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GLOBAL CONVERGENCE OF LAND AND WATER STRUGGLES

Report

Business profits or diverse food systems?

Threats to peasant seeds and implications in West Africa

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Report

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List of abbreviations

AATF	African Agricultural Technology Foundation
ACHPR	African Charter on Human and Peoples' Rights
AGRA	Alliance for a Green Revolution in Africa
AICB	Interprofessional Cotton Association of Burkina Faso
AIPO	African Intellectual Property Organization
ANB	National Biosafety Agency (Burkina Faso)
ASIWA	Alliance for a Seed Industry in West Africa
CBD	Convention on Biological Diversity
CEDAW	Convention on the Elimination of all Forms of Discrimination against Women
CESCR	United Nations Committee on Economic, Social and Cultural Rights
CILSS	Comité permanent inter-états de lutte contre la sécheresse dans le Sahel
CONAGREP	National Commission for the Administration of Plant Genetic Resources
CSO	civil society organization
DUS	distinctness, uniformity, and stability
ECOWAS	Economic Community of West African States
FAO	United Nations Food and Agriculture Organization
FNGN	Fédération nationale des groupements Naam
GC	General Comment
GCLWS-WA	Global Convergence of Land and Water Struggles – West Africa
GM	Genetically modified
GMO	Menetically modified organism
GR	General Recommendation
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
INERA	Environment and Agricultural Research Institute
IPR	intellectual property rights
IRSS	Institut de recherche en sciences de la santé
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
LMO	Living modified organism
NAFASO	Neema Agricole du Faso S.A.
NAFSN	New Alliance for Food Security and Nutrition in Africa
OECD	Organization for Economic Cooperation and Development
PBR	Plant breeders' rights
PNSR	National Program for the Rural Sector
PPP	Public-private partnership
PVC	plant variety certificate
SNS	National Seeds Service
SDDSS	Sustainable Development Strategy for the Seed Sector
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
UDHR	Universal Declaration of Human Rights
UNPSB	National Union of Seed Producers of Burkina Faso
UPOV	International Union for the Protection of New Varieties of Plants
USAID	United States Agency for International Development
WAEMU	West African Economic and Monetary Union
WASP	West African Seed Program
WECARD	West and Central African Council for Agricultural Research and Development
WTO	World Trade Organization

Key messages

1. Peasant seeds[1] and peasant seed systems[2] play a key role in feeding the people of Burkina Faso and West Africa with healthy and nutritious food based on agroecology and ensuring their food sovereignty. The vast majority of seeds used by peasant communities are selected by them from traditional/peasant varieties. Peasants appreciate these varieties for their qualities, including the possibility to conserve them, their adaptability to local conditions, the great diversity of crops and varieties, and the nutritional and taste qualities of the foods produced from them. Peasant seed systems are also the guarantors of agricultural biodiversity, a key issue for addressing climate change and for the realization of the right to food. Rural women play a crucial role in seed management, including their selection, conservation and use.

2. The majority of peasant communities in Burkina Faso also use commercial seeds, which are offered to them through projects and programs, either as donations or with subsidies. The introduction of these seeds is a gradual process with significant differences in the rate of use from one community to another and from one crop to another. The use of these seeds is the result of an offensive, led by different actors (government, agricultural research institutes, development cooperation partners, initiatives supported or supported by the private sector) with significant financial resources, which aims to put in place a commercial seed system that is based on certified seeds of so-called "improved varieties," including hybrid seeds. One of the main pretexts for encouraging peasants to use these seeds is the difficulty many peasants face in dealing with the consequences of climate change, particularly more irregular and unpredictable rainfall.

3. Peasant seed systems and the commercial system are two very different regimes of seed management and use, involving fundamentally different conceptions of what a seed is, and about the relationship between peasants and seeds. While peasant seed systems are rooted in the way of life, the social relations and the knowledge of peasant communities, and are based on their customary and collective rights that guarantee their autonomy, the commercial system considers peasants as users of "genetic material" that is developed outside the communities and then made available to them primarily through sale. The use of such seeds by peasants is also limited by intellectual property rights (IPR) over these varieties.

4. The promotion of genetically modified organisms (GMOs) in West Africa must be seen in this context of privatization of seeds. Burkina Faso was the first West African country to introduce GMOs, and Bt cotton was grown on a large scale between 2008 and 2016. Because the cotton sector is highly centralized and dominated by three cotton companies, the producers state that they have not had the opportunity to refuse GMO cotton. GMOs thus represent an extreme case of the dependence of peasants on varieties that are protected by patents, that are accompanied by a specific technological package and for which producers have to pay royalties to the companies holding these patents. In addition, GMOs expose farming communities to risks of contamination as well as risks for ecosystems and human and animal health. GM cotton was introduced with the aim of making Burkina Faso a showcase for GMOs in West Africa and the strong political will prevailed over an adequate risk assessment. To date, there has been no official study of the impact of Bt cotton on health and ecosystems. Despite the failure of Bt cotton – in 2016, cotton companies announced its suspension – Burkina Faso is preparing the launch of GMO cowpea and mosquitoes.

1 Peasant seeds (and peasant seedlings) are selected and multiplied by peasant communities or collectives in their fields, with peasant methods that are non-transgressive of the plant cell and within the reach of the end user. These seeds and plants are renewed by successive multiplications in free pollination and/or in mass selection. They can be exchanged freely as long as the rights of use defined by the communities or collectives that give life to them are respected.

2 In this study, we refer to peasant seed systems as the set of peasant practices and knowledge related to seed use and management.

5. The introduction of commercial seeds and GMOs fundamentally changes the practices and lives of peasant communities. The access of peasants to seeds happens increasingly through the sale, and the production of seeds is gradually dissociated from the agricultural activities and the daily life of peasant communities. In addition, seeds produced from commercial varieties are reusable for only two to three years, can be less well preserved and require a high use of external inputs (chemical fertilizers, herbicides, pesticides, etc.), thus implying a net increase in production costs and a loss of autonomy for peasants. The use of chemicals and GMOs also cause health and environmental problems. The introduction of commercial seeds is further accompanied by the abandonment of traditional/peasant varieties and, consequently, a decrease in agricultural biodiversity. With regard to food and nutrition, communities are finding that the taste and nutritional value of foods produced from commercial seeds are lower and that they can better preserve foods derived from peasant varieties.

6. The transition towards a commercial seed system at the expense of peasant seed systems is the result of current policies, which propagate commercial seeds, promote their production and promote the creation of a seed market. Public agricultural research is interested almost exclusively in commercial varieties of some crops that are considered as priorities. Although the legal framework of Burkina Faso (and other West African countries) gives traditional/peasant varieties the status of a national heritage to be managed for the benefit of peasant communities, it is focused on the production of certified seed of registered varieties that are protected by intellectual property rights (IPRs). The seed law does not clarify the status of peasant seeds and does not guarantee the rights of peasants to save, use, exchange and sell their seeds. The national legal and policy frameworks are mirrored by the logic of the existing sub-regional frameworks, notably the regulation on the harmonization of the rules governing the quality control, the certification and the marketing of plant and plant seeds of the ECOWAS-WAEMU-CILSS region, as well as the regime for the protection of industrial property rights of the African Intellectual Property Organization (AIPO).

7. Given that peasant communities in Burkina Faso and West Africa exercise their rights to seeds through peasant seed systems, the exclusive promotion of commercial seeds and a seed system based on IPRs through the government of Burkina Faso and donors of development cooperation threatens the realization of the human right to food and nutrition. In addition, current seed policies reduce agricultural biodiversity, rather than preserving and promoting it. The introduction of GM cotton has been the subject of clear breach of the precautionary principle by the Burkinabe authorities throughout the process that has led the country to large-scale cultivation of Bt cotton. Human rights obligations require states to recognize, protect and support peasant seed systems, preserve biodiversity and effectively protect people from the risks of biotechnology.

8. The dynamics described also concern, directly and indirectly, the extraterritorial obligations of industrialized countries, which oblige them to not impair human rights in the "recipient" countries of development cooperation, including with respect to seeds. They further require them to ensure that the activities of TNCs that are actively involved in the transformation of seed systems in Burkina Faso do not undermine peasants' access to seeds or restrict their use by peasants. In addition, the industrialized countries, and in particular the European States and the European Union, are the main promoters of a restrictive regime for the protection of IPRs on seeds, in particular through the International Union for Plant Variety Protection (UPOV).

9. Burkina Faso and West Africa are at a crossroads regarding policies and management of seeds, as well as agricultural and food policies. The fundamental choice to be made by the people and the states of West African is whether to pursue policies that respond to the economic interests of a few companies, or to put in place policies and legal frameworks that are based on and promote the rights and knowledge of millions of peasants, food sovereignty, diverse food systems and peasant agroecology.

1. Introduction

This report presents the results of a participatory research process focusing on the transformation of seed systems and the grabbing of genetic resources in Burkina Faso and, more generally, throughout West Africa. This process was carried out by the Global Network for the Right to Food and Nutrition (the "Global Network") and the Global Convergence of Land and Water Struggles – West Africa (GCLWS-WA) between January and November 2017. Its objectives were:

- To document the status of seed use by peasant communities and the consequences of the introduction of commercial seeds and genetically modified organisms (GMO) for communities and their agricultural and food systems.
- To identify the mechanisms leading to the privatization and commodification of seeds, in particular by analyzing the seed policies of West African states and industrialized countries, the legal frameworks governing seeds and biosafety, and the activities carried out by research institutions, seed companies, and other actors.
- To analyze the consequences of the ongoing transition from a human rights perspective, with a view to identifying abuses and violations, and paying special attention to abuses and violations of women's rights.
- To give visibility to the struggles of communities, social movements, and civil society organizations (CSO) in favour of peasant seeds and against these GMOs, in the context of peasant agroecology and food sovereignty.
- To reinforce advocacy and lobbying strategies emanating from communities and the CGLTE-AO in favour of peasants' seed rights.

This process, facilitated by FIAN International, was coordinated by an international group composed of members of the Global Network, the GCLWS-WA, and the working group on seeds and GMOs group of the Burkina Faso dynamic of the GCLWS-WA. Central to this process was an international fact-finding mission to Burkina Faso that ran from 22 May to 2 June 2017. The preliminary results of this mission were presented and discussed at a restitution workshop that brought together representatives of peasant organizations and CSOs from six West African countries[3] along with international resource persons and Burkinabe authorities in Ouagadougou from 22 to 24 November 2017.

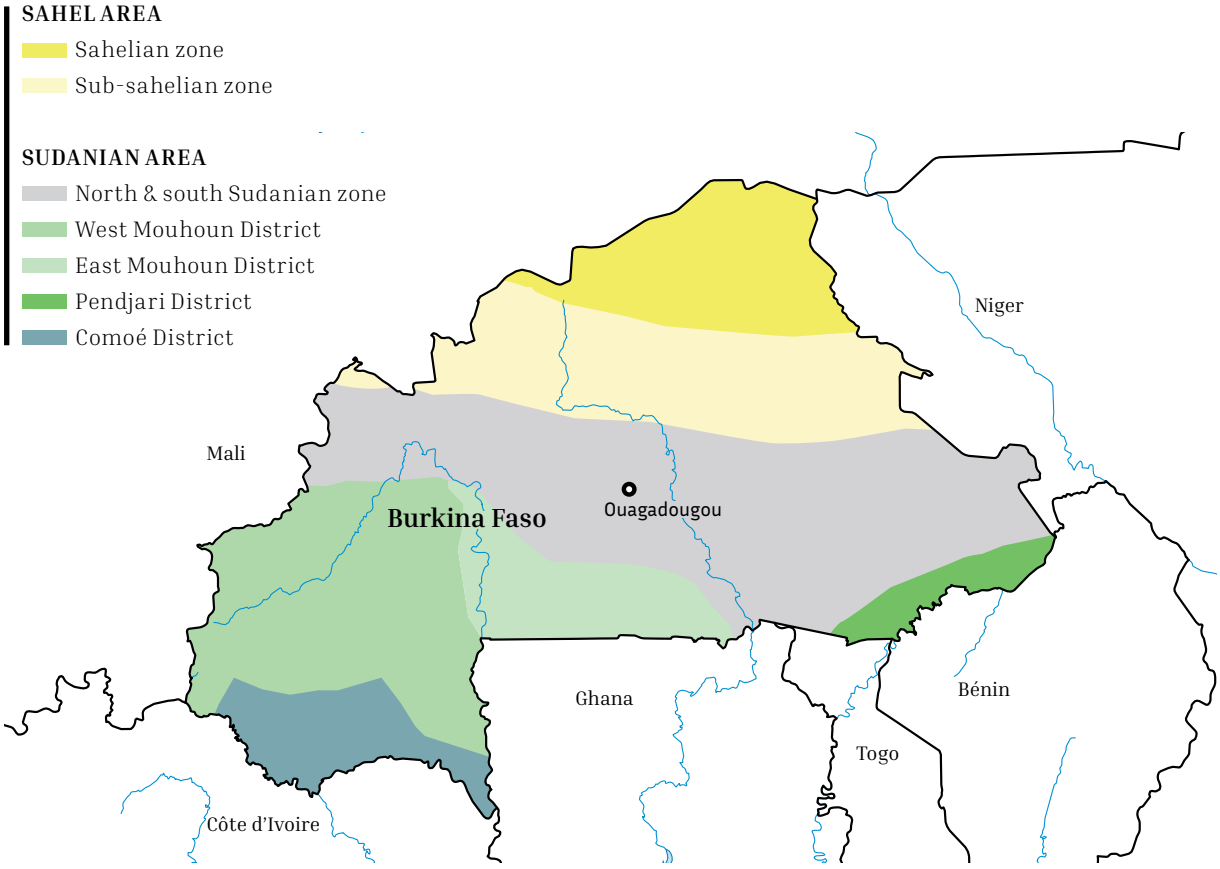
After an initial chapter describing the research methodology, this report presents the research team's observations on seed use by peasant communities in Burkina Faso. What emerges clearly is that a transformation towards the increased use of commercial seed and agricultural practices based on external inputs is in progress, one that has major implications for peasant communities. These observations are then situated within the context of policies, laws, initiatives, and programs at the national, regional, and international levels whose aim is to replace peasant seed systems with a commercial system and to promote GMOs. The report goes on to analyze the current dynamic with reference to states' existing human rights obligations, highlighting the failures of West African states and industrialized countries to comply with these obligations. It concludes with a set of recommendations in favour of policies that give peasants' rights precedence over the economic interests of a few actors and that make provision for peoples' food sovereignty.

This report is intended as a contribution to the debate around the future and the development of agriculture and food, in West Africa as elsewhere. We are convinced that Africa and the whole world are at a crossroads: at stake are the future of the world's population, and, more particularly, the sustenance that it derives from agriculture. If the cause of justice is to be served, the survival of humankind guaranteed, and human rights for all realized, then courageous political choices will have to be made.

3 Burkina Faso, Benin, Togo, Niger, Mali, and Senegal.

2. Methodology

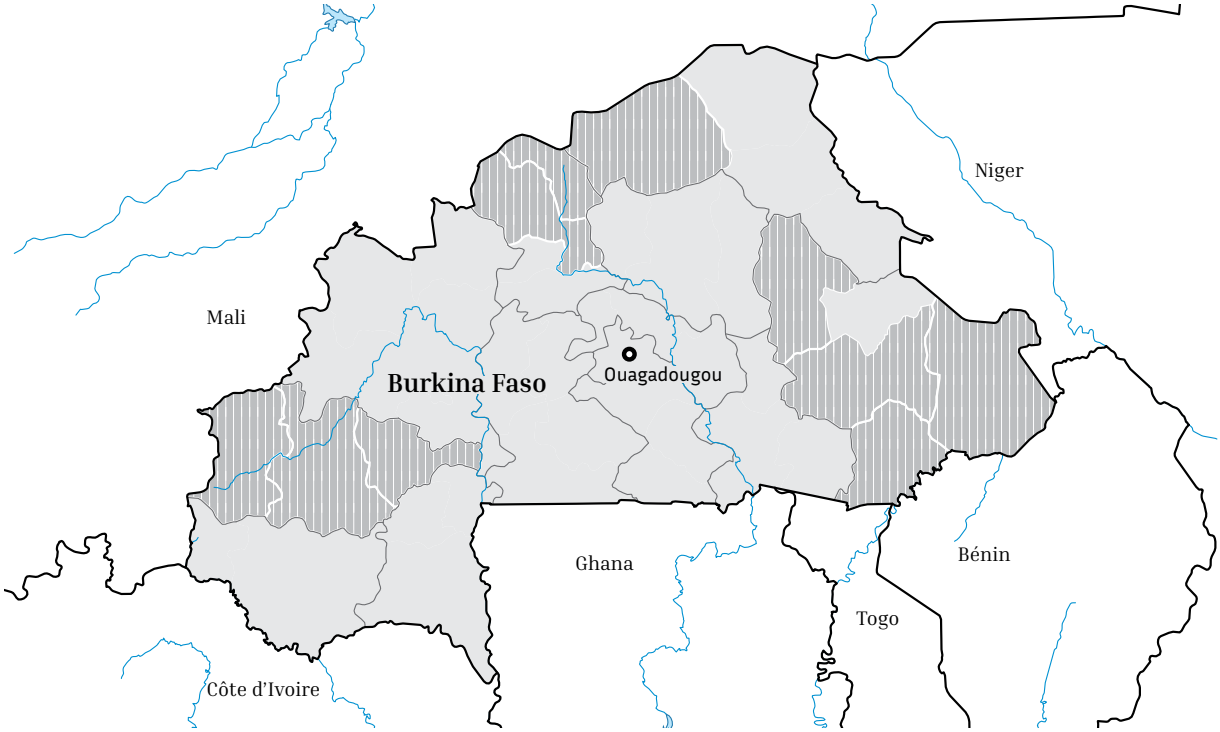
The data and information presented in this report are primarily derived from discussions held by the research team with farm communities of Burkina Faso in May and June 2017 in the course of an international fact-finding mission. The objective of this field work was to understand the situation, and the ongoing transformations related to the use of different types of seeds, from the peasants' perspective. This is closely tied to their modes of production, agricultural systems, and food systems as well as their daily lives in general. In total, discussions were held with 21 communities in the northern, eastern, and western regions of Burkina Faso,[4] which represent different cultural and climatic/agroecological contexts (the Sahelian, North Sudanian, and South Sudanian zones), so as to encompass the country's diversity and provide a more complete vision of the situation and the ongoing transformations (see maps).



