup>The Brazilian legislation requires a regulatory decree signed by the President in order for a law to become effective. Although a decree cannot change the principles of the law adopted by the National Congress, it can create bureaucratic stumbling blocks that may impact its effectiveness.



implementing the PNAPO amended the regulatory decree of the Seed Act to revert to the original wording of the Act (República Federativa do Brasil 2012, Art.12). These examples lend weight to a deeper critique of the Seed Act: instead of providing limited exceptions for local and traditional seed systems, the Seed Act should be limited to the regulation of formal seed systems. Local and traditional seed systems should not be forced to conform to alien criteria and should be left outside the scope of the Seed Act (Santilli 2009, 449).

With legislation geared to the interests of the commercial seed sector, those working with farmer-selected varieties face tremendous difficulties. Bionatur, for example, is the Landless Rural Workers Movement (MST)'s main initiative in the area of seed production and agricultural biodiversity. Since 1997, Bionatur has worked with farmers to produce commercial seeds that are adapted to agroecological production systems. The Seed Act establishes that certified seeds (C1 and C2) can only give way to two generations (S1 and S2), after which certified seed producers must return to the owner of genetic material to purchase basic seeds. The justification behind this requirement is that seeds lose 'purity' in the fields and that seed producers must therefore return regularly to the original material. Bionatur, however, argues that the seeds they obtain after several production cycles are better adapted to the agroecological production system. This is another illustration of the disconnect between commercial seed systems and regulations, on the one hand, and agroecological principles and practices, on the other hand. The immediate consequence of this legal requirement is to make Bionatur's work virtually impossible. Indeed, by the time Bionatur has adapted a seed to an agroecological production system, it must start the process all over again.<sup>48</sup>

The launching, in October 2013, of a National Plan for Agroecology and Organic Production (PLANAPO) by the Brazilian government was well received by farmers' organizations and the agroecology movement. Over three years (2013–2015), the government will invest R\$8800 million (USD 3400 million) in support of sustainable rural development and organic crops (CIAPO 2013). This is the first significant public investment in agroecology, and represents an endorsement of the work done over the last three decades by rural movements, NGOs and, more recently, ANA. With regards to seeds, PLANAPO aims to promote agrobiodiversity and the products of socio-biodiversity, and to support local experiences for the use, conservation and management of plant genetic resources. Through the Food Acquisition Program,<sup>49</sup> R150 million (USD 58 million) will be spent on the procurement and distribution of plant and animal genetic resources, including seeds.<sup>50</sup> An additional R17.1 million (USD 6.6 million) will be spent on infrastructure for community seed banks. Depending on how it is implemented, PLANAPO could mark a shift to a political context more conducive to the realization of farmers' rights. Despite this breakthrough, agribusiness remains highly influential in Brazilian politics, and agrobiodiversity is increasingly under pressure due to the expansion of transgenic crops and the massive use of agrochemicals.<sup>51</sup>

<sup>48</sup>Vladimir Moreira, Bionatur, interview with the author, Bagé, Rio Grande do Sul, 8 November 2007. For a recent discussion of Bionatur's experience, see AS-PTA (2014, 33–8).

<sup>49</sup>Introduced during the first mandate of President Lula da Silva (2003–2007) as part of its Zero Hunger Program, the Food Acquisition Program (PAA, in Portuguese) aims to provide consumption subsidies to people suffering from food insecurity by sourcing food from family farmers.

<sup>50</sup>The plan lists four categories of seeds: creole (local or farmer-selected), varietal (non-hybrid), organic and agroecological.

<sup>51</sup>Brazil is globally the second largest producer of transgenic crops and the largest consumer of pesticides (James 2014; INCA 2015).

Brazilian farmers' rights activists have pursued a dual strategy: they have fought to exempt farmers' varieties from IPR – in line with stewardship principles – while demanding public policies in support of farmers' seed systems. They have had some measure of success, notably the recognition of farmers' varieties and the PLANAPO. However, as we will see in the next section, a number of policies and bills were introduced during the same period that run contrary to the realization of farmers' rights.

## 6. Fragile gains: farmers' rights under pressure

In both Brazil and India, the inclusion of farmers' rights provisions in the legislation was the direct result of civil society mobilization, and these provisions have been under pressure ever since.<sup>52</sup> As Fernandes (2007, 4) observes in the Brazilian context, 'if, on the one hand, the sustainable use of creole seeds and the exercise of farmers' right to freely use seeds stem mostly from civil society initiatives, on the other hand, initiatives that restrict these rights and threaten the free use of seeds stem mostly from agribusiness and the State.' Vanaja Ramprasad, of the GREEN Foundation, echoes this analysis in the Indian context: 'the greatest challenge is to educate the politicians and administrators about legislations that undo the rights hitherto enjoyed by the farming community' (quoted in Andersen 2005b, 59).