Map 1: Climatic and agroecological zones of Burkina Faso[5].

4 The list of participating communities is given in the appendix.

5 Government of Burkina Faso (2014), p. 11.



Map 2: Areas covered by the international research mission.[6]

The peasant groups interviewed also cover a range of different realities from place to place, including peasant communities, women's groups, market peasants, seed producers, and peasants specializing in cash crops. The goal was to sample different points of view on seeds, including various perspectives within a single community, since different circumstances can often be found coexisting side by side. Some of the respondents are organized into associations or are members of peasant organizations, others are not. In each region, the research team interviewed people of all ages, younger and older, men and women. In total, 405 people took part in the discussions, including 242 women (nearly 60%). With a few exceptions, the peasants who participated in the interviews farm on two to twenty hectares, with a majority cultivating somewhere between four and ten hectares.

The team deliberately avoided an agricultural sector-based approach in an effort to better grasp the lived realities of farm communities and households, which – in the large majority of cases – grow a range of different crops both for household consumption and for sale. The crops produced by the communities participating in the discussions can be classes according to the following categories: traditional grains (millet, sorghum, fonio), introduced grains (rice, maize), legumes (cowpeas, Bambara groundnuts, peanuts, soybeans), local vegetables (okra, roselle, local eggplant, onions, peppers), non-native vegetables/ market crops (carrots, lettuce, cabbage, tomatoes, onions, purple eggplants, etc.), tubers (sweet potatoes, potatoes, yams), sesame, and cotton. Cotton is a somewhat special case in that it is a non-food cash crop. It was included in the research because the cotton sector is an instructive example of a centrally organized sector – which has direct implications for access to seeds – and because it is the only crop (at least for the moment) for which GMOs have been introduced into Burkina Faso and West Africa. GMOs must be considered a special seed regime (in view of their impacts on production methods, biodiversity, etc.), and it is important to analyze their introduction and use in the broader context of the ongoing transformation of agricultural systems in West Africa.

Since the three regions covered by the research represent different agroecological contexts, the different crops mentioned are more or less important from one region to another. For example, rice and maize are much more widespread in the West and East

6 Based on map available online at https://commons.wikimedia.org/wiki/File:Burkina_Faso_location_map.svg.

than in the North. Cotton is mainly grown today in the western region but also in the East, while none of the communities consulted in the North grows it.

Our discussions with the communities interviewed in the three regions were guided by a questionnaire with open questions on food systems, food production, and seed use and management. Due to the above-mentioned peculiarities of cotton, specific questions about this crop were asked in communities that used to produce it or still do. Beyond the gathering of information in the narrow sense, our discussions were also an opportunity to hear about communities' experiences and perceptions with respect to developments relating to seeds, and to agricultural and food systems more generally, as well as the profound changes that these developments have brought to their lives as peasants. An important fact stated by nearly all the communities is that our interviews with them were the first to have raised the question of seeds within their community/group and to pay attention to their observations, experiences, opinions, concerns, and wishes.[7] The discussions held in the context of the mission thus gave rise to exchanges of opinions – sometimes bringing out differences of opinion within the same community – that enriched the more technical information and made an essential contribution to our analysis of the ongoing developments.

The dialogues with peasant communities were followed by interviews with government of Burkina Faso authorities and other relevant actors in the area of seeds. The public entities included the National Seeds Service (SNS by its French acronym) of the Ministry of Agriculture and Water Resources, the National Biosafety Agency (ANB), and the Environment and Agricultural Research Institute (INERA), while the private entities consisted of the National Union of Seed Producers (UNPSB), the president of the Regional Chamber of Agriculture in Ouahigouya (North), and the company Neema Agricole du Faso S.A. (NAFASO).

The information obtained from our discussions and interviews was complemented, and its analysis facilitated, by documentary research.

7 The only time anyone had discussed seeds with them was during technical training on the use of "improved" seed and inputs (fertilizers, pesticides, herbicides, etc.).

3. Observations: the situation with respect to seeds used by peasant communities

3.1. Types of seed used by peasant communities

The discussions with peasant communities confirmed that peasant/traditional seeds[8] constitute the vast majority of seeds used by these communities. These seeds constitute the basis of Burkina Faso's food supply and the livelihoods of its smallholders. This is confirmed by studies and government figures situating the uptake of "improved" seed in the country at 17–18%, which implies that 82–83% of seed used is peasant seed.[9] The critical importance of peasant seed is not specific to Burkina Faso but typical of West Africa as a whole, where the average use of commercial seed is also about 18%.[10]

The use of peasant varieties and seed is explained by the fact that their characteristics generally respond better to peasants' needs – seed saving, adaptedness to local conditions, diversity of crops and varieties available, nutritional qualities, and the taste of food produced from peasant varieties. Seed selection, saving, use, and exchange are an integral part of the agricultural practices and the life of peasant communities, and rest upon their knowledge. In this system, peasants have control over the seeds they use, which represents an important element of their autonomy.

Another evident fact is that these peasant communities also use commercial seed for a portion of their crops. Often dubbed "improved seed,"[11] these are seeds of registered varieties meeting criteria of distinctness, uniformity, and stability (DUS),[12] protected in most cases by intellectual property rights (IPR) – generally a plant variety certificate (PVC) – and produced by seed producers, seed companies, or research institutions. But while the use of these seeds can be considered widespread among the interviewed communities, the share of the crops produced from commercial seed varies (sometimes considerably) from region to region, community to community, and even household to household. While some communities still use almost exclusively peasant seeds, others stated that they have almost completely switched over to commercial seed.[13] The study reveals, for instance, that the communities in the North use less commercial seed than those in the West and East. The differences in the utilization of different types of seed are connected with different ways of reacting to the arrival of commercial seed: while certain communities readily adopted it, others remain skeptical. One common practice is for communities and households to test the new variety by initially planting only a small area to it. On a visit to one community, a peasant told us that he had compared commercial seed to traditional seed of the same crops by planting them on separate plots with otherwise identical treatment (compost, manure, cultivation, etc.).[14] The caution evinced by many peasants towards commercial seed is lamented by the authorities, INERA, and the UNPSB as a kind of backward unwillingness to embrace modern agriculture.[15]

It is important to emphasize that the uptake of commercial seed also varies considerably with crop category. The general pattern is that the great bulk of traditional grains (millet, sorghum, fonio) come from peasant seeds, while commercial seed is more common in introduced grain crops such as maize and rice. Market farming and potatoes are almost exclusively

8 This report will generally use the term "peasant seed," which includes both traditional and local seeds. The terms "traditional seeds" or "local seeds" exclude peasant seeds derived from varieties introduced by peasants (such as peasant varieties from other regions or "improved" and registered varieties from which peasants propagate seeds).

9 Interview with the SNS, 2 June 2017. According to Burkina Faso's last National Program for the Rural Sector (PNSR), the uptake of commercial seed stood at around 15% in 2008. www.legiburkina.bf/m/Sommaires_JO/Decret_2012_01016.htm

10 Interview with the SNS, 2 June 2017. The documents of the West African Seed Program (WASP) mention a 12% uptake of "improved" seed in 2012, which the program sought to raise to 25% in 2017 (see section IV.1.1 and http://www.coraf.org/wasp2013/?page_id=17).

11 In this report, we use the term "commercial seed, " which indicates that peasants gain access to these seeds by buying them on the open market. The term "improved seed" carries a subtext that suggests that certified seeds are of higher quality than peasant seeds due to the intervention of Western science, which is not necessarily true but does have the effect of devaluing peasant seed (see section IV.3).

12 The stated purpose of registration and the DUS criteria is to ensure "varietal purity." The DUS criteria assess the distinctness of a variety with respect to other varieties already listed in the catalogue; they define uniformity according to very specific criteria, while stability is intended to ensure that the same traits are reliably reproduced by all seeds of a given variety.

13 E.g., testimonies recorded at Pama (East) and Fada N'Gourma (East). However, even in communities where the respondents stated they had given up peasant varieties entirely, it emerged from the discussions that they are still saving these seeds. In many cases, older women are the ones who save seeds of peasant varieties (see also section III.2.4).

14 Testimonies recorded at Titao (North).

15 Interview with the SNS, 2 June 2017; with INERA, 2 June 2017, and with the UNPSB, 30 May 2017.

based on commercial seed, much of it imported hybrid seed.[16] To this may be added that the use of commercial seed is much more widespread in market-bound crops than in production that is primarily intended for peasant families' own consumption.[17] A number of respondents remarked that many communities differentiate their production, even within a single crop, by using peasant seed to grow food for themselves and commercial seed for market crops.[18]

Certain discussions indicated that there are also intergenerational differences in people's perception of commercial seed: young people appear to be somewhat more inclined to use it and think of it as modern. However, this observation cannot be made indiscriminately, since young people from several communities visited by the international mission showed a keen awareness of the importance of peasant seed. The research further clearly shows that, in most cases, commercial seed is introduced by men while women are more likely to preserve peasant seeds.

Unlike peasant varieties, which were developed and adapted by peasant communities over generations and/or obtained by exchanging seed with other communities, commercial seed arrived in these communities rather recently. Our interviews revealed the sources of this seed. First, there is the government, which distributes and/or sells it to the communities (often at subsidized prices). This is done through the agricultural extension services of the regional agriculture branches and INERA. Several communities indicate that they had participated in training programs on the use of commercial seed and related inputs (fertilizers, pesticides, herbicides, etc.).[19] Sometimes government programs promote new varieties of certain crops that are considered to have high priority (e.g., rice or maize[20]) and, in so doing, induce peasants to switch over to commercial seed. Other programs aim to encourage local communities to produce certain crops for sale (programs to increase peasant incomes, sector-based approach); examples are those of cowpeas, sesame, and peanuts, as highlighted by our discussions. Some of the programs mentioned by the communities were supported by the United Nations Food and Agriculture Organization (FAO), international development agencies, or NGOs (Burkina Faso-based or international),[21] and some target peasants' associations, groups, or organizations rather than individual peasants. This is true of the Fédération nationale des groupements Naam (FNGN), which took part in a project funded by the Italian development agency designed to initiate its members to the use of commercial seed.[22]

As we shall see in greater detail, much commercial seed is initially made available to farm communities free of charge. For a certain period of time, peasants can then buy more seed from the government at special introductory prices, but once the incentive program ends they have to buy it from seed companies or producers at market prices.

As to the reasons why the communities use commercial seed, several motivations were mentioned. Aside from seeds having been donated (often accompanied by inputs such as fertilizer or herbicides) in the context of these types of programs and projects, the main reason mentioned by all the communities is that rainfall has become less regular and abundant. Many respondents said that after several years in which crop losses resulted from the rainy season coming too late, ending too early, and/or being interrupted by drought, peasants started looking for shorter-season varieties to ensure a sufficient harvest.[23] They switched from traditional varieties to new, purportedly shorter-season commercial varieties. In this way, the harsher farming environment caused by global warming became a key argument put forward in favour of commercial seed. In reality, however, not all commercial varieties are early varieties. In one community, the respondents reported that seeds received from the government had produced slower-

16 Interview with INERA, 2 June 2017. F1 hybrids are obtained by producing inbred lines through repeated breeding of genetically similar individuals and then crossing two of these lines. Hybrid seeds produce vigorous plants but the progeny of these latter do not retain the parents' traits. The point is that F1 hybrids prevent peasants from saving seeds if they wish to continue to obtain the traits for which the hybrid was purchased.

17 Among the cash crops produced by the communities visited are sesame, peanuts, cotton, and sometimes rice and corn. There is also a great deal of vegetable production for market.

18 E.g., testimonies recorded at Bobo Dioulasso (West), Ninigui (North), and Pobé-Mengao (North).

19 Testimonies recorded at Fada N'Gourma (East), Bogandé (East), Bilanga-Yanga (East), Yamba (East), and Bobo Dioulasso (West).

20 Cf. Djamen and Ouattara (2017).

21 Testimonies recorded at Bobo Dioulasso (West), Ninigui (North), Fada N'Gourma (East), Bogandé (East), and Soungalodaga (West).

22 Testimonies recorded at Titao (North).

23 Testimonies recorded at Bogandé (East), Diapangou (East), Bilanga Yanga (East), Binkoora (West), Farakoba (West), Ninigui (North), Thiou (North), Pobé-Mengao (North).

maturing plants than the local variety.[24]

Other reasons put forward by the communities to explain why commercial seeds were adopted were the promotional campaigns for these seeds[25] and the access to agricultural equipment and inputs, chemical fertilizers in particular, opened up by projects or programs aiming to introduce commercial seed.[26] The fact that commercial seed is introduced as part of a "package" including chemical fertilizers, pesticides, and herbicides has led certain communities to think that these seeds would alleviate the burden of farm work.[27] A third reason was the promise or – once the seeds were introduced – the experience of higher yields.[28] A fourth was the observation that commercial seed always germinates, while peasant seed may fail to do so under less-than-ideal conditions.[29] Certain communities stated that market for produce from peasant varieties has dwindled or dried up entirely.[30]

> Comments by a peasant in Thiou (North):
> *"It was after a famine in our area that we started using 'improved' seeds. After a poor harvest brought on by a drought, all the families were forced to use some of the seed grain they had set aside for food. So we were out of seeds. When the government handed out seeds for the following season, they were seeds we had never used before. We quickly realized they were no good but we didn't have a choice. Now we feel trapped."*

Cotton and other cash crops for which the sector is more strongly and centrally organized represent a specific case in that peasants are much less free to choose the varieties they will grow. Cotton growers are told which varieties to plant by the companies that will later buy their harvest (see Box 2 on the structure of the cotton sector).[31] Cotton, whether conventional or organic, is thus produced exclusively from industrial seed.

As mentioned earlier, cotton is the only crop for which GMOs were introduced in Burkina Faso. For this reason, a third type of seeds – genetically modified (GM) seeds – must be given consideration in this report, as they give rise to a highly specific seed system and production model (see Box 3 on the three types of seeds and seed systems). Genetically modified "Bt" cotton was developed by the transnational corporation Monsanto by insertion of a gene from the bacteria *Bacillus thuringiensis* into the cotton genome so that the plant will produce a substance toxic to the cotton bollworm, a damaging pest. It was introduced into commercial production in Burkina Faso in 2008, grown until 2016, and then its production was suspended (see section IV.1.2 and Box 5 on the history of Bt cotton in Burkina Faso). The statistics on the share of Bt cotton as a percentage of the total area under cotton cultivation vary; different sources put this figure at slightly over 50%,[32] over 60%,[33] or 73%.[34] Of the peasant communities interviewed in the western and eastern regions, eight produce cotton,[35] including seven that have grown Bt cotton. Several respondents in these communities pointed out that growers feel they were never really given an opportunity to reject GM cotton due to the pressure put on them by the cotton companies, which used their near-monopoly to force them to produce Bt cotton.[36] Following the suspension of GM cotton in 2016, all the respondents returned to conventional cotton; that is, industrial seeds purchased from cotton companies. Certain communities were upset that GM cotton was suspended, most notably because of the lightened workload it apparently represents (see section III.2.2).

24 Testimonies recorded at Ninigui (North). The explanation given by the peasants is that these were seeds of a variety with different agroecological characteristics that had been developed in another region of the country.

25 Testimonies recorded at Bobo-Dioulasso (West).

26 Testimonies recorded at Diapangou (East). Certain respondents stated that peasants are often more interested in obtaining fertilizer than commercial seed. If given both as part of package, they may use the fertilizers and discard the seeds.