In 2004, a draft Seeds Bill was introduced to replace the 1966 Indian Seeds Act (GoI 2004). The stated goal of the bill was to create a regulatory environment conducive to the growth of the seed industry, and it was in many ways at odds with the PPV&FR Act. The bill did not distinguish between a seed company and a farmer who barter seeds with his neighbor, and made the registration of varieties mandatory. It gave seed inspectors extensive search powers, and stipulated fines for the exchange and barter of unregistered seeds. Many safeguards for farmers' rights in the PPV&FR Act were not included in the Seeds Bill 2004, which did not provide for innocent infringement, for benefit-sharing in cases where farmers' varieties are being used in the development of commercial cultivars, or for redress in case of spurious seeds (Zaidi 2005; GRAIN 2005a). The bill met with an outcry, and a list of amendments was introduced in 2010 following the recommendations of a Standing Committee on Agriculture (PRS 2010).<sup>53</sup> The bill has not yet been passed and, in September 2015, the government announced that it would put the bill on hold, reportedly due to fear that it would be portrayed as anti-farmer (Land law not the only rollback: Seeds Bill put on hold over 'GM' clause 2015).

In Brazil, several bills have been introduced in recent years to bring plant variety protection legislation into line with UPOV 1991 (ISA 2007, ISA 2008). This move, however, is controversial: eight years after it was introduced in Congress, the first bill (Bill 2325/2007)

<sup>52</sup>In this section, I discuss in more detail the bills that are the most directly relevant to farmers' rights, specifically the Seeds Bill, 2004, in India, and in Brazil, bills aimed at amending the Plant Variety Protection Act and a bill aimed at implementing the Seed Treaty. However, a number of other bills under discussion also have implications for farmers' rights, including the Biotechnology Regulatory Authority of India (BRAI) Bill, and a bill aimed at amending the Brazilian Biosafety Act to lift the ban on GURTs.

<sup>53</sup>The Standing Committee on Agriculture recommended (1) deleting the requirement for farmers to conform to the prescribed minimum limits of germination, physical purity and genetic purity; (2) expanding the definition of a farmer (who is exempted from compulsory registration of seeds) to include any person who conserves or adds value to traditional varieties; and (3) setting up a Compensation Committee where farmers can claim compensation if seeds fail to perform to expected standards.

has still not been passed (Câmara dos Deputados 2007). Farmers' rights advocates oppose UPOV 1991 for a variety of reasons, foremost because it severely restricts the right to save seeds. Seed saving becomes an 'optional exemption' for countries; it is restricted to farmers' own use; and must 'safeguard the legitimate interests of the breeder', which means that large farmers, for example, could have to pay royalties to breeders to save seeds for their own use. UPOV 1991 allows the patenting of plant varieties in addition to plant breeders' rights. It also extends breeders' rights to harvested material, which means that a breeder could, for example, claim the unauthorized use of protected seeds to seize harvested materials (Helfer 2004, 21–32). UPOV 1991 also raises opposition among public breeders, who are concerned that the more limited breeders' exemption available under UPOV 1991 will create additional barriers for research and increase the costs of plant breeding.<sup>54</sup>

A new bill, introduced in May 2015, is now likely to replace Bill 2325/2007 (Câmara dos Deputados 2015). Bill 827/2015 extends the protection granted to plant breeders to the products of the harvest resulting from the use of protected seeds. It imposes much stricter judicial sanctions, including detention, for the infringement of breeders' rights. It recognizes farmers' rights to save seeds for replanting, but under strict conditions: a certain amount of seeds is allowed for planting exclusively on their own property and for the next crop. It is too early to know how this bill will be received. It is backed by the influential agribusiness lobby in Congress, but could face some opposition from large farmers.<sup>55</sup> While large farmers were supportive of the introduction of plant variety protection in the 1990s, they feel that, with the proposed amendments, the protection granted to breeders goes too far and may be detrimental to their interests.<sup>56</sup> They look askance, in particular, at the prohibition of the practice of saving seeds for replanting on one's own property, a common practice among large soybean producers.<sup>57</sup>

The Brazilian Executive is also preparing a bill aimed at regulating the Seed Treaty, with input from the Ministry of Agriculture (Terra de Direitos 2014, 9).<sup>58</sup> This bill raises important concerns with regards to farmers' rights. Particularly controversial is the provision giving authority over the management of agrobiodiversity to the Ministry of Agriculture, which represents the interests of agribusiness and large landowners.<sup>59</sup> The draft also proposes a very limited definition of farmers' rights. These rights are restricted to so-called 'traditional farmers', as opposed to all farmers. Moreover, farmers' rights are restricted to

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<sup>54</sup>Under the 1978 Act, the breeders' exemption is mandatory and allows breeders to freely use a protected variety to develop a new variety. Under the 1991 Act, in contrast, the breeding and exploitation of a new variety 'essentially derived' from an earlier variety requires the rights holder's permission. Since there is no agreement as to what represents an essentially derived variety, this caveat opens the door to potential abuse of breeders' rights. Carolina Starr, Ministry of Agrarian Development, interview with the author, Brasília, 20 March 2014. Despite the fact that neither Brazil nor India is a member of UPOV 1991, they have incorporated the concept of essentially derived varieties into their plant variety legislation.

<sup>55</sup>Gabriel Fernandes, AS-PTA, interview with the author, Rio de Janeiro, 10 March 2014.

<sup>56</sup>On the rift between agribusiness and large farmers in Brazil, see Peschard (2014a).

<sup>57</sup>For an example of that line of argument among large farmers, see Silveira (2013).

<sup>58</sup>The following discussion is based on a draft version of the bill. The final version has not yet been introduced in Congress.

<sup>59</sup>Civil society organizations will staunchly oppose this provision, especially given the nomination, in January 2015, of Katia Abreu, leader of the agribusiness lobby in Congress, as Minister of Agriculture. A staunch supporter of agribusiness and of 'growth at all costs', Katia Abreu is known, among other things, for supporting a weakening of the forest code and attempting to lift the ban on GURTs (popularly known as Terminator).

the traditional knowledge associated with local and creole varieties and races, and not to the varieties and races themselves. Another controversial clause is the creation of a registry of traditional, local and creole varieties, and of their maintainers. As mentioned earlier, there is strong opposition in Brazil to the creation of this kind of registry, especially in the hands of the Ministry of Agriculture. The draft is also vague with regard to civil society participation. It states that the Ministry of Agriculture ‘may count’ with the participation of civil society, according to modalities to be defined in the regulatory decree (Art. 4.1). Farmers’ participation in decisions concerning plant genetic resources for food and agriculture, however, is a right established in the Seed Treaty (FAO 2001, Art. 9.2c).<sup>60</sup> It should therefore not be left to the regulatory decree and should be clearly established in the Act. Finally, provisions pertaining to ABS are weak.<sup>61</sup> For example, the user of a genetic resource can unilaterally decide how to fulfill its benefit-sharing obligations. This is contrary to the spirit of the CBD, based on mutual consent between provider and user.

These bills reflect sustained pressure on Brazil and India to strengthen plant variety protection and bring their legislation into line with the IPR regime promoted by UPOV. From UPOV’s perspective, Brazil and India are upsetting exceptions. India is the only large commercial power that is not a member of UPOV. As for Brazil, it is a member of UPOV 1978 and has resisted so far joining the more stringent 1991 Convention (most states are now parties to UPOV 1991).<sup>62</sup> As we have seen, UPOV 1991 introduces restrictions to the breeders’ and farmers’ exemptions that run contrary to the Seed Treaty provisions on farmers’ rights.<sup>63</sup> In India, the process of joining UPOV was brought to a halt when the NGO Gene Campaign filed a public interest litigation challenging the government’s decision on the grounds that India was under no obligation to join UPOV, and that doing so would constitute a violation of its own legislation (the PPV&FR Act and the Constitution) as well as of the CBD and Seed Treaty, of which India is a signatory (Gene Campaign 2003). Brazil is unlikely to join UPOV 1991 in the near future since, as we have seen, plant breeders and large farmers have reservations about the impact these changes would have on their work and livelihoods.

## 7. Conclusion: what future for farmers’ rights?

Brazil and India have taken different routes to the implementation of farmers’ rights. Under pressure from civil society, India addressed farmers’ rights directly, early on in the debate, in a comprehensive piece of legislation on the protection of plant varieties. The result was legislation guaranteeing farmers substantial rights, but within a

<sup>60</sup>On farmers’ right to participation in decision-making, see FAO Resolutions 6/2011 and 8/2013 (FAO 2011, FAO 2013).

<sup>61</sup>The bill establishes a *voluntary* contribution to a Federal Agricultural Fund, set at a *maximum* of 0.7 percent of revenues made by the exploitation of the genetic resource. The user can also fulfill its benefit-sharing obligations through a choice of non-monetary options. Finally, the granting of IPR on genetic resources is only conditional on inscription in the registry of the Ministry of Agriculture, without any due authorization process.

<sup>62</sup>As of April 2015, 52 countries out of 72 are members of UPOV 1991 (UPOV n.d.). In addition to Brazil, the other major exceptions are China and South Africa.

<sup>63</sup>A formal process is underway at UPOV, the World Intellectual Property Organization (WIPO) and the CBD to identify and address existing incompatibilities between the implementation of UPOV 1991 and the Seed Treaty, in particular with regard to farmers’ rights. While it is not the case of Brazil and India, many countries, including the European Union, have ratified both UPOV 1991 and the Seed Treaty.

conventional IPR framework – the so-called ownership approach. In contrast, Brazil has not yet fully integrated farmers' rights. These rights have been addressed in a piecemeal fashion through a number of provisions in the plant variety protection and seed legislation. In line with stewardship principles, most Brazilian farmers' organizations and farmers' rights activists oppose the introduction of any type of property rights on farmers' varieties, as well as the creation of centralized registries of information on farmers' varieties.