27 Testimonies recorded at Nematoulaye (West). On the relationship between the use of commercial seed and external inputs, see section III.2.2.

28 Testimonies recorded at Bobo-Dioulasso (West). On yields, see section III.2.2.

29 Testimonies recorded at Bobo-Dioulasso (West).

30 Testimonies recorded at Bama (West) and Pobé-Mengao (North).

31 INERA is the organization that provides the pre-basic seeds.

32 Vognan, Glin, Bamba, Ouattara, & Nicolay (2017), p. 13 (referring to the 2012-13 and 2013-14 seasons).

33 Coalition pour la protection du patrimoine génétique africain (COPAGEN) (2017), p. 5.

34 Dowd-Uribe and Schnurr (2016), p. 10, referring to the 2014-15 season. According to the same source, the share of Bt cotton had gone down to 53% during the 2015-16 season.

35 In general, cotton producers only plant about 20% of their fields to cotton, while the rest is used for other crops. See Vognan, Glin, Bamba, Ouattara, & Nicolay (2017), p. 16.

36 Testimonies recorded at Sebedougou (West), Bogandé (West), Pè (West), and Soungalodaga (West). Studies on Bt/GM cotton reached the same conclusion; see FIAN Burkina Faso (2017), and Coalition pour la protection du patrimoine génétique africain (COPAGEN) (2017).

3. 2. Consequences of the use of different types of seed for peasant communities

3.2.1. SEED ACCESS, SAVING, SELECTION, AND USE

The discussions with peasant communities during the international fact-finding mission highlighted the fact that the introduction of commercial seed has significant consequences for agricultural and food systems, as well as for the life of peasant communities. A first consequence concerns the manner in which these communities access, select, use, and save seeds. Peasant varieties stem from the iterative selection performed by peasant communities over the ages and have been handed down from generation to generation. Our interviews and discussions also highlighted the importance of the exchange of varieties and seeds between families and communities as a means of obtaining seeds.[37] Traditional plant breeding consists in selecting the best plants/ears/fruit before or during the harvest and setting them aside as seed for the subsequent crop. The seeds are then prepared for saving (removed, cleaned, dried, etc.), and set aside until the following year – sometimes even for several years.

The excahnges evidenced that seed selection is generally done by men and women working together,[38] although there can be a division of labour between the sexes. Several communities indicated, for example, that seeds are selected and saved by men for certain crops and by women for others.[39] The head of the family is most often responsible for saving seeds, although other arrangements are also possible. In some communities, women set aside a portion of the seeds, notably when they have been assigned specific plots outside of the family garden.[40]

The method of seed saving varies from one community to another according to the type of crop and the local habits and customs. Practices include hanging selected seed heads from trees, storing seeds in specific granaries, and saving them in jars with wood ash (a practice particularly common with cowpeas). Sometimes families use wild plants and herbs, whose addition allows to better keep seeds.[41] These methods allow seeds to be saved for multi-year periods; certain respondents stated that peasant seed will keep for up to ten years.[42]

With the exception of the community seed bank in Pobé-Mengao in the North (see Box 1), none of the communities interviewed has a collective storage site for seeds; seed saving takes place at the household level.[43]

BOX 1: THE COMMUNITY SEED BANK IN POBÉ-MENGAO

With the goal of preserving the diversity of species and peasant varieties, the villagers of Pobé-Mengao in northern Burkina Faso manage a community seed bank. Set up with support from the NGO APN-Sahel, this bank is divided into two components. The first is a gene bank containing samples of seeds from available species and varieties. These are catalogued along with data including species and variety name (including the local name), origin (region, province, and commune), donor name, collection site and date, and time to maturity. Seeds are saved using traditional practices (hanging, in containers with ash, etc.). The second component is the seed bank itself – the place where available seeds are stored.

To obtain seeds, peasants can submit a request and, once approved by the donor, obtain a given quantity of seeds. The transaction is recorded in a log. The applicant commits to returning double the quantity borrowed after the harvest. In this way, the stock of available seeds is preserved and increased.

Inasmuch as this seed preservation system is based on the principle that peasants save seeds by growing them out in their fields, it is fundamentally different from seed banks in which genetic material is kept in cold storage.[44] Increasingly, international

37 There are customary rules defining with whom one exchanges and under what conditions; cf. Coomes, McGuire et al. (2015).

38 The respondents in Makognedougou (West) stated that it is women who select and save seeds.

39 For example, one respondent in Yamba (East) said that the men are responsible for saving seed grain while the women save vegetable seeds (especially okra). In Soungalodaga (West), the women save corn and cowpea seeds.

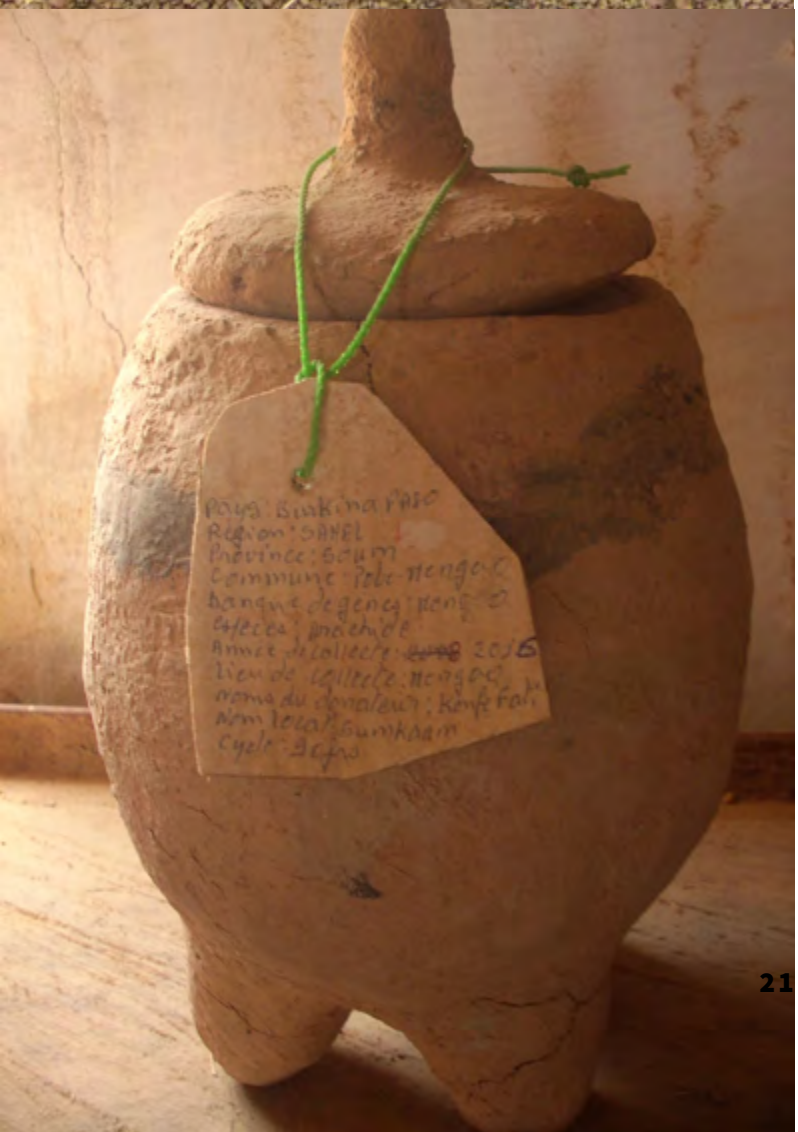
40 Testimonies recorded at Nematoulaye (West).

41 Testimonies recorded at Soungalodaga (West).

42 Testimonies recorded at Pobé-Mengao (North) and Thiou (North).

43 Some groups or associations/organizations have seed storage facilities, but this is mainly for storage of commercial seed before it is distributed to members.

44 An international example is the Svalbard Global Seed Vault, an underground facility on the Norwegian island of Spitsbergen. It is designed as a secure repository for seeds of all the world's food crops, a place where crop genetic diversity is preserved. In 2017, the site of the vault was flooded by melting permafrost caused by global warming (cf. http://www.liberation.fr/planete/2017/05/26/en-norvege-la-reserve-mondiale-de-semences-rattrapee-par-le-rechauffement_1572264).



research institutions are switching to identifying and saving genetic information from a given variety instead of the seeds themselves. In this way, plant genetic resources are dematerialized and increasingly put out of the reach of peasants. Just as these processes entail a profound modification of what constitutes a seed, they also threaten peasants' knowledge and culture.

The selection, saving, and use of peasant seed are thus an integral part of agricultural production and peasant life, based on the knowledge held by communities. The same is not true of commercial seed. As we have said, the first difference with respect to commercial seed is that the latter comes into the communities from the outside, most often through being sold to peasants; commercial varieties are developed by scientists outside of peasants' fields. But the latter encounter difficulties in attempting to use the same methods and customs to select and save commercial seed as they do for peasant seed. According to some respondents, seeds derived from commercial varieties can only be reproduced for two or three years, after which they must be bought anew. For certain crops, in particular many imported vegetable/market crops,[45] the communities manage with great difficulty, if at all, to save seed from commercial varieties. This is also true for potatoes, for which seed must be purchased every year.[46] These difficulties are due to the fact that much of the commercial seed used in market farming is hybrid seed imported from Europe.[47]

As regards the saving of commercial seed, the communities observed that seeds from commercial varieties generally do not keep as long. While peasant seed can be kept for a number of years, the communities' experience is that seed produced from commercial varieties barely keeps until the following season. Certain respondents even claimed that these seeds can only be kept for a few months and that some peasants found only "dust" when the next season rolled around and the saved seed was taken out in preparation for planting.[48] Some communities have found it necessary to treat their seeds with chemicals in order

45 Peasants manage to produce seed for only a few vegetable crops, such as lettuce, cabbage, onions, tomatoes, and garlic.

46 The FNGN purchases/imports 150 tonnes of seed potato per year to supply its members.

47 In an interview conducted on 2 June 2017, INERA confirmed that a large proportion of vegetable seeds are imported hybrids.

48 Testimonies recorded at Pobé-Mengao (North) and Thiou (North).

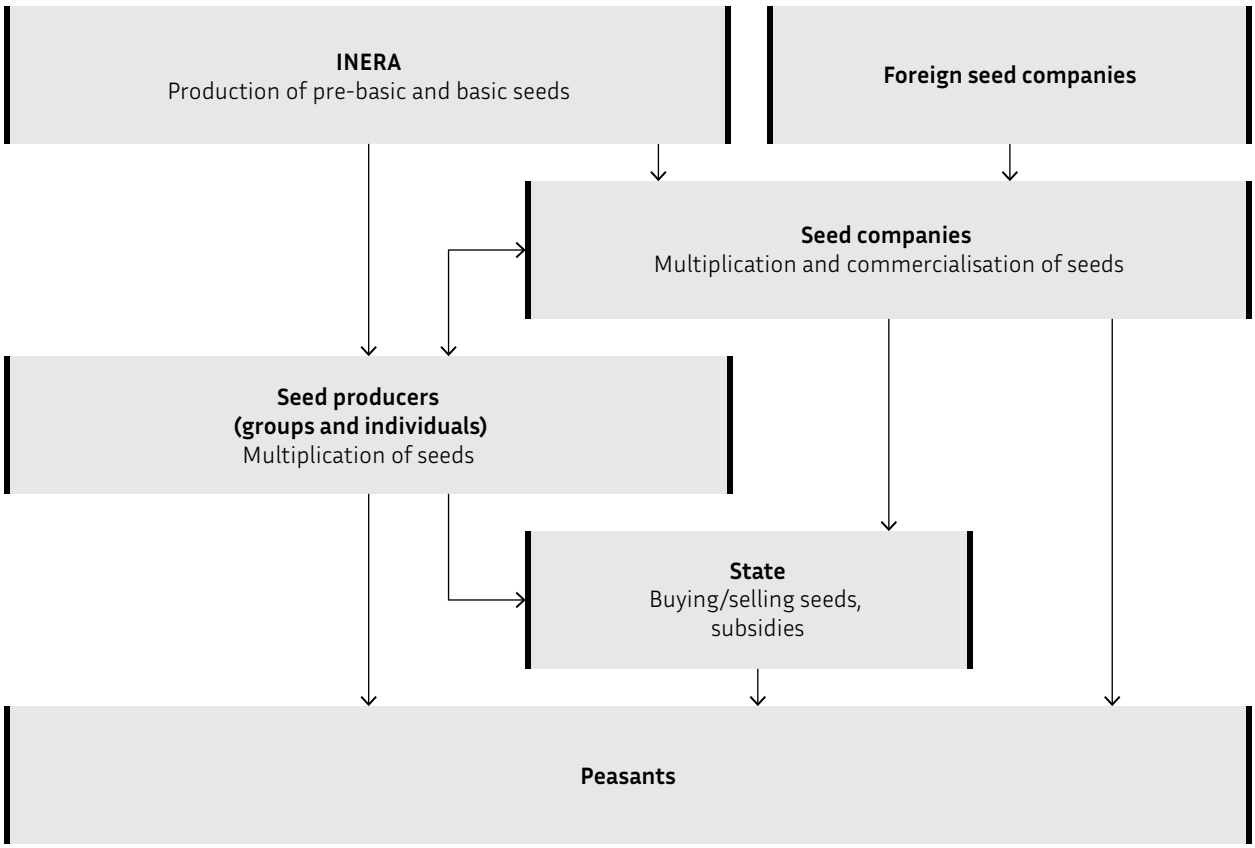


Figure 1: Structure of the seed production sector in Burkina Faso

to preserve them.[49] Another observation made by the communities is that their seed saving techniques do not work with seeds derived from commercial varieties. For example, many peasants said that they now save cowpea seeds in barrels or triple-layer bags rather than jars with ash as they used to do.[50]

With the arrival of commercial seed and the separation of crop production from seed production, a new player has come onto the field: the seed producer. In many of the communities interviewed, certain households now devote themselves to commercial seed production, either primarily or as a supplemental activity. The promotion of commercial seed has led to the creation of a certified seed production sector governed by a well-defined regulatory framework. These producers purchase basic seed from INERA and are then supervised by extension technicians from the regional agriculture branches in growing it out and propagating it. Purity tests are performed after the harvest, and if good results are obtained, the seed can then be sold as certified seed. Seed producers can be individuals, groups, associations, or seed companies. The latter often contract with peasants to grow out the seeds from basic seed (see Figure 1, "Structure of the seed production sector in Burkina Faso").

According to the interviews and discussions during the fact-finding mission, certified seed production is "good business" because of government subsidies, existing development projects, and the government of Burkina Faso's purchase of large volumes of certified seed at guaranteed prices, at least in the early years. By becoming seed producers, certain households have succeeded in considerably increasing their incomes, creating a small "peasant élite" of seed growers – which has provoked tensions within certain communities. This is how seed production became an economically advantageous activity, a coveted occupation, for many peasants. However, the rules set limits and require seed producers to meet certain criteria, such as minimum areas for certain crops (5 hectares for rice,

49 Testimonies recorded at Pobé-Mengao (North), Bogandé (East), Nematoulaye (West), Yegueresso (West), Diapangou (East), and Thiou (North).

50 Testimonies recorded at Pama (East), Nagré (East), Diapangou (East), Bilanga-Yanga (East), Yamba (East), Yegueresso (West), and Thiou (North).

3 for other grains). In addition, seed producers must incur costs to be certified and assisted by agricultural extension technicians, and they have to be financially solvent enough to make cash outlays while awaiting (often delayed) payment for the harvest.[51] In short, seed production is off limits to many households, and certainly the poorest among them. Direct and indirect subsidies (tax relief, credit facilities, etc.) for commercial seed production have spurred the rise of seed companies doing large volumes of business, such as NAFASO.[52]

Yet certain respondents stated that seed production becomes much less profitable when the government cuts the subsidies and no longer guarantees the purchase of commercial seeds from seed producers. The experience of several growers is that these government incentives declined sharply after several years and that they had to find other outlets for their production, with the risk of failing to break even. According to one former seed producer, the cancelation of direct and indirect subsidies after a few years of production rendered the business unprofitable. Studies confirm that the government is progressively disengaging from the "formal seed sector" with the goal of building the private sector.[53] But our interview with the executive director of NAFASO (and president of the UNPSB) indicates that even the seed companies are experiencing difficulties in the wake of the government's disengagement (particularly its cancelation of guaranteed purchase) and are now putting more effort into selling certified seed directly to peasants through a network of village-level retail outlets.[54]

> Comments of a former seed producer in Ninigui (North)
> *"For six years, I grew 'improved' seed for the production of certified seed. The basic seed came from INERA. For two years, I was able to produce with these seeds, but the third year I had to buy them anew at a price of 1 600 CFA francs/kg. I resold the seeds I produced for 600 or even as little as 400 CFA francs/kg. It was the government who bought my production. Several times, I had to wait almost a year to get paid. Seed producers also pay for extension services from INERA, but in my case, the FNGN provided these services under the auspices of a project with the Italian development agency and the NGO Agriculteurs français et développement international (AFDI). I had to use a lot of chemicals to produce the seeds. Normally that would have been expensive, but assistance was available under a government program. I did well for a few years, managing to increase my area under cultivation. I also took out a loan to buy a tractor. During all this time, I was buying millet for my family's own consumption. I always bought traditional millet and never ate "improved" millet. After six years, I got out of the business. The government had cut the subsidies and it was no longer profitable to produce seeds. Besides, I had realized that my family and I weren't eating what I produced. Today, when members of my community say they want to use "improved" seeds, I tell them that I never ate what I produced with these seeds. I was just making money."*

Seed selection and saving are not foreseen in the cotton sector, which is organized so that peasants buy their seeds every year (along with inputs: chemical fertilizers, herbicides, pesticides, etc.) from the three Burkina Faso cotton companies (SOFITEX, SOCOMA, and Faso Coton). In this sense, the introduction of Bt cotton did not fundamentally change how cotton growers operate. However, it is important to emphasize that GMOs are covered by a much stricter regime as regards farm communities' freedom to select and save seeds. This is due in part to the fact that GMOs are protected by patents, which grant exclusive rights to the companies that developed them (Monsanto in the case of Bt cotton). The existence of these patents bars others from producing, using, or distributing GM seeds without the companies' consent. In addition, and as we shall see, the price of GM seeds is considerably higher than that of conventional seeds. In short, the way the cotton sector is organized implicitly renders cotton growers highly dependent on the cotton companies, a dependency exacerbated by the higher production costs associated with Bt cotton (see section III.2.3).