There is some basis for the claim that India's farmers rights legislation is progressive. After all, India was one of the first countries to openly and explicitly address farmers' rights in its legislation. The rights granted under the PPV&FR Act are extensive and include innovative provisions such as the right to compensation in cases of crop failure and the right to protection from innocent infringement. The formal recognition of the right 'to save, use, sow, re-sow, exchange, share or sell seeds, including from protected varieties, as well as harvested materials' is a remarkable achievement: no other country in the world recognizes this right so unambiguously. Brazil, on the other hand, does not lend itself to sweeping statements for the simple reason that it does not have a consolidated farmers' rights legislation. Farmers' rights activists have fought for and obtained important provisions in the legislation, but these remain exceptions subordinated to the rights of commercial breeders.

However, when one looks beyond how farmers' rights are protected on paper, a different picture emerges. Over a decade after the PPV&FR Act was passed into law, it has not had a significant impact on farmers' rights or the preservation of agrobiodiversity.<sup>64</sup> Farmers have the right to register their varieties in the same way as breeders. However, in practice, they face an uneven playing field in which farmers' varieties enter a system developed to meet the different needs and criteria of the commercial seed sector. This bias – evidenced in the application of DUS criteria to farmers' varieties, or the fact that farmers' varieties with commercial potential are more likely to be registered – ultimately contradicts the objective of promoting and preserving agrobiodiversity. At the same time, benefit-sharing has gone unheeded, largely due to its voluntary nature. For these reasons, the approach adopted by Brazilian farmers' rights activists, which consists in opposing the imposition of IPR on farmers' varieties, while at the same time demanding public programs that support farmers' seed systems, may offer a more promising avenue for the realization of farmers' rights over plant genetic resources.

Beyond these differences, farmers' rights in Brazil and India are facing similar pressures from the global trend toward the privatization of genetic resources and the strengthening of IPR regimes. The numerous bilateral and regional trade and investment agreements being negotiated in an effort to bypass the deadlock in multilateral negotiation at the WTO are of particular concern: IPR on plant genetic resources ranks high on the agenda of these trade agreements, and many go beyond the 'minimum standards' for intellectual property protection set in the TRIPS Agreement. If the conflicting politics of plant genetic resources and the lack of a clear political will to implement farmers' rights are any indication, the realization of these rights in the coming years will continue to depend on the mobilization and vigilance of farmers' organizations and farmers' rights activists.

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<sup>64</sup>This finding supports the emerging consensus that the stewardship approach is more conducive to the realization of farmers' rights, one of the main findings of the Farmers' Rights Project. See Andersen (2006, 4–5).

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## ORCID

Karine Peschard  <http://orcid.org/0000-0002-6941-6501>

## References

- ANA (Articulação Nacional de Agroecologia). 2007. Semente crioula é legal: a nova legislação brasileira de sementes e mudas. <http://www.fca.unesp.br/Home/Extensao/GrupoTimbo/semencecrioula02.pdf> [accessed May 5, 2015].
- ANA (Articulação Nacional de Agroecologia). n.d. <http://www.agroecologia.org.br> [accessed May 5, 2015].
- Andersen, R. 2005a. *The history of farmers' rights: A guide to central documents and literature*. Lysaker, Norway: The Fridtjof Nansen Institute.
- Andersen, R. 2005b. *Results from an international stakeholder survey on farmers' rights*. Lysaker, Norway: The Fridtjof Nansen Institute.
- Andersen, R. 2006. *Realizing farmers' rights under the international treaty on plant genetic resources for food and agriculture. Summary of findings from the farmers' rights project, Phase 1*. Lysaker, Norway: The Fridtjof Nansen Institute.
- Andersen, R., and T. Winge. 2013. *Realizing farmers' rights to crop genetic resources: Success stories and best practices*. Abingdon, UK: Routledge.
- Aoki, K. 2008. *Seed wars: Controversies and cases on plant genetic resources and intellectual property*. Durham, NC: Carolina Academic Press.
- Araújo, J.C. 2010. *A Lei de Proteção de Cultivares: análise de sua formulação e conteúdo*. Brasília: Câmara dos Deputados, Edições Câmara.
- AS-PTA. 2014. Sementes da diversidade: a identidade e o futuro da agricultura familiar. *Revista Agrícolas: experiências em agroecologia* 2, no. 1: 1–55.
- Barcellos, S.B. 2012. A política nacional de agroecologia (PNAPO) em reflexão: provocações, possibilidades e desafios. [https://www.academia.edu/2104595/a\\_politica\\_nacional\\_de\\_agroecologia\\_pnapo\\_em\\_reflexao\\_provocacoes\\_possibilidades\\_e\\_desafios](https://www.academia.edu/2104595/a_politica_nacional_de_agroecologia_pnapo_em_reflexao_provocacoes_possibilidades_e_desafios) [accessed June 2, 2015].
- Bavadam, L. 2011. Bitter harvest. *Frontline* 28, no. 2. <http://www.frontline.in/static/html/fl2802/stories/20110128280203700.htm> [accessed May 27, 2016].
- Bhutani, S. 2015a. Seed Sovereignty. *Economic and Political Weekly* Vol. L, no. 21: 4.
- Bhutani, S. 2015b. Pay up, or give up your IP! *India Together*. <http://indiatogether.org/plant-variety-protection-law-and-seed-ip-costs-for-farmers-agriculture> [accessed April 8, 2015].
- Borowiak, C. 2004. Farmers' rights: Intellectual property regimes and the struggle over seeds. *Politics & Society* 32, no. 4: 511–43.

- Brush, S.B. 2000. *Genes in the field: On-farm conservation of crop diversity*. Rome: International Plant Genetic Resources Institute.
- Câmara dos Deputados. 2007. Projeto de Lei 2325/2007. <http://www.camara.gov.br/proposicoesWeb/fichadetramitacao?idProposicao=374861> [accessed May 5, 2015].
- Câmara dos Deputados. 2015. Projeto de Lei 827/2015. <http://www.camara.gov.br/proposicoesWeb/fichadetramitacao?idProposicao=1049258> [accessed May 27, 2015].
- Campaign for Community Control Over Biodiversity. 2007. Registration or reward for ‘Genome Saviours’ does not mean protection of farmers’ interests. <http://www.ddsindia.com/www/farmersalert.htm> [accessed May 5, 2015].
- CBD (Convention on Biological Diversity). n.d[1]. Brazil – Country profile. <https://www.cbd.int/countries/?country=br> [accessed September 16, 2015].
- CBD (Convention on Biological Diversity). n.d[2]. India – Country profile. <https://www.cbd.int/countries/?country=in> [accessed September 16, 2015].
- CIAPO (Câmara Interministerial de Agroecologia e Produção Orgânica). 2013. *Plano Nacional de Agroecologia e Produção Orgânica–PLANAPO*. Brasília, DF: MDS; CIAPO.
- Claeys, P. 2015. *Human rights and the food sovereignty movement. Reclaiming control*. London and New York: Routledge.
- Cohen, M.J., and A. Ramanna. 2007. Public access to seeds and the human right to adequate food. In *Global obligations for the human right to food*, ed. G. Kent, 161–90. Maryland: Rowman and Littlefield.
- Coradin, L., and M.J.A. Sampaio. 2011. Annex 4. Country case-study: Brazil—actions and reactions to the international treaty on plant genetic resources for food and agriculture. In *Plant genetic resources and food security*, eds. C. Frison, F. López and J.T. Esquinas-Alcázar, 303–08. New York: FAO, Bioversity International and Earthscan.
- De Boef, W.S., M.H. Thijssen, J.B. Ogluari, and B.R. Sthapit. 2007. *Biodiversidades e agricultores: Fortalecendo o manejo comunitário*. Porto Alegre, RS: L&PM.
- Declaração Política. 2014. 12ª Feira Regional de Sementes e da Biodiversidade. Rio Azul, Paraná, 7 de setembro de 2014.
- Delgado, A., and I. Rodrigues-Giralt. 2014. Creole interferences: A conflict over biodiversity and ownership in the South of Brazil. In *Beyond imported magic*, eds. E. Medina, I. da Costa Marques, and C. Holmes, 331–48. Boston: MIT Press.
- Edelman, M., and C. James. 2011. Peasants’ rights and the UN system: Quixotic struggle? Or emancipatory idea whose time has come? *Journal of Peasant Studies* 38, no. 1: 81–108.
- Embrapa and MAPA. 2009. *State of the Brazil’s plant genetic resources. Second national report*. Brasília, DF: EMBRAPA & Ministério da Agricultura, Pecuária e Abastecimento.
- Embrapa Recursos Genéticos e Biotecnologia. n.d. <https://www.embrapa.br/recursos-geneticos-e-biotecnologia> [accessed May 5, 2015].
- Ex parte Hibberd*, 227 U.S.P.Q. 443 (PTO Bd. App. & Int.) (1985).
- Ewens, L.E. 2000. Seed wars: Biotechnology, intellectual property and the quest for high yield seeds. *Boston College International & Comparative Law Review* 23: 285–310.
- FAO (Food and Agriculture Organization). 2001. International Treaty on Plant Genetic Resources for Food and Agriculture. Rome, November 3.
- FAO (Food and Agriculture Organization). 2011. Resolution 6/2011. Implementation of Article 9, Farmers’ Rights. Bali, Indonesia, March 14–18.
- FAO (Food and Agriculture Organization). 2013. Resolution 8/2013. Implementation of Article 9, Farmers’ Rights. Muscat, Oman, September 24–28.
- Farmers’ Rights Project. n.d. Best Practices: India’s Protection of Plant Varieties and Farmers’ Rights Act. [http://www.farmersrights.org/bestpractices/success\\_seed\\_1.html](http://www.farmersrights.org/bestpractices/success_seed_1.html) [accessed September 11, 2015].
- Fernandes, G.B. 2007. *Os direitos dos agricultores no contexto do Tratado de Recursos Fitogenéticos da FAO: o debate no Brasil*. Rio de Janeiro: AS-PTA. <http://aspta.org.br/wp-content/uploads/2011/05/Os-direitos-dos-agricultores-no-contexto-do-tratado-de-Recursos-Fitogeneticos-da-FAO.pdf> [accessed May 5, 2015].
- Gautam, P.L., A.K. Singh, M. Srivastava, and P.K. Singh. 2012. Protection of plant varieties and farmers’ rights: A review. *Indian Journal of Plant Genetic Resources* 25, no. 1: 9–29.
- Gene Campaign. 2003. *Oppose UPOV! Save farmers! Gene Campaign’s legal action against Indian government*. New Delhi: Gene Campaign.