51 Testimonies recorded at Ninigui (North); see also Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, GFA Consulting Group (2016), p. 7.

52 Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, GFA Consulting Group (2016), p. 7.

53 Ibid., p. 9.

54 Interview with the UNPCB, 30 May 2017.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3.2.2. YIELDS AND PRODUCTION METHODS

The discussions held during the international mission show that the peasant communities visited generally obtain good yields with peasant seed. At the same time, most peasants have observed yield increases with commercial seed. But it appears that profound modifications must be made to production methods and agricultural practices in order to realize this potential.

As stated above, the great majority of our respondents farm on an area of 2 to 20 hectares, with the majority working about 5 hectares and a second group working 10 to 20 hectares. The respondents said that an area of 4 to 5 hectares suffices to feed a family from one harvest to the next, as long as the weather cooperates. When the harvest is insufficient, households sell off livestock to buy food. Production techniques rely to a great extent on manual labour. In the Eastern and Western regions (very little in the North), communities may use animal traction, ploughing with oxen or mules. While tractors are exceptional, some peasants rent them for certain activities. In more arid regions, peasants use techniques such as zaï (tassa), stone bunds, and demi-lunes. Although both men and women are generally involved in most production activities, most communities have specific agricultural activities that are reserved to men and others to women. It is also common for women to tend certain crops and men others. Often, women have an extra piece of land, in addition to the family acreage, on which they grow certain plants.[55]

The most significant change regarding production methods brought about by the introduction of commercial seed is the increased use of external inputs: chemical fertilizers, pesticides, and herbicides. This development was widely mentioned by our respondents and is intrinsically linked to the use of commercial seed, to such an extent that the use of these seeds can be said to give rise to a major increase in the use of these inputs as a matter of course. The promise of higher yields is one of the main arguments used to induce peasants to use commercial seed, but yield increases necessitate external inputs, a fact confirmed by SNS and INERA during the interviews conducted for the international mission.[56] It is no surprise, then, that projects and programs aiming to train peasants in the use of commercial varieties generally also supply them with chemical fertilizers, pesticides, herbicides, and so on.

Nearly all the communities interviewed now use external inputs, although there are significant differences between regions, and between communities within the same region. Herbicide use is much heavier in the wetter climate of the East and the West, as compared with the arid North. Chemical containers (some of them improperly labeled) are ubiquitous sights in the villages of these regions. According to the interviews and discussions during the mission, inadequate training often leads to these products being applied without protection, in excessive amounts, and/or to the wrong crops.[57] In an interview with SNS, the authorities admitted that herbicide and pesticide use has become a problem. The government blames the peasants for being irresponsible,[58] ignoring the fact that these products are heavily promoted as necessary adjuncts of commercial seed, by both the seed purveyors and the government's own agricultural policies.

While chemical inputs have not replaced traditional practices outright, a clear erosion of the latter is observable. Chemical fertilizers like NPK and urea continue to be used mainly as a complement to compost and manure. Pesticides and herbicides, on the other hand, have tended to replace traditional natural pest control methods (e.g., neem oil-based products). Several respondents also revealed that certain communities use chemicals to treat seeds before planting and that purchased commercial seed is often treated.[59]

In sum, if farm communities manage better yields with commercial seed, they do so at the cost of increased applications of external inputs: yields may be bettered, but only by absorbing higher production costs. It is clear that having to buy not only seeds but also fertilizers, pesticides, and herbicides has major economic and financial implications for farm

55 Normally these plots are assigned by the man or the head of the household. In some cases, women, too, select and save seeds from their plots. A few respondents (e.g., in Binkoora (West) and Nematoulaye (West)) stated that when food is scarce, families will eat the women's saved seed before eating the seed set aside by the head of the household.

56 Interviews with INERA, 2 June 2017, and with the SNS, 2 June 2017.

57 A respondent in Thiou (North) stated that some peasants in the community were using cotton herbicides on subsistence crops until they found out, during a training session on agroecology, that this could be hazardous to their health.

58 Interview with the SNS, 2 June 2017.

59 Testimonies recorded at Thiou (North) and Ninigui (North).

communities (see section III.2.3).

In addition, many respondents indicated that peasants are aware of the highly negative consequences of the intensive use of external inputs for soils and their health,[60] but that they are forced to continue using them in order to keep up yields. Several respondents stated, moreover, that the yields delivered by commercial seed are at their highest in the initial years but tail off after that. Discussions in certain communities further revealed that certain peasants are able to equal these yields by combining peasant seed with agroecological practices (proper and timely soil preparation, manure and compost amendments, crop rotation, natural pest control, etc.).[61] Some respondents added that commercial varieties are less pest-resistant, putting peasants who adopt them on a treadmill of ever-increasing pesticide use.[62]

Other changes in production methods linked to the introduction of commercial seed, and to agricultural "modernization" more generally, are the increased acreages put under cultivation to offset higher production costs,[63] the abandonment of certain crops in favour of higher-value ones (i.e., a more market-intensive approach[64]), and a move from collective forms of farming to more individual ones.[65] Certain respondents also mentioned increased levels of mechanization in certain communities, especially where access to tractors and other equipment is facilitated through commercial seed promotion projects,[66] or where seed producers earn enough amass enough capital to afford tractors.[67]

Considerable yield increases were also among the promises made when GM/Bt cotton was introduced in Burkina Faso,[68] but now that it has been suspended, the verdict is mixed. While some studies did observe yield increases over conventional cotton,[69] a participatory study involving cotton growers as peasant-researchers found decreased yields with Bt cotton in the last two seasons.[70]

A very frequent observation made by cotton growers is that pesticide use diminished with Bt cotton as compared with conventional cotton. This decrease is the main reason why certain growers lament the suspension of Bt cotton.[71] "Conventional" cotton growing is indeed characterized by the intensive use of pesticides and herbicides. Peasants have reported, and studies confirmed, up to six applications per season.[72] The number of applications went down to two with Bt cotton, and growers perceive this as a net improvement since it lightens the workload and reduces exposure to chemicals. And, in fact, the reduction of pesticide use is one of the main arguments put forward by the authorities to justify their support to Bt cotton.[73] However, the salient fact to which these observations point is the disproportionate use of toxic chemicals in the "conventional" system. The solution purportedly offered by Bt cotton fails to acknowledge that the problem was created by structuring the cotton sector around a production model necessitating the use of these products, and inducing growers to use them on a wide scale. Yet the intensive application of toxics is not intrinsic to cotton production. A recent study in which INERA researchers were involved found that peasants can derive benefits from organic cotton production, by virtue of its lower reliance on external inputs and lower costs of production.[74] Although presented as the "solution," Bt cotton leaves a dubious production model in place while exacerbating the dependency of peasant communities.

60 Testimonies recorded at Thiou (North), Pobé-Mengao (North), Pama (East), Bogandé (East), and Bilanga-Yanga (East). According to the respondents, men are mostly in charge of spraying pesticides and herbicides.

61 Testimonies recorded at Pobé-Mengao (North), Titao (North).

62 Testimonies recorded at Thiou (North), Titao (North), and Makogne-dougou (West). Other respondents (e.g., in Ninigui (North)) stated that peasant varieties are more resistant to weather events such as strong winds and rainfall.

63 Testimonies recorded at Binkoora (West), Soungalodaga (West) and Yamba (East).

64 Testimonies recorded at Bobo Dioulasso (West), Fada N'Gourma (East), Bogandé (East), Pama (East), Pobé-Mengao (North), and Ninigui (North).

65 Testimonies recorded at Bobo-Dioulasso (West).

66 Testimonies recorded at Bogandé (East).

67 Testimonies recorded at Ninigui (North).

68 SOFITEX claimed yields of 1300 kg/ha with Bt cotton as opposed to 1000 kg/ha with conventional cotton (cf. Coalition pour la protection du patrimoine génétique africain (COPAGEN) (2017), p. 10).

69 Vognan, Glin, Bamba, Ouattara, and Nicolay (2017), p. 17, found Bt cotton yields to be 15% higher than conventional cotton yields.

70 Coalition pour la protection du patrimoine génétique africain (COPAGEN) (2017), p. 10. This study found Bt cotton yields to have declined approximately 7% as compared with conventional cotton.

71 Testimonies recorded at Pama (East), Fada N'Gourma (East), and Bogandé (East).

72 Cf. FIAN Burkina Faso (2017) and Coalition pour la protection du patrimoine génétique africain (COPAGEN) (2017).

73 Interviews with the SNS, 2 June 2017, and the ANB, 6 June 2017.

74 Vognan, Glin, Bamba, Ouattara, and Nicolay (2017).

3.2.3. ECONOMIC IMPLICATIONS

The new way of accessing seeds, as well as the changes to production methods necessitated by the use of commercial seed and GMOs, entail considerable expenses for peasant communities. As indicated earlier, peasants are forced to renew seeds – that is, to buy them – every two to three years, or even every year, as in the case of hybrid and GM seeds. To this must be added the costs of purchasing external inputs (chemical fertilizers, pesticides, herbicides).

Commercial seed prices vary considerably from one crop to another, but also from one region to another. The price of commercial seed grain (millet, sorghum, corn) varies between 400 and 1 000 CFA francs/kg, ranging up to 1 500 CFA francs/kg for hybrid corn. For commercial seed of cowpeas, peanuts, sesame, and soybeans, peasants pay anywhere from 350 to 1 500 CFA francs/kg.[75]

As discussed above, both commercial seed and external inputs are initially offered at subsidized prices. These subsidies are cut back after a few years and prices rise accordingly, driving up expenses for farm communities.

Our discussions with peasant communities revealed that the expenses incurred to buy seed and external inputs are high and that they alter peasants' economic calculus. As described in the preceding section, the introduction of commercial seed raises production costs, inducing many peasants to turn towards more market-oriented production so that they can afford the seed and accompanying inputs.[76] In certain cases, households will increase their acreage under cultivation, again with the goal of increasing their income.[77]

None of the respondents claimed to have gone into debt to obtain commercial seed and inputs, but it did become clear that the use of commercial seed pushes peasants onto a treadmill of increasing dependency, insofar as they are exposed to the risk of becoming indebted if the harvest fails or sales are poor.

75 This excludes basic seed purchased by seed producers. According to our interviews and discussions, the average price of basic seed grain is around 1500 CFA francs/kg; for legumes (mainly cowpeas), around 3000 CFA francs/kg.

76 Testimonies recorded at Pè (West) and Sebedougou (West).

77 Testimonies recorded at Nematoulaye (West), Binkoora (West), and Yamba (East).

BOX 2: THE COTTON SECTOR IN BURKINA FASO

The cotton sector in Burkina Faso is dominated by three cotton companies, each holding a monopoly over production in their respective regions, including of cotton seed production: SOFITEX in western Burkina Faso, Faso Coton in the central portion of the country, and SOCOMA in the east. These three companies supply cotton growers with inputs on credit and purchase their production. Together, these companies make up the Association professionnelle des sociétés cottonières du Burkina (APROCOB).

Most cotton growers are peasants who produce other crops in parallel with cotton. Moreover, most of them lack sophisticated equipment and harvest cotton by hand, contributing to this country's reputation for high-quality cotton on the world market. There are cotton producers' associations at the local, departmental, and national levels. The Union Nationale des Producteurs de Coton de Burkina Faso (UNPCB) is the sole national umbrella group for cotton producers and also a shareholder in SOFITEX. This structure tends, however, to stifle dissent and to instrumentalize cotton growers, who risk becoming politicized.[78]

Together, the UNPCB and APROCOB form the Interprofessional Cotton Association of Burkina Faso (Association Interprofessionnelle du Coton du Burkina, AICB), which has administered the cotton industry since the sector's liberalization and the starting withdrawal of the state.

Although the sector is now liberalized, the government of Burkina Faso, which holds a stake in SOFITEX, continues to play an important role by subsidizing inputs provided to growers and by working on research and development through INERA. According to figures published by the International Cotton Advisory Committee, Burkina Faso's input subsidies to its cotton sector amounted to 30 million USD.[79] The government of Burkina Faso also played a key role in the decision to conduct research on GM cotton, through INERA and other bodies, and to incorporate the results into agricultural extension programs.

Burkina Faso's cotton sector is clearly characterized by a vertical structure in which the cotton companies wield great power over the growers. The latter are correspondingly dependant on the

78 FIAN Burkina Faso (2017).

79 International Cotton Advisory Committee (ICAC) (2016).

former for seeds, inputs, and loans. Many of our respondents explained that this dependency is even stronger because the inputs received through SOFITEX are indispensable for their other crops. If they refuse to grow the cotton varieties offered by these companies, they are deprived of access to inputs.

This corporate-skewed power dynamic and the dependency it engenders explain why many growers feel they didn't really have a choice but to grow GM/ Bt cotton.

Peasants' dependency on a market-oriented, external input-based mode of production is epitomized by the cotton sector in Burkina Faso (see Box 2, "The cotton sector in Burkina Faso"). This sector is organized in such a way that peasants who grow cotton are forced to go into debt to the seed companies. The companies sell them seeds and inputs on credit at the start of the season, and settle accounts when harvest time comes. This economic relationship makes the peasants shoulder the risk: when the harvest is poor, they must not only make ends meet with a reduced income but also pay for the inputs at the originally agreed price. Debt is a frequent problem among these growers, who adduce that they have had to rely on other crops (mainly maize) to pay off their debts. But to do this, they need the inputs supplied by the cotton companies. The vicious cycle of debt and dependency is obvious.