- Ghose, J.R. 2004. Saving seeds or saving face? Seed acquisition mechanisms among Farmers in Jharkhand, India and sui generis Protection. <http://ranaghose.com/research/sssrf.pdf> [accessed May 5, 2015].
- GoI–Government of India. 2001. The Protection of Plant Varieties and Farmers’ Rights Act, 2001. Act No. 53.
- GoI–Government of India. 2004. Seeds Bill, 2004.
- GoI–Government of India. 2009. The Gazette of India Extraordinary. Part II, Section 3, Sub-section (i). G.S.R. 452 (E). June 30.
- Golay, C. 2013. Legal reflections on the rights of peasants and other people working in rural areas. Background paper. Prepared for the first session of the working group on the rights of peasants and other people working in rural areas (July 15–19, 2013). <http://www.ohchr.org/Documents/HRBodies/HRCouncil/WGPeasants/Golay.pdf> [accessed May 5, 2015].
- Golay, C. 2015. Negotiation of a United Nations Declaration on the rights of peasants and other people working in rural areas. Academy in-brief no.5. Geneva Academy of International Humanitarian Law and Human Rights, January.
- GRAIN (with D. Sharma). 2005a. India’s new seed bill. *Seedling* July: 22–7.
- GRAIN. 2005b. Seed laws: Imposing agricultural apartheid. *Seedling* July: 1–3.
- Green Foundation. 2013. Farmers’ rights: A top-down or bottom-up approach? Submission sent by contracting parties, other governments, and relevant institutions and organizations on the implementation of article 6. [http://www.planttreaty.org/sites/default/files/Submission\\_GREEN%20Foundation.pdf](http://www.planttreaty.org/sites/default/files/Submission_GREEN%20Foundation.pdf) [accessed May 5, 2015].
- Halewood, M., I. López Noriega, and S. Louafi. 2013. *Crop genetic resources as a global commons. Challenges in international law and governance*. New York/London: Routledge.
- Heisey, P.W., C.S. Srinivasan and C. Thirtle. 2001. *Public Sector Plant Breeding in a Privatizing World*. Agricultural Information Bulletin No. 772. Washington, D.C.: Economic Research Service, U.S. Department of Agriculture.
- Helfer, L.R. 2004. *Intellectual property rights in plant varieties. International legal regimes and policy options for national governments*. FAO legislative study 85. Rome: FAO.
- INCA (Instituto Nacional de Câncer). 2015. Posicionamento do Instituto Nacional de Câncer José Alencar Gomes da Silva acerca dos agrotóxicos. [http://www1.inca.gov.br/inca/Arquivos/comunicacao/posicionamento\\_do\\_inca\\_sobre\\_os\\_agrotoxicos\\_06\\_abr\\_15.pdf](http://www1.inca.gov.br/inca/Arquivos/comunicacao/posicionamento_do_inca_sobre_os_agrotoxicos_06_abr_15.pdf) [accessed June 2, 2015].
- ISA (Instituto Socioambiental). 2007. Lobby no Congresso quer restringir o direito de agricultores guardarem sementes. 8 August. <http://www.socioambiental.org/pt-br/print/blog/blog-do-isa/lobby-no-congresso-quer-restringir-o-direito-de-agricultores-guardarem-sementes> [accessed May 5, 2015].
- ISA (Instituto Socioambiental). 2008. Proposta de alteração da Lei de Cultivares ameaça reduzir direitos de agricultores. <http://site-antigo.socioambiental.org/nsa/detalhe?id=2699> [accessed May 5, 2015].
- James, C. 2014. *Global status of commercialized Biotech/GM Crops: 2014*. ISAAA Brief No. 49. Ithaca, NY: ISAAA.
- Kloppenborg, J. 2004 [1988]. *First the seed: The political economy of plant biotechnology, 1492–2000*. Madison: The University of Wisconsin Press.
- Kloppenborg, J., and D.L. Kleinman. 1987. Seed wars: Common heritage, private property, and political strategy. *Socialist Review* 95: 7–41.
- Kochupillai, M. 2011. India’s plant variety protection law: Historical and implementation perspectives. *Journal of Intellectual Property Rights* 16, no. 2: 88–101.
- Kochupillai, M. 2014. Promoting sustainable innovations in plant varieties. PhD diss., Ludwig Maximilian University.
- Kochupillai, M. 2015. Is UPOV 1991 a good fit for developing countries? Re-thinking ‘market failure’ & ‘public goods theory’ in the plant breeding sector. The innovation society and intellectual property. 16th EIPIN Congress, Munich, 9–11 April.
- Koonan, S. 2014. India’s sui generis system of plant variety protection. IELRC Briefing Paper 2014–01.
- Land law not the only rollback: Seeds Bill put on hold over ‘GM’ clause. 2015. The Indian Express, September 3. <http://indianexpress.com/article/india/india-others/land-law-not-the-only-rollback-seeds-bill-put-on-hold-over-gm-clause/> [accessed January 27, 2016].
- La Via Campesina and GRAIN. 2015. Seed laws that criminalize farmers: Resistance and fightback. April 8. <http://www.grain.org/e/5142> [accessed May 5, 2015].