With the introduction of Bt cotton, the problems inherent in Burkina Faso's cotton sector have been exacerbated. GM seed costs a good deal more than conventional seed. Research comparing the costs of different cotton production methods demonstrate that GM cotton entails considerably higher costs. According to a study involving INERA researchers, the purchase costs of inputs (seed, fertilizer, pesticide, herbicide, etc.) amounted to 87 363 CFA francs/ha for Bt cotton, versus 77 800 CFA francs/ha for conventional cotton.[80] A participatory study conducted by COPAGEN with the participation of cotton growers estimated the average production cost of Bt cotton at 125 377 CFA francs/ ha, versus 117 567 CFA francs/ha for conventional cotton.[81] The higher cost of production is in large part due to the cost of GM seed, on average 18 times that of conventional seed (33 324 versus 1 753 CFA francs/ha). The seed cost accounts for 27% of the total production cost for Bt cotton but only 1% for conventional cotton.[82] Therefore, our respondents' comments about the reduced use of pesticides and concomitant cost savings with Bt cotton do not imply that the total costs of production are lower. This is confirmed by an analysis of operating costs. A sample calculation performed by one cotton grower in a study on the socioeconomic impacts of Bt cotton conducted by FIAN Burkina Faso revealed that the system is stacked against the peasant.[83]

In our discussions with farm communities during the international research mission, no one stated that they had suffered economic losses as a direct result of Bt cotton production, apart from foregone bonuses caused by a drop in the price paid for Burkina Faso cotton on the world market. In view of the economic failure of Bt cotton – the main reason why the cotton companies stopped growing it, at least temporarily – this may come as a surprise, but it is because growers receive a fixed price for their cotton, regardless of its quality. But the cotton companies derive their income from high-quality cotton.[84] That they have been willing to absorb losses for years is an indicator of the strong political will behind Bt cotton.[85]

3.2.4. DIVERSITY OF AGRICULTURAL PRODUCTION

Our discussions with peasant communities during the international mission pointed up the considerable dversity of crops and varieties that they grow. In particular, these communities and families plant a large number of peasant varieties of traditional grains (millet, sorghum, fonio), but also varieties of maize, peanuts, cowpeas, okra (*gombo*) and other vegetables whose properties (nutritional value, taste, climate and pest resistance, etc.) they are familiar with. Our discussions also highlighted a tendency in many communities to reduce the number of varieties grown, a tendency closely tied to the adoption of commercial seed. Many communities stated that they had lost or abandoned traditionally grown varieties after commercial seed was introduced. Among the examples mentioned are local varieties of sorghum, millet, fonio,

80 Vognan, Glin, Bamba, Ouattara, and Nicolay (2017), p. 17.

81 Coalition pour la protection du patrimoine génétique africain (COPAGEN) (2017), pp. 9–10.

82 Ibid.

83 FIAN Burkina Faso (2017).

84 African Centre for Biodiversity (2017), p. 22.

85 FIAN Burkina Faso (2017).

peanuts, sesame, and cowpeas.[86] The respondents said that these varieties were abandoned because they are no longer considered profitable or high enough yielding to withstand new climatic conditions. In certain cases, peasant varieties were lost in the wake of a food crisis caused by drought-induced harvest losses that forced families to eat their saved seed.[87] In rarer cases, peasant/traditional varieties were deliberately replaced by commercial varieties considered better-performing and more modern.[88]

Although certain communities stated that they no longer grow certain peasant varieties, it must be emphasized that most of them in fact continue to grow them out, often on small plots designed for this purpose. There were several comments to the effect that it is mainly women – and especially older women – who preserve traditional seed varieties.[89] This is true even in communities stating that they have completely switched from peasant seed to commercial seed.[90]

Numerous comments demonstrate that, in most cases, peasants deplore the loss of certain traditional varieties, either because these were handed down over generations or because subsequent comparison with commercial varieties led them to a better appreciation of the properties and characteristics of varieties derived from peasant seed. In the course of our discussions, several communities stated that they would like to reclaim lost varieties and are inquiring with other communities to obtain seeds. In the East, the research team observed that a peasant variety of sorghum called Inanyomi, which one community interviewed had lost, was still being grown in another community of the same region. While this example illustrates how communities can still recover abandoned peasant varieties, the general trend is towards a reduction of agricultural biodiversity.

This is directly linked, at least in part, to the seed policies of the government of Burkina Faso, which put a higher-priority on particular sectors as a function of their socioeconomic potential, with an eye to higher-yielding and more market-oriented agriculture (see section IV.1.1). One consequence is the neglect of other crops considered less important because of the smaller area planted to them or their lower economic value, even though these crops remain crucially important to peasant communities as a guarantee of a varied diet and/or a family income source. Our discussions with peasant communities show that they generally use a number of criteria when choosing crops and varieties, yields being only one criterion among many others, such as climate and pest resistance, nutritional value, required labour and inputs, etc.

3.2.5. FOOD AND NUTRITION

Our discussions also brought to light the implications of commercial seed use for food and nutrition. An initial observation made by some communities is that food from commercial seed has different cooking properties. Several respondents remarked, for example, that traditional grains and cowpeas absorb more water during cooking, producing a better texture.[91] According to some women peasants in particular, the traditional dish called tô[92] keeps considerably better and longer if made from peasant seed than from commercial varieties.[93] Another observation on which many respondents concurred concerns taste. Several emphasized, for example, that tô has a better and richer aroma and a more pronounced taste when made from peasant varieties.[94] The taste is generally less intense when grain derived from commercial seed is used, although some prefer its appearance.[95] A recurring observation about cowpeas was that commercial varieties taste sweeter.[96] A third observation concerns perceived differences in the nutritional value of food prepared from different types of seed. Several

86 Testimonies recorded at Pama (East), Fada N'Gourma (East), Binkoora (West), Nematoulaye (West), Bobo Dioulasso (West), Soungalodaga (West), Bilanga-Yanga (East), Ninigui (North), and Thiou (North).

87 Testimonies recorded at Thiou (North).

88 Testimonies recorded at Pama (East) and Bogandé (East).

89 Testimonies recorded at Binkoora (West), Bobo Dioulasso (West), Pè (West), and Pobé-Mengao (North).

90 Testimonies recorded at Pama (East) and Fada N'Gourma (East) (see also section III.1).

91 Testimonies recorded at Nagré (East), Diapangou (East), Bilanga-Yanga (East), Yamba (East), Makegnedougou (West), and Pobé-Mengao (North).

92 Tô (or saghbo in the Moré language) is a very common dish in Burkina Faso. It is usually based on millet or sorghum flour (although maize is also used) mixed with water. It is served with a sauce and eaten like pasta.

93 Testimonies recorded at Yamba (East), Binkoora (West), Makognedougou (West), Thiou (North), and Pobé-Mengao (North).

94 Testimonies recorded at Pama (East), Pobé-Mengao (North), Ninigui (North), and Thiou (North).

95 Testimonies recorded at Titao (North). Some peasants do not notice any marked difference in taste.

96 Testimonies recorded at Pama (East), Bilanga-Yanga (East), and Yamba (East).

respondents insisted that peasant seed produces dishes that are "heartier" and more filling than commercial varieties.[97] However, certain respondents indicated that new peanut varieties produce more oil than certain traditional peasant varieties.[98]

Generally speaking, these communities are very close observers of differences in food caused by the increased use of commercial seeds and varieties, and are able to describe these differences accurately. In addition, the decreased diversity in the crops and varieties produced by communities when they introduce commercial seed (see preceding section) has impacts on food and nutrition, since the diet tends to become less varied.

It is important to note that the observed changes in the food habits of peasant communities go beyond the type of seeds used, just as the introduction of commercial seed must be seen in the broader context of the transformation of agricultural and food systems. Our discussions confirmed that the food habits of peasant communities are changing with the introduction of industrial products. One example is the increasingly widespread use of bouillon cubes, which are gradually replacing their traditional correlative, the fermented condiment known as sumbala. Aside from the fact that these products are aggressively advertised, the communities also commented that the extra time they now have to spend on the business of farming – most notably, the marketing of their production – leaves little or no time for making sumbala and other traditional practices.[99] Although these observations are not directly linked to the introduction of commercial seed, they remain important to an understanding of the consequences, at different levels, of the shift to commercial and industrial models of agriculture and food production.

3.2.6. IMPACTS ON HUMAN AND ANIMAL HEALTH

A final set of observations emerging from the discussions held during the international fact-finding mission concerns the implications of the introduction and use of commercial seed for human and animal health.

Several communities indicated that a number of their members suffer from headaches and dizziness caused by the use of chemicals, especially pesticides and herbicides, as well as the toxic products with which seeds are treated. These are of particular relevance to the cotton-growing areas, but they also apply to other regions, which can be set down to the fact that the use of agrichemicals increases with the introduction of commercial seed. Several respondents described an increase in unknown illnesses in the communities that untreatable with traditional medicine. While the scope of this report does not encompass the possible links to the adoption of commercial seed or GMOs, it seems beyond dispute that these "new" diseases are, at least in part, tied to profound transformations in peasants' ways of life, and particularly their modes of production and consumption.

The communities interviewed further observed that after the harvest, animals tend to seek out the stalks of grain grown from peasant seed rather than commercial varieties.[100] Other respondents claimed that birds die after eating commercial seed, probably because the seeds are treated with chemicals.[101] In addition, the respondents said that certain insects, bees in particular, are vanishing or declining due to herbicide and pesticide use.[102] These observations indicate that the use of commercial seed and its concomitant agricultural practices – most importantly, agrichemical applications – have impacts on human and animal health and on ecosystems.

Our discussions with farm communities also brought up troubling observations concerning the use of GMOs, in this case Bt cotton. Communities that have grown GM cotton have observed that the stalks remain standing in the fields after the harvest, shunned by termites. The second observation, reiterated by many cotton-growing communities, notably in the western region of the country, concerns unexplained

97 Testimonies recorded at Ninigui (North) and Thiou (North).

98 Testimonies recorded at Pama (East), Nagré (East), and Bilanga-Yanga (East).

99 Testimonies recorded at Thiou (North) and Nematoulaye (West).

100 Testimonies recorded at Ninigui (North).

101 Testimonies recorded at Thiou (North).

102 Testimonies recorded at Thiou (North).

animal deaths in areas where GMOs were grown.[103] Numerous peasants attribute these livestock deaths to the fact that the animals were browsing Bt cotton stalks. Scientific confirmation of whether Bt cotton is implicated in these deaths, or whether other factors must be considered, is beyond the scope of this report. It is important to emphasize, however, that the respondents are unaware of any investigation having been conducted, even though each case was reported to the authorities. In an interview with INERA, its representatives stated that they had heard of such cases but believed them to be scientifically unfounded. INERA did confirm that no investigation or study has been conducted to verify and analyze the reported cases or any possible connection with GMOs.[104]

An in-depth analysis of the effects of Bt cotton on human and animal health and on ecosystems is all the more important in that cotton growers dedicate only part of their land (approximately 20%, see chapter II) to cotton and that they practise crop rotation. This means that plots used for Bt cotton are also used for other crops, particularly food crops, the following year.[105] The absence of any analysis of the health consequences of GMO use extends to the consumption of cottonseed oil from Bt cotton. In cotton-growing areas, communities press cooking oil from cotton seed. This practice continued during the years of Bt cotton growing, and it is therefore a certainty that the communities have been consuming oil from GMOs for years. Cottonseed oil is also sold on local markets; since it is unlabeled, communities that do not grow GMOs have probably also consumed it. A study by the Institut de recherche en sciences de la santé (IRSS) on the toxicity of GM cottonseed oil ranked this product in the World Health Organization's toxicity class III, corresponding to a slightly hazardous product or one that is not entirely non-toxic.[106] Despite this human health risk, no measures have been taken to date by the Burkina Faso authorities.

103 Testimonies recorded at Bama (West), Yegueresso (West), Nematoulaye (West), Sebedougou (West), Farakoba (West), Pè (West), and Soungalodaga (West).

104 Interview with INERA, 2 June 2017.

105 Vognan, Glin, Bamba, Ouattara, and Nicolay (2017).

106 Association Interprofessionnelle du Coton du Burkina (AICB) (2015).

BOX 3: THREE TYPES OF SEEDS AND SEED SYSTEMS

Peasant seeds	Commercial seeds	GMOs
Peasant communities harbour seeds of many species and varieties that they have developed over thousands of years and been handed down from generation to generation. Peasants also reproduce seeds of species and varieties that they have adopted, sometimes by purchasing them. Access to seeds is also gained by exchanging them with other communities.	Peasants' primary means of acquiring seeds is by purchasing them from specific seed producers, seed companies, or research institutions. The cost can be considerable enough to cause peasants to change their mode of production; they may turn towards commercial crops, plant larger areas, and/or go into debt.	Peasants must buy GM seed from the companies that hold the patents to this technology and hence the exclusive right to sell the seed.
Seed selection, conservation, and use depend on peasants' knowledge and form an integral part of agricultural activities and farm life, within the web of relationships that peasant communities entertain with nature. Traditional selection consists in selecting seeds from the best plants for use in subsequent seasons. There is no impediment to peasants' selecting, saving, propagating, and exchanging[107] farm-saved seed.	Seed production and propagation is a specialized activity undertaken by private seed producers and seed companies. It is governed by specific rules (often associated with sanctions). The seeds must be certified in order to be marketed. Commercial seed is produced from varieties listed in a catalogue and protected by intellectual property rights (IPR)/plant breeders' rights (PBR), which give their holders exclusive rights. International law (through the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)) guarantees the right of peasants to save, use, exchange, and sell seed produced from these varieties. However, national legislation can restrict these rights, particularly as regards propagation and sale. In practice, much commercial seed is only viable for two to three years. Since F1 hybrid seeds do not generally breed true, they cannot profitably be saved and planted in subsequent years.	GMOs are created in laboratories with microbiological techniques involving the insertion of genes into the genome of existing varieties. The companies have complete control over seed propagation. The seeds are patented, meaning that no one can propagate them without the patent holder's consent.

107 Things can become more complicated where sale is at issue. In Burkina Faso, for example, the law establishes that only varieties listed in the national catalogue can be sold, and only by certified seed producers (see section IV.2.1). Peasant varieties do not qualify because they do not meet the DUS criteria.

Peasants choose the crops and varieties they will grow and select seeds from each harvest on the basis of their needs, knowledge, and knowhow. Peasants use a variety of criteria going beyond a pure economic calculus. This enables them to save and develop varieties that may not be immediately promising from an economic standpoint. Peasants have always sought to preserve broad agricultural biodiversity and intravarietal variability so that they can continually adapt their seeds, season after season, to the diversity and variability of soils, climates, and growing conditions. By doing so, they have been able to grow a great many different varieties, thus making a fundamental contribution to biodiversity conservation.	Crop and variety choices as well as seed propagation answer to dictates determined outside the community, often through the intervention of scientific "experts." For seed producers and companies, profitability is an important criterion. Furthermore, governments often define priority crops, one consequence being that public research institutions and programs may concentrate on promoting a handful of varieties thereof. A peasant's choice of varieties is limited to those made available, and further constrained by her or his economic means. This official focus on a few crops and varieties leads to a reduction of agricultural biodiversity.	Companies prioritize certain profitable crops for GMO development. Since this process is costly, it gives them a strong economic incentive to promote their varieties to the largest possible number of peasants for the longest possible time. This dynamic means that the spread of GMOs has considerably reduced diversity in farm fields.
Peasant varieties are highly adaptable to their environment and are constantly being adapted (by peasant selection) to changing agroecological conditions.	The adaptability of commercial varieties to agroecological conditions is reduced, since they are streamlined to meet the criteria of distinctness, uniformity, and stability (DUS) necessary to be listed in the catalogues and certified for sale.	GMOs are developed in such a way that their properties cannot modified. There is no room for adaptation to the local environments in which they are grown. Yet one risk associated with GMOs is that unforeseen and uncontrollable mutations may occur. Another major risk is the contamination of non-GM varieties.
The production of peasant varieties is based on agroecological practices and peasants' knowledge (e.g., natural pest control, compost and manure, crop associations, etc.)	Commercial seed is used in conjunction with large quantities of inputs (chemical fertilizers, herbicides, insecticides, fungicides, seed treatments, etc.), purchased from the same companies that supply the seed.	The production of GMOs requires specific inputs, often produced by the seed companies themselves. Some GMOs are designed to withstand intensive applications of certain pesticides and herbicides. Other types of GMOs (like Bt cotton) were developed to produce pesticides within the cells of the plant.
Because they are responsible for the entire seed production cycle on the basis of their knowledge and their relative independence vis-à-vis external inputs, peasants have control over the seeds they use. This gives them a large measure of autonomy and independence.	In the commercial system, peasants lack control over the entire seed production cycle. The separation of seed production from agricultural activities engenders a need to buy seeds and inputs. This, combined with (legal and/or technological) restrictions on seed saving and use, mires the peasant in increasing dependency.	Seed production and variety selection are beyond peasants' control. The use of GMOs makes them totally dependant on the patent-holding companies, from which they must buy the products at high prices. These are often the same companies that produce and sell the necessary inputs, thus exacerbating the peasants' dependency. Peasant communities are the first to be exposed to the health and ecosystemic risks of GMOs.
"Seeds are the soul of the peasant."	Seeds constitute "genetic material" that is made available to peasants (primarily via sale). Peasants are considered "users" of seeds but have no control over them. Peasants are thus turned into passive recipients of seeds.	Seeds are developed in laboratories by researchers and sold (at high prices) to peasants along with the inputs necessary to grow them. Peasants are turned into passive recipients of seeds and their activities are restricted by exclusive, patent-protected rights.

4. Background: The push for a commercial seed system and the destruction of peasant seed systems

4.1. Promotion of commercial seeds and GMOs by current policies

4.1.1. PROMOTION OF A COMMERCIAL SEED SYSTEM IN BURKINA FASO AND WEST AFRICA

The developments described in the preceding chapter are neither spontaneous nor "natural": on the contrary, they are the result of deliberate seed policies designed to promote a commercial seed system based on seed protected by intellectual and industrial property rights in which peasants are given little or no choice but to use that seed.

The programs and projects mentioned during our discussions in Burkina Faso – which promote commercial seeds and varieties to peasant communities by distributing seeds and external inputs and by training peasants in the use of these seeds and their attendant agricultural practices – are the expression of a seed policy whose goal is to replace peasant seed systems with a commercial system. The government's stated objective is to increase the use of "improved" seed. The country's last National Program for the Rural Sector (PNSR), dating from 2011,[108] had as one of its objectives that of increasing the uptake of these seeds from 15% to 40% by 2015 (and attaining gross fertilizer application rates of 50 kg per hectare).[109] In an interview conducted as part of the international mission, the SNS affirmed that the government's new objective is to reach 50% uptake of "improved" seed by 2025.[110]

To accomplish this, Burkina Faso's seed policy is putting an emphasis on the implementation and development of a commercial seed sector. The framework document guiding seed sector interventions is the Sustainable Development Strategy for the Seed Sector (SDDSS), which covers the period from 2011 to 2020. The implementation of the strategy relies on a document called the Operational Action Plan for Sustainable Development of the Seed Sector.

The SDDSS is undergirded by a vision of a "sustainable improvement of more competitive, market-integrated agricultural production," which goal is to be attained by providing for "the production, supply, and use of quality seeds of improved varieties." The overall goal of the strategy is to "lay the basis for a modern, professional, competitive agriculture that can guarantee our food security thanks to the implementation of a dynamic seed sector." Its specific objectives are to: (i) conserve plant genetic resources and make high-yielding varieties available to peasants; (ii) provide for quality seed production; (iii) increase the use of certified seed, and (iv) improve the economic and financial profitability of the seed sector. The measures to be taken to achieve these results are structured around seven strategic areas: improving plant and varietal development (area 1); conserving plant genetic resources (area 2); registering varieties and providing quality control for seed (area 3); adopting a seed security strategy (area 4); supporting the informal sector involved in seed use (area 5); seed distribution/marketing (area 6), and protection of intellectual property rights over varieties (area 7).

For its part, the Operational Action Plan for Sustainable Development of the Seed Sector is the instrument whose purpose is to put the overall strategy of the SDDSS into effect. It defines eight priority actions: 1) building the technical and material capacities of seed producers and distributors; 2) implementing the legislative and regulatory framework; 3) improving the organization/structure of actors and helping them professionalize; 4) varietal registration, quality control, and certification of seeds of improved varieties; 5) varietal development and crop improvement; 6) increased production and use of certified seeds; 7) controlling the economic and statistical parameters of the seed sector and improving its competitiveness, and 8) building the financial capacity of seed sector actors.[111]

It cannot escape notice that the SDDSS and the Operational Action Plan are strongly geared towards the promotion of a commercial seed sector. In practice, this biased approach is manifested in several ways. First, the government, in conjunction with other actors, takes measures to provide for the distribution of commercial seed, using projects, programs, and subsidies for

108 The PNSR covered the period 2011–15. A new version, the PNSR-II, is still being drafted.

109 http://www.legiburkina.bf/m/Sommaires_JO/Decret_2012_01016.htm, D.1. Component 1 – Improved food security and sovereignty, Sub-program 1.1 – Sustainable development of agricultural production, par. 70, 72.

110 Interview with the SNS, 2 June 2017. To reiterate, the current uptake of these seeds is 17–18%.

111 The first action plan was developed to cover the period 2011–15, after which it was to have been replaced by a second plan, which has yet to materialize.

this purpose (see section III.2.1). These projects and programs go hand in hand with peasant training and agricultural extension as well as activities aimed at creating and/or improving the infrastructure through which peasants' gain access to commercial seed and inputs. In this context, it is also worth noting the large quantity of commercial seed that is imported from Europe and elsewhere, especially for vegetable crops. In several interviews, the SNS and INERA admitted that the government of Burkina Faso is unable to control these imports and can only estimate the quantity of seed imported. Estimates for the 2016–17 season were 15 000 tons of seed imports for market farming. INERA stated that this lack of control is less problematic since most of this is hybrid seed, which is not reproducible.[112]

A second priority of seed policies concerns the creation of a commercial seed production industry, along with a market for this seed and incentives for the development of a private seed sector. There are many seed-related training programs designed to help seed producers increase their production capacity. As we have said, commercial seed production is boosted with projects and subsidies designed to establish a structured seed industry in which seed producers (individuals and organizations) and seed companies are the key actors. According to a recent study, "seed companies are still small or mid-sized, yet they play an increasingly important role in centralizing demand and strengthening ties between seed users and producers. Certain seed companies also market the corresponding inputs and equipment (fertilizers, pesticides, etc.)."[113] The growth of the commercial seed production sector is illustrated by the fact that seed companies like NAFASO are now exporting throughout the subregion. At the level of Burkina Faso, 90% of commercial rice seed is now produced and marketed by NAFASO.[114] At the same time, "seed producers' organizations that initially focused on meeting demand from their members are growing and trying to garner an increasing share of the domestic market, which coalesced out of reliable 'institutional' orders arising from subsidy programs."[115] In short, there is now an increasingly market-centered private seed sector that "is emerging with the support of the government and its partners."[116]

The third observation on the implementation of seed strategies is that public research and producer assistance put a very heavy emphasis on commercial varieties and seed. This applies in particular to variety "creation,"[117] collection, characterization, and registration in the national catalogue as well as the conservation of plant genetic resources (Area 2 of the SDDSS), which largely consists of *ex situ* collection and implementation of gene banks.

In principle, the SDDSS also contemplates activities aiming to support the peasant/traditional seed system, particularly in area 5, "supporting the informal sector involved in seed use." Three major activities are planned in this regard: (i) capacity building for producers in the areas of traditional selection, seed saving, and best practices for ensuring that quality seed is obtained from their farms; (ii) facilitation of access to improved varieties through outreach and implementation of demonstration trials; and (iii) support for farmer participation in plant breeding programs by means of participatory varietal selection initiatives that allow for farmerhs' concerns to be given more consideration when new varieties are developed. Priority 2 of the SDDSS, involving the conservation plant genetic resources, also concerns peasant varieties and stipulates that the government must "recognize the importance of traditional varieties or local ecotypes and their ownership by the whole community from which they came, and take appropriate measures to inventory, characterize, and conserve them with the other national genetic resources." The action plan for area 5 provides for the *in situ* and *ex situ* collection and conservation of agricultural plant genetic resources, and particularly the characterization of local plant genetic resources with a view to promoting their use by the plant breeding teams.[118]

Thus, while Burkina Faso's seed policy formally acknowledges the importance of traditional peasant varieties and the peasant seed system, the activities planned in the context of the SDDSS and the Action Plan aim to integrate peasants into the formal/commercial system rather than to build reinforce peasant seed

112 Interviews with INERA, 2 June 2017, and with the SNS, 2 June 2017.

113 Djamen and Ouattara (2017), p. 11.

114 Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, GFA Consulting Group (2016), p. 5.

115 Djamen and Ouattara (2017), p. 11.

116 Ibid., p. 9.

117 As will be explained in section IV.3, the "created variety" concept is problematic in that all varieties are developed from existing varieties – normally peasant varieties, which were developed by communities.

118 Operational Action Plan for the Sustainable Development of the Seed Sector.

systems. In addition, peasant varieties are considered mostly as a heritage gene pool that can/must be used to develop new varieties, which will then be commercialized. This approach may well open the door to biopiracy, and it raises questions about the sharing of the benefits derived from the use of genetic resources, which is an obligation of the Burkina Faso government (see chapter V). Finally, the emphasis on commercial seed goes hand in hand with a concentration on a few crops held to be priorities because of their economic/commercial potential, and on the best-performing varieties of those crops. "This strategic choice is likely to have negative effects on the availability and accessibility of crop varieties requiring low levels of inputs, sectors that are still relatively unstructured yet remain important generators of supplemental income for poor smallholders. Examples are okra (*gombo*) and *oseille*."[119]

In addition, a recent study on the seed sector in Burkina Faso shows that the various measures proposed for the development of the "informal" seed sector – i.e., peasant seed systems – have not been brought to fruition.[120] Indeed, INERA currently only has a single program on peasant seeds.[121]

This near-exclusive emphasis on the commercial seed sector is replicated in subregional seed policies, particularly those of the West African Seed Program (WASP). Funded by USAID and led by the West and Central African Council for Agricultural Research and Development (WECARD),[122] WASP aims to restructure the West African seed sector by promoting a seed industry and a commercial seed sector. WASP is based on an analysis which holds that the insufficient availability of commercial seed, the insufficiency of the infrastructure needed to guarantee widespread access to these seeds, the weakness of the West African seed industry, and the lack of private investment in the seed sector – due to an "unfavourable investment climate" – are allegedly responsible for peasants' insufficient access to "improved" seed and pose major obstacles to agricultural development in the subregion.[123] To remedy this situation, WASP pursues the following objectives: 1) implementing the Alliance for a Seed Industry in West Africa (ASIWA); 2) implementing a regional policy to facilitate a transboundary seed trade among ECOWAS-UEMOA-CILSS states by lowering barriers to trade; 3) producing sufficient quantities of pre-basic seed of categorical quality meeting the expressed need for the production of basic seed; 4) creating a strong West African private sector capable of assuring the supply of basic and certified seed, and 5) strengthening national seed trade associations so that they can fully play their role as leaders in the West African seed industry.[124]

Furthermore, WASP has been explicitly pursuing the objective of increasing the production and use of commercial seed to a level of 25% by 2017 (from 12% in 2012). Among the results obtained by WASP, WECARD emphasizes that the production of certified seeds provided to West African peasants increased markedly between 2012 and 2016, going from 183 000 to 267 000 tonnes.[125]

A key element of WASP is the implementation of the Alliance for a Seed Industry in West Africa (ASIWA), intended as a "hub for seed industry actors" that can serve as a forum for "consultation, coordination, and problem-solving."[126] This alliance is a public-private partnership and a multi-stakeholder platform involving the participation of the public sector (national and regional government agencies), the private sector, and development partners.[127] The action plan for the implementation of ASIWA contemplates the following results, among others: increased use of commercial seed by peasants; improvement of the regional seed trade; coordination of efforts to develop seed markets; building peasant confidence in commercial seed; supporting investment in seed production and supply; integrating the private sector into development initiatives, and creating synergies among actors and programs.[128] A strong emphasis is placed on strengthening the private sector, one of the strategic principles of ASIWA being to develop this sector by increasing the role of businesses in all aspects of

119 Djamen and Ouattara (2017), p. 16.

120 Djamen and Ouattara (2017), p. 14.

121 Interviews with INERA and the SNS, 2 June 2017.

122 WECARD has been the technical arm of ECOWAS for agricultural research and development since 2005.

123 West and Central African Council for Agricultural Research and Development (2014), pp. 4–11.

124 http://www.coraf.org/wasp2013/?page_id=17.

125 "Les bonnes récoltes du WASP/Programme Semencier Ouest-Africain," press release, 21 November 2016, http://www.coraf.org/wasp2016/?p=244&lang=fr.

126 West and Central African Council for Agricultural Research and Development (2014), p. 9.

127 Ibid., p. 8.

128 Ibid., pp. 13–14.

seed sector development.[129] ASIWA also has national platforms, one of them in Burkina Faso.

USAID's funding of WASP and ASIWA points to the fact that the subregional and Burkina Faso seed policies are strongly supported and guided by initiatives and programs falling within the framework of international development. Development agencies are major funders of programs and projects aiming to increase the use of commercial seed. The United Nations Food and Agriculture Organization (FAO) is also involved in ASIWA and has supported the strengthening of control and certification services in Burkina Faso as well as the preparation of the national catalogue of plant species and varieties.[130] A recent study confirms that "on the whole, support from international partners is geared towards the development of the formal seed system and pays little attention to traditional seed systems,"[131] despite their crucial importance.

An example is the New Alliance for Food Security and Nutrition in Africa (NAFSN), a public-private partnership launched in 2012 and bringing together the G7 states,[132] the governments of ten African states (including Burkina Faso), and the private sector, including multinational corporations.[133] The cooperation framework to support NAFSN in Burkina Faso, detailing the Burkina Faso government's commitments as regards the financial support of the G7 countries and the investment intentions of the private sector, includes a 15% increase in "improved" seed use over the baseline value for 2008 given in the PNSR as a policy indicator of the progress made on the implementation of NAFSN. Another indicator is an "increase in the gross dose of fertilizer use in Kg/ha," the baseline value in 2005 as per the PNSR being 40 kg/ha.[134] From the outset, NAFSN has been strongly denounced by peasant organizations and African civil society.[135] More recently, it was harshly criticized by the European Parliament in a report adopted in June 2016. This report emphasizes, among other things, the risks of increasing peasant dependency on certified (GMO and hybrid) seed and agrotoxins manufactured by foreign corporations, loss of biodiversity, and large corporations' abuse of their dominant position.[136]

While national and subregional seed policies, like development cooperation initiatives, are presented with the stated objective of improving food security, it is important to emphasize that peasants' access to seeds remains to a very great extent based on

129 Alliance for a Seed Industry in West Africa (2014).

130 Djamen and Ouattara (2017), p. 9.

131 Ibid.

132 United States, Canada, Japan, the United Kingdom, France, Germany, and Italy. The European Union is not formally a G7 member but has voting rights in the group.

133 https://new-alliance.org. For more information, see FIAN (2014) and McKeon (2014).

134 New Alliance for Food Security and Nutrition (2012), p. 10.

135 See, e.g., "Modernising African Agriculture: Who benefits? Civil Society Statement on the G8, AGRA and the African Union's CAADP," May 2013, https://www.grain.org/bulletin_board/entries/4727-modernising-african-agriculture-who-benefits; "Letter from African Civil Society Critical of Foreign Investment in African Agriculture at G8 Summit," May 2012, https://www.grain.org/fr/bulletin_board/entries/4507-letter-from-african-civil-society-critical-of-foreign-investment-in-african-agriculture-at-g8-summit.

136 See: http://afrique.lepoint.fr/economie/securite-food-le-parlement-europeen-critique-la-new-alliance-10-06-2016-2045787_2258.php. The report approved by the European Parliament is online at http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+REPORT+A8-2016-0169+0+DOC+XML+V0//EN.

traditional seeds and peasant seed systems, as do the food and nutrition of the people in Burkina Faso and West African. It thus becomes clear that the near-exclusive emphasis placed by the current policies on the promotion of commercial seeds and the private sector is first and foremost a function of particular economic objectives and interests. In this regard, it is not surprising to note the involvement of the transnational corporations that dominate the world seed and input market in many initiatives directly related to seeds. One example is the presence of Yara International[137] in the NAFSN cooperation framework for Burkina Faso; another is that of the member companies of the Grow Africa initiative, which is closely tied to NAFSN; and[138] still another is that of Syngenta, one of the world's largest seed and fertilizer companies,[139] whose foundation is involved in ASIWA. Also of note is the prominent role of the Alliance for a Green Revolution in Africa (AGRA) in several seed-related initiatives. While AGRA presents itself as an African-led initiative, it is largely funded by the Bill and Melinda Gates Foundation, the Rockefeller Foundation, and USAID.[140] One principle of the "integrated approach" (its words) adopted by AGRA is the promotion of agricultural inputs, including "improved" seed and fertilizers.[141] In Burkina Faso, AGRA is supporting the finalization of the second PNSR (PNSR-II) to build the country's capacity to attract direct foreign investment, and it is involved in ASIWA at the subregional level.[142] AGRA also supports such national actors as NAFASO and UNPSB[143] (see Figure 2 on the actors involved in the various seed-related initiatives, and Box 4, "Companies dominating the worldwide seed and agricultural input market").

BOX 4: COMPANIES DOMINATING THE WORLDWIDE SEED AND AGRICULTURAL INPUT MARKET[144]

Six large multinationals – BASF, Bayer, Dow Chemical, DuPont, Monsanto and Syngenta – have divided up essentially the whole world market in industrial seeds and agrichemicals. Together, they control 63% of the worldwide seed market, 75% of the pesticide market, and 75% of private investment in seed and agrichemical research and development. Their domination is likely to become even more lopsided with the proposed mergers between Monsanto and Bayer and between Dow Chemical and DuPont, as well as the recent purchase of Syngenta by ChemChina.

The concentration of the agribusiness market in the hands of a few large multinationals goes hand in hand with the alarming decrease in crop diversity around the world, since these firms bank on just a few hybrid varieties to turn a profit for them. This near-monopoly is also inextricable from the rising prices of seed, much of it patented or protected by other types of intellectual property rights (IPR). This situation directly affects peasants' access to seeds. Finally, these six corporations clearly wield enormous power over the direction of agricultural research and the channels for the dissemination of its results to millions of peasants around the world.

While a commercial seed sector can be complementary to peasant seed systems, the exclusive emphasis placed by the great majority of existing policies on forced promotion of the commercial system weakens peasant seed systems, which continue to ensure food security and sovereignty in Burkina Faso and West Africa. In addition, national and subregional seed policies do not take account of peasants' concerns, interests, and rights. The action plan for the implementation of ASIWA explicitly acknowledges that peasants' demand for

137 Yara is a multinational mineral fertilizer company based in Norway that is investing in Burkina Faso in the context of NAFSN (see NAFSN cooperation framework).

138 Founded by the African Union (UA), the New Partnership for African Development (NEPAD), and the World Economic Forum in 2011, Grow Africa presents itself as a platform bringing together over 200 companies and the governments of 12 African countries, including the NAFSN countries. According to its website, "Grow Africa works to increase private sector investment in agriculture, and accelerate the execution and impact of investment commitments. The aim is to enable countries to realize the potential of the agriculture sector for economic growth and job creation, particularly among peasants, women and youth. Grow Africa brokers collaboration between governments, international and domestic agriculture companies, and smallholder peasants in order to lower the risk and cost of investing in agriculture, and improve the speed of return to all stakeholders" (https://www.growafrica.com/content/who-we-are). Grow Africa is funded by USAID and the Swiss Agency for Development and Cooperation (SDC). Among the partner companies are the multinationals dominating the seed and agricultural input sectors (Monsanto, Bayer Crop Science, Syngenta, Cargill, DuPont, Dow Agro Sciences, etc.) and other initiatives like AGRA. Grow Africa also includes several university partners. See https://www.growafrica.com/organisations.