- Londres, F. 2006. A nova legislação de sementes e mudas no Brasil e seus impactos sobre a agricultura familiar. [http://www.redsemillas.info/wp-content/uploads/2007/02/legislacao-sementes-e-mudas\\_br.pdf](http://www.redsemillas.info/wp-content/uploads/2007/02/legislacao-sementes-e-mudas_br.pdf) [accessed May 5, 2015].
- McKinney, K. 2013. Troubling notions of farmer choice: Hybrid Bt cotton seed production in western India. *Journal of Peasant Studies* 40, no. 2: 351–78.
- MDA (Ministério do Desenvolvimento Agrário). 2006. Portaria 58/06, de 18 de julho.
- MDA (Ministério do Desenvolvimento Agrário). 2008. *Mais Alimentos. Um plano da agricultura familiar para o Brasil. Plano Safra da Agricultura Familiar 2008/09*. Brasília: MDA.
- Mooney, P. 2011. International non-governmental organizations. The hundred year (or so) seed war – Seeds, sovereignty and civil society – A historical perspective on the evolution of ‘The law of the seed’. In *Plant genetic resources and food security*, eds. C. Frison, F. López and J.T. Esquinas-Alcázar, 135–48. New York: FAO, Bioversity International and Earthscan.
- MS Swaminathan Research Foundation. n.d. Origin of farmers’ rights. <https://www.mssrfcabc.res.in/news-room/cabc-news/new-page-2/> [accessed September 11, 2015].
- Müller, A.R., and R. Patel. 2004. *Shining India? Economic liberalization and rural poverty in the 1990s. Policy Brief No. 10*. Oakland: Food First/Institute for Food and Development Policy.
- National Seed Savers Meet. 2014. <http://ofai.org/wp-content/uploads/2012/12/NSSM-2014.pdf> [accessed December 21, 2015].
- NBPGR (National Bureau of Plant Genetic Resources). n.d. <http://www.nbgr.ernet.in> [accessed May 5, 2015].
- Paul, B. 1984. Third world battles for fruit of its seed stocks. *Wall Street Journal*. June 15: 1.
- Peschard, K. 2010. Biological dispossession: An ethnography of resistance to transgenic seeds among small farmers in Southern Brazil. PhD diss., McGill University.
- Peschard, K. 2014a. Turning of the tide: Rising discontent over transgenic crops in Brazil. In *The neo-liberal regime in the agri-food sector: Crisis, resilience and restructuring*, eds. S.A. Wolf and A. Bonanno, 170–90. New York: Routledge.
- Peschard, K. 2014b. Farmers’ rights and food sovereignty: Critical insights from India. *Journal of Peasant Studies* 41, no. 6: 1085–1108.
- PPV&FR Authority–Protection of Plant Varieties & Farmers’ Rights Authority. 2010. Annual report 2009–10. PPV&FR Authority, Department of Agriculture & Co-operation, Ministry of Agriculture, Government of India.
- PPV&FR Authority–Protection of Plant Varieties & Farmers’ Rights Authority. 2012. Annual report 2011–12. PPV&FR Authority, Department of Agriculture & Co-operation, Ministry of Agriculture, Government of India.
- PPV&FR Authority–Protection of Plant Varieties & Farmers’ Rights Authority. 2013a. Annual report 2012–13. PPV&FR Authority, Department of Agriculture & Co-operation, Ministry of Agriculture, Government of India.
- PPV&FR Authority–Protection of Plant Varieties & Farmers’ Rights Authority. 2013b. Plant Variety Journal of India 7(8), August 1.
- PPV&FR Authority–Protection of Plant Varieties & Farmers’ Rights Authority. 2014. Annual report 2013–14. PPV&FR Authority, Department of Agriculture & Co-operation, Ministry of Agriculture, Government of India.
- PPV&FR Authority–Protection of Plant Varieties & Farmers’ Rights Authority. 2015a. Status of the total applications received (crop wise). <http://www.plantauthority.gov.in> [accessed May 5, 2015].
- PPV&FR Authority–Protection of Plant Varieties & Farmers’ Rights Authority. 2015b. List of applications pending due to legal issues. Application status up to 1<sup>st</sup> May. <http://www.plantauthority.gov.in> [accessed May 5, 2015].
- PPV&FR Authority–Protection of Plant Varieties & Farmers’ Rights Authority. 2015c. List of registered varieties certificate issued up to 31.03.2015. <http://www.plantauthority.gov.in> [accessed May 5, 2015].
- PPV&FR Authority–Protection of Plant Varieties & Farmers’ Rights Authority. 2015d. List of 92 crop species notified for registration. <http://www.plantauthority.gov.in> [accessed May 5, 2015].
- Prajeesh, P. 2015. Farmers’ rights to seeds. Issues in Indian law. *Economic and Political Weekly* 1, no. 12: 16–8.
- PRS. 2010. Official amendments to the Seeds Bill, 2004. PRS Legislative Research. Centre for Policy Research. <http://www.prsindia.org/uploads/media/Note%20on%20official%20Amendments%20in%20Seeds%20Bill%202004.pdf> [accessed May 5, 2015].