139 Syngenta is based in Switzerland but was purchased by the Chinese company ChemChina in 2017. See https://www.syngenta.com/site-services/chemchina-transaction.

140 See https://agra.org/big-three-agri-donors-team-up-to-boost-african-agricultural-transformation-2.

141 See https://agra.org.

142 https://agra.org/where-we-work/burkina-faso/. In total, AGRA has invested USD $37 million in Burkina Faso.

143 Interview with NAFASO, 2 June 2017, and with the UNPSB, 30 May 2017.

144 ETC Group (2015).

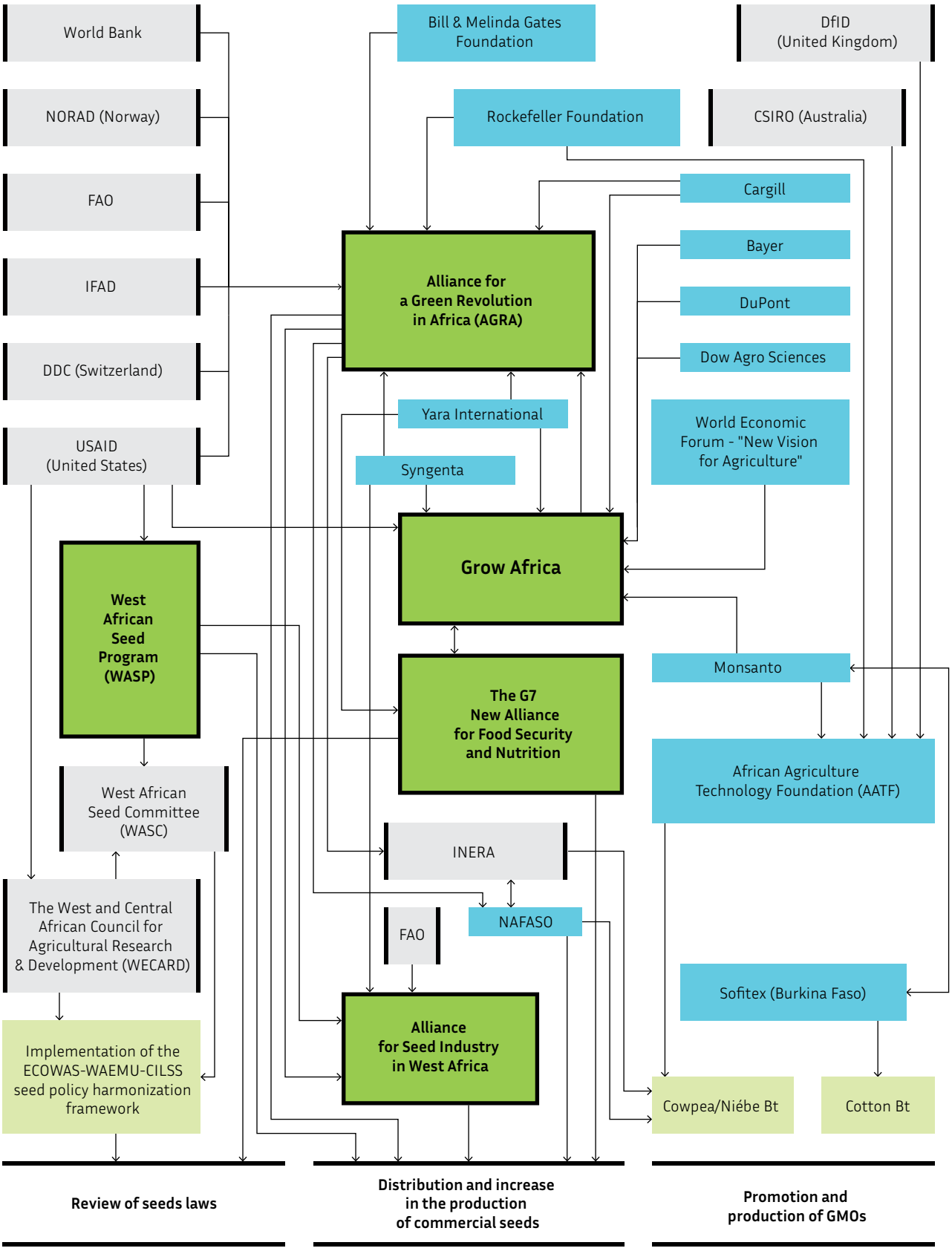

Figure 2: The actos involved in different initiatives linked to seeds in West Africa. The arrows indicate different kinds of links between actors and initiatives (financing, collaboration, provision of technical expertise etc.)

Public-private partnership initiatives
Business enterprises and private foundations
Public/State institutions

commercial seed is weak because they prefer peasant seed. The same document observes that having to buy commercial seed and inputs each year is a problem for peasants, not least because many of them cannot afford these things.[145] Yet by striving to create a demand for commercial seed and a market that can meet this demand, the existing seed policies and programs are simply creating dependency, which is not conducive to food security or sovereignty. It is also important to emphasize that, despite numerous interventions and subsidies, the commercial seed system is neither functional nor capable of guaranteeing timely access to sufficient quantities of seed for peasant communities.[146] As mentioned previously, the commercial seed production sector owes its existence to programs, subsidies, and funding from the government and development initiatives. Meanwhile, the government is materially disengaging from the seed sector, leaving the field free for the private sector to take over.[147] This erosion is likely to further accentuate the domination of private economic interests and companies over seed, to the detriment of peasants' rights. Transnational corporations in particular may well take advantage of the difficulties encountered by West African seed companies in the face of weak demand.

4.1.2. THE INTRODUCTION OF GMOS IN BURKINA FASO

According to the government of Burkina Faso, its "concern to improve the pest control situation for cotton growers"[148] was the reason of its 2001 approval of trials of a variety of genetically modified cotton known as "Bt," after the bacteria *Bacillus thuringiensis*. The plant is modified by introducing the Bt gene into its genome, enabling it to produce insecticidal toxins within its own cells. The stated purpose of this genetic modification is to provide for more effective control of certain pests (the bollworm *Helicoverpa armegira* in particular) that had developed resistance to existing cotton insecticides.[149] According to INERA, pest populations had been exceptionally high during the 1991–92, 1996–97, and 1998–99 seasons, causing major crop losses and increasing production costs due a larger number of insecticide applications.[150] But research by the journalist Norbert Zongo found that the inadequacy of pest management had not been due to pest resistance but to poor-quality pesticides. This result was corroborated in a 2000 study by researchers at the University of Liège,[151] which found it plausible that the pest infestations of the late 1990s and the whole pest-resistance argument had been invoked *a posteriori* to justify the introduction of GM cotton.

Be that as it may, Burkina Faso ultimately did opt for GM cotton. In 2001, INERA signed a contract with the US-American GMO giant Monsanto to introduce this biotechnology into local Burkina Faso cotton varieties. INERA undertook to provide seeds of conventional cotton varieties FK 290, FK 37, and STAM 59A to Monsanto, which in turn undertook to introduce its proprietary Bollgard II (BG II) biotechnology into these varieties. Burkina Faso and Monsanto were to be co-owners of the resulting GM seeds, which are protected today by the African Intellectual Property Organization (AIPO) under the names FK 94 BG II, FK 95 BG II, and FK 96 BG II.[152]

BOX 5: CHRONOLOGY OF GM COTTON IN BURKINA FASO

1990s: **The country suffers disastrous cotton crop losses due to pests.**

2001: **Agreement between Monsanto and INERA to develop GM cotton from Burkina Faso cotton varieties.**

2003: **First lab tests and confined trials of GM cotton.**

2004: **Presidential decree titled "National biotechnology safety rules" issued creating the ANB among other provisions.[153]**

145 Alliance for a Seed Industry in West Africa (2014), p. 7.

146 Some of our respondents commented on the delays in obtaining supplies of commercial seed and the unavailability of certain crops and/or varieties.

147 Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, GFA Consulting Group (2016).

148 Association Interprofessionnelle du Coton du Burkina (AICB) (2015), p. 4.

149 Coalition pour la Protection du Patrimoine Génétique Africain (COPAGEN) (2017), p. 5

150 INERA, 2006, 2005–06 research progress report.

151 Toé, Héma, and Schiffers (2000).

152 Association Interprofessionnelle du Coton du Burkina (AICB) (2015), p. 4.

153 The presidential decree remains vague as to the mission of ANB. It is detailed in law no. 064–2012/AN of 20 December 2012, on the Establishment of the biotechnology safety regime. ANB's constitution was not approved until 2015, by executive order no. 2015–834/PRES–TRANS/PM/MEF/MRSI of 13 July 2015, which raised the National Biosafety Agency (ANB) to the status of a public governmental institution of a scientific, cultural, and technical nature.

***2006:* Adoption of the law establishing the biotechnology safety regime.**

***2007:* GM cotton trials on smallholder farms.**

***2008:* Signing of the licensing agreement for commercialization of GM cotton between Monsanto, INERA, and SOFITEX.**

***2008/2009:* First GM cotton production season in Burkina Faso.**

***2014:* The cotton companies announce the failure of GM cotton on international markets.**

***2015:* The progressive suspension of GM cotton from Burkina Faso begins. The Association Interprofessionnelle du Coton du Burkina (AICB) demands 39 billion 203 million CFA francs in compensation from Monsanto, and further decides not to pay the royalties owing to Monsanto for the 2014-15 and 2015-16 seasons.**

***2016:* The amount of compensation demanded by AICB rises to 48 billion 300 million CFA francs in the wake of losses incurred during the 2015-16 season.**

2017: Amicable settlement between AICB and Monsanto. Monsanto agrees to discount the royalties owing from AICB by 75%, while AICB withdraws its demand for compensation.[154]

2017–18: First cropping season without GM cotton since its introduction.

From 2003 to 2008, experimental work on GM cotton took place in the laboratory; this was followed by confined field trials by the INERA research stations at Farako-Bâ (western region), Kouaré (East), and Saria (Centre). The chief goal in the early years (2003-05) was to test the efficacy of the Bt gene in cotton varieties from the United States. Following that, in 2006-07, the same experiments were performed on Burkina Faso varieties renowned on the international market for their quality and fibre length.[155] The Burkina Faso party and Monsanto invoked these tests to justify the resort to GM cotton to the exclusion of any other solution. They were accompanied by a communication campaign aimed at convincing cotton growers of the benefits of GM cotton and arousing great expectations among them.[156] The following arguments were put forward by the government of Burkina Faso and Monsanto:

- GM cotton would require fewer insecticide applications – only two instead of the six normally required for conventional cotton.
- Reduced insecticide applications plus better per-hectare yields of Bt cotton would translate into monetary gains and hence higher incomes for cotton growers.
- Another corollary would be to make the work less onerous for cotton growers.
- GM cotton "promotes health in cotton-growing villages […] with fewer chemical applications, human beings and animals benefit from reduced exposure to hazardous toxic products."[157]
- There would also be environmental benefits in terms of cleaner water in cotton-growing villages. IN addition, the BG II technology would have no effects on harmless or beneficial non-target insects.

After what were deemed to be conclusive trials conducted on small farms in 2007-08 in the cotton-growing regions of the country (West, East, and Centre), Monsanto and the Burkina Faso party (INERA and SOFITEX) decided, in 2008, to sign a licensing agreement for commercialization of GM cotton in Burkina Faso.

But it was not long before the hopes raised by GM cotton began to dissipate. In 2015, after several cropping seasons, the cotton companies were forced to suspend production. GM cotton had proved a failure for every actor in the cotton sector. For the growers, the promised economic benefits had not materialized: not only were per-hectare yields of Bt cotton well under the 30% increases promised by Monsanto and INERA prior to introduction[158] – according to certain studies, they were lower than yields of conventional cotton (see section III.2.2).[159] In addition, GM cotton fibre turned out to be shorter and lighter, causing a loss of income or benefits for growers, who are paid by seed cotton

154 Cf. http://www.jeuneafrique.com/412345/societe/burkina-growers-de-cotton-monsanto-parviennent-a-accord-ogm/?utm_source=Newsletter_JA_Eco&utm_medium=Email&utm_campaign=Newsletter_JA_Eco_13_03_17.

155 Ibid., p. 8. It is worth noting that Burkina Faso insisted that the Bt gene be introduced into Burkina Faso varieties because of their reputation for higher quality and longer fibres (cf. https://www.reuters.com/article/us-monsanto-burkina-cotton-specialreport/special-report-how-monsantos-gm-cotton-sowed-trouble-in-africa-idUSKBN1E21CD).

156 See Jeffrey Vitale, Marc Ouattarra, John Greenplate, and Ouola Traoré, 2006, Évaluation des impacts économiques de Bollgard II au Burkina Faso (study conducted by Monsanto).

157 Ibid., p. 9.

158 Association Interprofessionnelle du Coton du Burkina (2015), p. 12.

159 See, e.g., Coalition pour la protection du patrimoine génétique africain (COPAGEN) (2017), p. 10.

weight.[160] Although Bt cotton was easier to grow and not as pesticide-intensive, the observed loss of income was also due to increased production costs resulting from the higher price of GM seed – 18 times that of conventional cotton on average (see section III.1.3).[161] For the cotton companies, the shorter fibres and resulting decline in the quality of Burkina Faso cotton translated into lower prices and poorer sales on the international market. Also sacrificed was the quality bonus paid by buyers to the cotton companies and passed through, in part, to the growers, representing another source of revenue shortfall for the latter.[162] The combined losses over several seasons having became insupportable for the companies, they announced a phase-out of GM cotton production in 2015 and a total suspension for the 2017–18 season.[163]

Summing up, the GM cotton experience was ultimately a very bitter one for the producer communities. In the event, the reality proved to be far from the one promised by Monsanto's rhetoric, and it bore no relation to the praise and support for this biotechnology that had been forthcoming from the government of Burkina Faso and the cotton companies. Apart from their lost income, our respondents noted problems of grower debt, which are inherent in the Burkina Faso cotton sector but were accentuated by GM cotton because of the high price of Monsanto's seeds.[164] As indicated earlier, a considerable number of growers in the western region also brought up the large number of livestock deaths occurred during the GM cotton production period.[165] At time of writing, the authorities have yet to investigate these deaths.

Moreover, it must be stressed that many growers felt they were given no choice but to grow GM cotton, due to the monopoly held by the cotton companies (SOFITEX, SOCOMA, and Faso Coton) over seeds and inputs in their respective regions. The respondents interviewed during our research mission clearly evoked their dependency on these corporations for access to cotton seeds, credit, and inputs, which are essential for the other crops they must grow in order to pay off these same loans.[166] Clearly evident here is the vicious cycle of dependency into which peasants are driven, as well as the manner in which GM cotton caused their debt to the cotton companies to balloon.

> Comments of a cotton grower in Pè (West):
> *"GM cotton was imposed by SOFITEX. If we refused to grow it, then access to fertilizers for other crops would have been cut off. So, indirectly, we were given no choice in the matter."*

> Comments of a peasant in Nematoulaye (West):
> *"SOFITEX forced it on us. If we refused, we wouldn't have got any seed. We prefer conventional cotton to GM cotton, as long as effective pest control is available. If GM cotton were to come back, we would be forced to start growing it again."*

The speed and lack of transparency with which GM cotton was introduced in Burkina Faso leave doubt as to the real motivations of the Burkina Faso authorities when they opted for this Monsanto-developed biotechnology. GM cotton seed was imported and tested without proper risk assessment and no legal framework was in place at the time. The government then proceeded to tout the benefits of GM cotton at a time when the fibre length and strength problems had been known since the INERA trials of 2006 and 2008.[167] Moreover, it remains unclear why the cotton companies kept silent on the quality-related losses they had incurred (for a total of 22 billion 662 million CFA francs) and why they accepted this situation for four cropping seasons before making the decision to suspend GM cotton production.[168] Questions are also raised by the fact that there were only two crosses between the American cotton variety containing the Bt gene and the Burkina Faso varieties, even though geneticists recommend seven back-crosses in order to obtain stable seed.[169] It remains important to clarify who approved Bt

160 Ibid.; see also African Center for Biodiversity (2015a), p. 4, and López Villar (2017), p. 14.

161 Coalition pour la protection du patrimoine génétique africain (COPAGEN) (2017), p. 10.

162 AICB, press release, 20 April 2016, online at http://unpcb.org/?p=607.

163 Association Interprofessionnelle du Coton du Burkina (AICB) (2015), p. 23.

164 Testimonies recorded at Pè (West) and Koumbia (West).

165 Testimonies recorded at Sebedougou (West), Koumbia (West), Nematoulaye (West), Padema (West), Yegueresso (West), Bobo-Dioulasso (West), Pè (West), and Koumbia (West).