- Randeria, S. 2007. The state of globalization. Legal plurality, overlapping sovereignties and ambiguous alliances between civil society and the cunning state in India. *Theory, Culture & Society* 24: 1–33.
- Rangnekar, D. 1998. Tripping in front of UPOV: plant variety protection in India. *Social Action* 48, no. 4: 432–51.
- Rangnekar, D. 2003. Plant breeding in an era of privatization: Reflections on transformations in the Indian seed industry. In *The knowledge economy in India*, eds. R. Frank-Jürgen and P. Banerjee, 130–48. Palgrave Macmillan: London.
- República Federativa do Brasil. 1997. Lei nº 9.456, de 25 de abril. Institui a Lei de Proteção de Cultivares e dá outras providências.
- República Federativa do Brasil. 2003. Lei nº 10.711, de 5 de agosto. Dispõe sobre o Sistema Nacional de Sementes e Mudanças e dá outras providências.
- República Federativa do Brasil. 2004. Decreto nº 5.153, de 23 de julho. Aprova o Regulamento da Lei nº 10.711, de 5 de agosto de 2003, que dispõe sobre o Sistema Nacional de Sementes e Mudanças-SNSM, e dá outras providências.
- República Federativa do Brasil. 2012. Decreto nº 7.794, de 20 de agosto. Institui a Política Nacional de Agroecologia e Produção Orgânica.
- Roy, D. 2014. To Bt or not to Bt? State, civil society, and firms debate GM seeds in democratic India. In *The neoliberal regime in the agri-food sector: Crisis, resilience and restructuring*, eds. S.A. Wolf and A. Bonanno, 153–69. New York: Routledge.
- Sahai, S. 2001. India: plant variety protection, farmers' rights bill adopted. Available from the author upon request.
- Sahai, S. n.d. Why India should have sui generis IPR protection on plant varieties. Available from the author upon request.
- Santilli, J. 2009. *Agrobiodiversidade e direitos dos agricultores*. São Paulo: Peirópolis & Instituto Internacional de Educação do Brasil.
- Santilli, J. 2012. *Agrobiodiversity and the law. Regulating genetic resources, food security and cultural diversity*. New York: Routledge.
- Seshia, S. 2002. Plant variety protection and farmers' rights: Law-making and cultivation of varietal control. *Economic and Political Weekly* 37: 2741–47.
- Shah, E. 2008. What makes crop biotechnology find its roots? The technological culture of Bt cotton in Gujarat, India. *The European Journal of Development Research* 20, no. 3: 432–47.
- Silveira, G. 2013. Semente salva, a quem interessa não permitir? Notícias Agrícolas. <http://www.noticiasagricolas.com.br/artigos/artigos-geral/128133-semente-salva-a-quem-interessa-nao-permitir.html#.VUhd3c7lcII> [accessed May 5, 2015].
- Stone, G.D. 2007. Agricultural Deskilling and the Spread of Genetically Modified Cotton in Warangal. *Current Anthropology* 48, no. 1: 67–103.
- Terra de Direitos. 2014. De onde brotam as sementes. Boletim informativo nº4. <http://terradedireitos.org.br/wp-content/uploads/2014/09/Setembro-2014.pdf> [accessed May 5, 2015].
- UNHRC. 2015. Draft UN declaration on the rights of peasants and other people working in rural areas. Advanced version, 27/01/15. <http://www.ohchr.org/EN/HRBodies/HRC/RuralAreas/Pages/2ndSession.aspx> [accessed October 19, 2015].
- UPOV. n.d. International union for the protection of new varieties of plants. <http://www.upov.int> [accessed May 5, 2015].
- Wilkinson, J., and P.G. Castelli. 2000. *A transnacionalização da indústria das sementes no Brasil: biotecnologias, patentes e biodiversidade*. Rio de Janeiro: ActionAid.
- Zaidi, A. 2005. Seeds of despair. *Frontline* 22, no. 16. <http://www.frontline.in/static/html/fl2216/stories/20050812001408800.htm> [accessed May 27, 2016]

**Karine Peschard** is a postdoctoral researcher at The Graduate Institute of International and Development Studies (IHEID), Geneva, and an associate researcher at the Centre for Social Sciences and Humanities (CSH), Delhi. She conducts research on farmers' rights, legal activism around plant genetic resources and Open Source seeds, with a comparative focus on Brazil and India. Email: [karine.peschard@mail.mcgill.ca](mailto:karine.peschard@mail.mcgill.ca)