166 E.g., testimonies recorded at Pè (West) and Koumbia (West).

167 Association Interprofessionnelle du Coton du Burkina (AICB) (2015), p. 23; AICB, press release, 20 April 2016, http://unpcb.org/?p=607.

168 Association Interprofessionnelle du Coton du Burkina (AICB) (2015), p. 21.

169 López Villar (2017), p. 21.

cotton for general use in 2008 when the back-crossing process had not yet been completed.

Given what has been said, it becomes clear that the introduction of GM cotton in Burkina Faso was beholden to a strong political will to defend certain important economic interests, even though this did not necessarily correspond to the country's own interests, let alone those of the peasants. The government of Burkina Faso's determination was such that it subsidized American inputs and seeds to the tune of 30 million USD during the 2015-16 season.[170] According to certain sources, the partnership between Burkina Faso and Monsanto may even have represented a gesture by then-president Blaise Compaoré towards the United States with the aim of rebuilding ties with the international community after having supported Charles Taylor, the Liberian president convicted of war crimes and crimes against humanity.[171] The U.S. government's vigorous promotion of GM cotton in Burkina Faso is revealed by documents showing how the U.S. ambassador in Ouagadougou pressured then-prime minister Tertius Zongo, during the discussions around the licensing agreement for the commercialization of GM cotton between Monsanto, INERA, and SOFITEX in 2008, for the Burkina Faso party to agree to Monsanto's terms around the issue of liability.[172]

The absence of adequate risk assessment or a legal framework for GMOs at the time of the initial tests demonstrates that contractual and political interests were given precedence over the cotton growers' human rights. The current rhetoric being heard from AICB and INERA around the suspension of GM cotton clearly illustrates this, even as these organizations attempt to minimize public debate – and also political debate – on the matter. According to these actors, the GM cotton problem is a "technical problem" whose solution will enable Burkina Faso to resume production of GM cotton.[173] AICB and the Burkina Faso authorities have also made it abundantly clear that this is being treated as a temporary suspension of GM cotton, not a definitive withdrawal.[174]

As to the dispute over the 48 billion CFA francs in financial compensation demanded by AICB from Monsanto and the 15 billion in royalties owed to Monsanto, an amicable settlement was reached in early 2017.[175] Under this settlement, Monsanto agreed to discount the royalties owing from AICB by 75%, but AICB waived its claim for compensation. To quote Wilfried Yameogo, executive director of SOFITEX "a bad settlement is better than a bad lawsuit."[176] This settlement puts an end to the partnership between Monsanto and Burkina Faso's cotton sector for the time being.

The introduction of GM cotton in Burkina Faso must be situated within a broader African context in which Monsanto, as the owner of the Bollgard II technology and in partnership with development agencies and agricultural research institutions, is trying to roll out Bt cotton. A total of 13 Africa countries have already conducted GM cotton trials and approved its commercialization and promotion.[177] Kenya, Malawi, and Ethiopia have already run trials and plan to commercialize GM cotton for the 2018-19 seasons.[178]

On a continent that exports cotton but lags behind the rest of the world in terms of productivity, Monsanto has a considerable economic interest in creating a market for GM cotton. In this effort, the company has been able to rely on USAID to support GM cotton research in East Africa and to finance the implementation of a seed law at the level of ECOWAS, with a view to facilitating the movement of certified seeds in the subregion, but also to protecting its seed patents.[179] The United States-based companies active in the field of GMOs in Africa thus enjoy generous support from high levels of the U.S. government, including the embassies.[180]

Beyond GM cotton, there has been a push for other GM crops in Africa; apparently, Burkina Faso's

170 International Cotton Advisory Committee (2016), p. 5.

171 Gérard (2009).

172 See Wikileaks' publication of correspondence between diplomatic services of the United States, online at https://wikileaks.org/plusd/cables/08OUAGADOUGOU596_a.html.

173 AICB press release, 20 April 2016, online at http://unpcb.org/?p=607; interview with INERA, 2 June 2017.

174 Ibid. See also interview with ANB, 6 June 2017.

175 See, "Burkina Faso settles dispute with Monsanto over GM cotton," 8 March 2018, online at https://af.reuters.com/article/africaTech/idAFKBN16F1MP-OZATP.

176 Ibid. See also "Burkina: les producteurs de coton et Monsanto parviennent à un accord sur les OGM," Jeune Afrique, 13 March 2017, online at http://www.jeuneafrique.com/412345/societe/burkina-growers-de-cotton-monsanto-parviennent-a-accord-ogm/?utm_source=Newsletter_JA_Eco&utm_medium=Email&utm_campaign=Newsletter_JA_Eco_13_03_17.

177 African Centre for Biodiversity (2017), p. 4.

178 Ibid.

179 Ibid.; see also USAID (2015).

180 Food and Water Watch (2013).

experience with cotton will not be the last for the continent. History looks set to repeat with cowpeas, a legume native to Africa, and sorghum, the most important grain in semi-arid regions of Africa.[181] According to INERA, Bt cowpeas are nearing approval for general cultivation in Burkina Faso, yet none of the peasants interviewed during the international mission knew about the GM cowpea project.[182] Cowpeas and sorghum are major sources of protein in West Africa, and cowpeas are also an important forage crop.[183] As such, genetically modified versions of these crops offer highly lucrative market prospects for the commercial seed sector.

The push for the adoption of GM cowpeas in Burkina Faso is being driven by various international actors and comes wrapped in a discourse of "development." GMOs are being presented as a formidable tool for fighting hunger and poverty in rural areas and for protecting the environment. The pro-GMO African Agricultural Technology Foundation (AATF) is the instigator of the project to introduce GM cowpeas in Burkina Faso, Ghana, Malawi, and Nigeria.[184] The project, which enjoyed access to Monsanto's technology, is funded by USAID, the UK Department for International Development (DFiD), and the Rockefeller Foundation. It illustrates the increasing trend towards involving the private sector in development policies through public-private partnerships or multipartite initiatives (e.g., AGRA, NAFSN, Grow Africa) and towards narrowly market-oriented solutions. Such policies are premised on the notion that hunger is caused by insufficiently "modern" and "competitive" agriculture, implying that the solution must involve the acquisition of modern technologies thanks to foreign investment. There is no doubt that seed and biotech companies, as they attempt to recast themselves as agents of development on the continent, have their eyes on the new markets opening up before them. Meanwhile, African governments see biotech as a quick fix for their peasants' yield problems, but even more so, as a means of attracting international development assistance and building trade ties with industrialized countries.[185]

Many of these international initiatives are top-down, and the GM cowpea project ignores the importance of traditional seed systems to the food sovereignty of peasants, especially those of limited means. Bt cowpeas stand to fail just as Bt cotton did, for they too were developed elsewhere and may well prove ill-adapted to the environment of Burkina Faso. The human health risk is even more worrying than in the case of GM cotton, especially since the crop is intended for direct human consumption and Monsanto's technology contains the cry1Ab gene, which studies have found to have toxic effects on human liver cells.[186] Since cowpeas and sorghum are grown by nearly every West African peasant, the introduction of GM varieties of these crops will undoubtedly lead to the contamination of traditional varieties via cross-pollination, and will affect even peasants who do not grow GMOs. The high risk of contamination has been acknowledged by the AATF.[187]

4. 2. A legal framework that marginalizes peasant seed systems and promotes the commercial system and GMOs

4.2.1. THE BURKINA FASO SEED LAW AND THE WEST AFRICAN HARMONIZATION FRAMEWORK

Even though, in principle, the Burkina Faso and West African legal frameworks on seeds give recognition traditional varieties and the role of peasant communities in the preservation of biodiversity, the legislation in force favours the implementation of a commercial seed system based on IPR-protected varieties and certified seeds.

Burkina Faso's seed law (law no. 010–2006/AN, Regulation of seeds in Burkina Faso), dating from 2006, distinguishes two types of plant varieties: "improved"/"created" varieties and "traditional" varieties.[188] This law defines a traditional variety as "a variety that exists in its natural environment with

181 African Centre for Biodiversity (2015b), p. 11.

182 Interviews with INERA, 2 June 2017, and with the executive director of NAFASO, Sawadogo Abdoulaye, at Bobo-Dioulasso, 26 May 2017.

183 Cf. African Centre for Biodiversity (2015b).

184 Ibid.

185 African Centre for Biodiversity (2015a), p. 9.

186 African Centre for Biodiversity (2015b), p. 10.

187 African Agricultural Technology Foundation, Maruca-Resistant Cowpea, Frequently Asked Questions, online at https://cowpea.aatf-africa.org/files/CowpeaFAQ_0.pdf.

188 The law does not expressly cover seeds/varieties derived from modern biotechnologies, but specifies that these are governed by the biosafety legislation (s. 4).

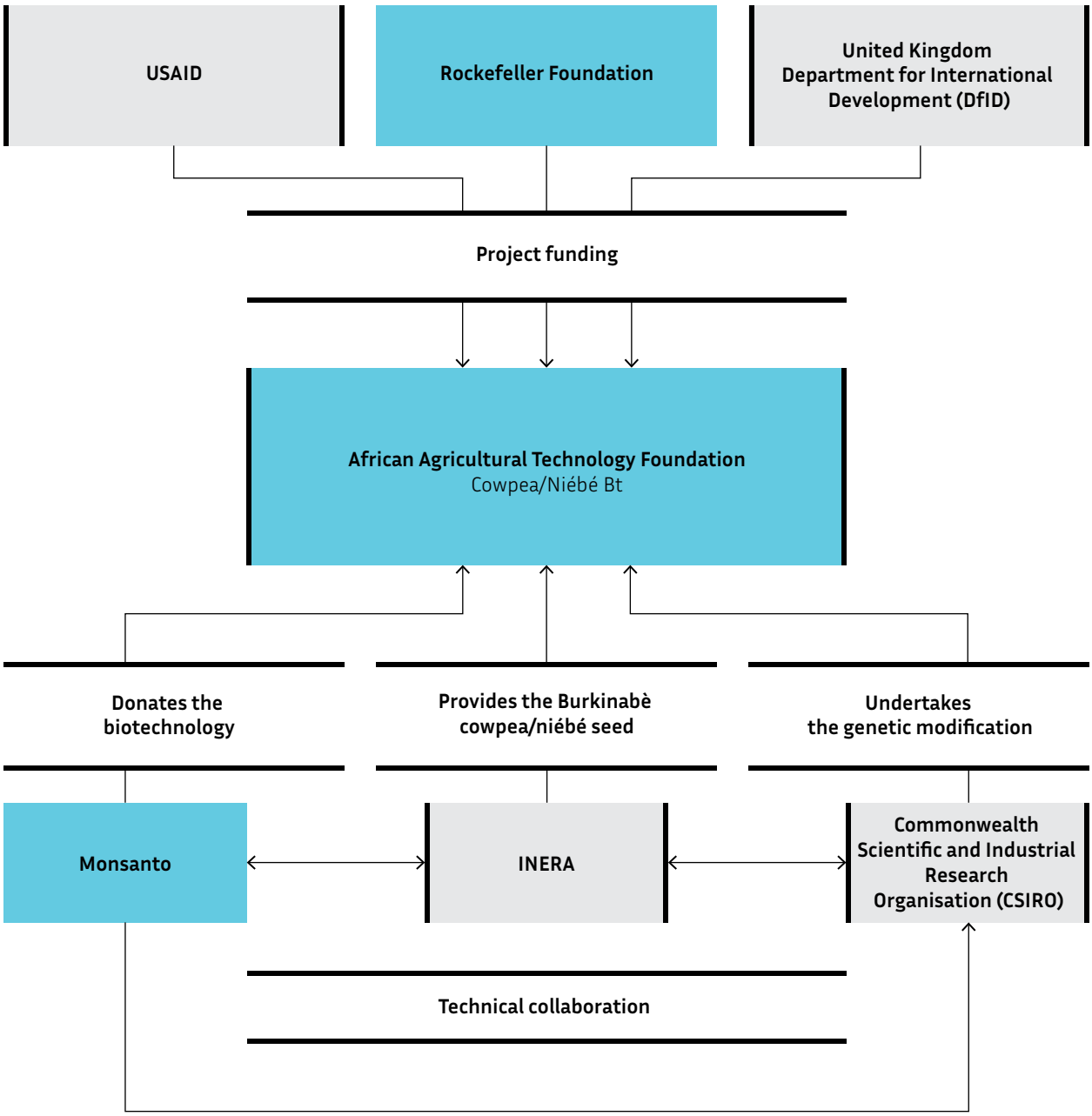

Figure 3: Forces behind the development and commercialization of Bt cowpeas

no human intervention for purposes of improvement other than traditional plant breeding."[189] Article 3 provides that "traditional varieties constitute a national heritage" and "shall be administered in the interests of the nation and in accordance with the international conventions ratified by Burkina Faso."[190] Concerning the protection of traditional varieties, article 13 provides that the state shall guarantee "the preservation of traditional plant genetic resources as a national heritage" and sets two primary objectives: conservation of biological diversity and "protection

189 Loi semencière, s. 5.

190 Loi semencière, s. 3.

of the interests of local populations."[191] Article 15 adds that "the benefits derived from the exploitation of traditional plant genetic resources shall benefit the local user populations, who are the guardians of these resources."[192] Article 14 provides that traditional varieties may not be removed from the nation's territory for research purposes without prior authorization by the competent ministries.

As regards "improved" seeds, Burkina Faso's seed law provides that "created varieties are the property of their breeders"[193] and are therefore governed by an intellectual property rights (IPR) regime. Article 11 of the law provides that these rights are granted and protected in the form of plant breeders' rights (PBR),[194] expressly clarifying that no such varieties "may be protected by patent"[195] (see Box 6, "Intellectual property rights in plant varieties").

BOX 6: INTELLECTUAL PROPERTY RIGHTS IN PLANT VARIETIES

Under Article 27(3)(b) of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), all members of the World Trade Organization (WTO) are required to implement legal frameworks for the protection of intellectual property rights (IPR). Where plants are concerned, these rights can be protected by patents or by other forms of plant variety protection. TRIPS is somewhat flexible, allowing member states to develop a variety protection system tailored to their needs (*sui generis* system). However, the world seed industry has used TRIPS as a catalyst for the imposition of their preferred system: UPOV 1991. The system of the International Union for the Protection of New Varieties of Plants (UPOV) is based on plant breeders' rights (PBR) and defines the plant variety certificate (PVC), which grants the breeder of a new plant variety a monopoly over commercial seed production and commercialization for that variety. The PVC differs from the patent system in two important exceptions designed to facilitate the development of new varieties and guarantee food security: the "breeder's exemption," which allows for the unrestricted use of protected varieties for the purpose of breeding new ones,[196] and the "peasant's exemption," whereby no restrictions are placed on peasants' right to produce their own seeds, i.e., by saving seeds from the harvest of a protected variety. These exemptions were comprehensive in the first (1961) Act of the UPOV Convention but are strongly curtailed in the 1991 Act (see section IV.2.1).[197]

Several countries, including Burkina Faso,[198] have adopted provisions barring the patenting of essentially biological breeding processes and the varieties ensuing from them. However, microbiological processes and the products thereby obtained – e.g., GMOs – are patentable. For several years now, the trend has been towards allowing patents on gene sequences developed by new, non-transgenic techniques (processes such as cell fusion and mutagenesis,[199] which have become simpler than transgenesis, or genetic modification in the conventional sense), or gene sequences existing naturally or brought into being through the use of an essentially biological process of crossing or selection (patents on native traits). Peasants who have been using or selling their own seeds for many years risk being charged a licensing fee to continue doing so if the seeds contain a newly patented native trait.[200]

These technologies and their accompanying patents thus threaten peasants' rights to use their own seed, the human right to choose one's food, and the possibility of achieving food sovereignty.

Furthermore, the seed law contains specific provisions concerning seed production, commercialization, import, export, and quality control (Title III), the institutional framework (Title IV), and violations

191 Loi semencière, s. 13.

192 Loi semencière, s. 15.

193 Loi semencière, s. 3.

194 "Any breeder of a new variety who fulfills the required conditions may enjoy plant breeders' rights pursuant to the applicable law." (Loi semencière, section 11).

195 Loi semencière, section 11.

196 Breeders are persons who develop a new plant product. If this new product is a plant variety protected by a PVC, or if it is a new plant or gene sequence protected by a patent, the breeder becomes the holder of these IPRs.

197 Kastler (2015), p. 2.

198 Loi semencière, s. 11.

199 The biotech industry uses the term "new breeding techniques" to refer to this set of genetic engineering techniques as a way of pretending that the products in question are not GMOs (cf. European Coordination Via Campesina (2017)).

200 Several hundred such patents on plants not labeled GMOs, or on their native traits, have already been granted by the European Patent Office (cf. Kastler (2015), p. 5).

and sanctions (Title V).[201] As regards the institutional framework, the law provides for the formation of a national seed committee. This is an advisory body whose role is to promote the seed sector and which is divided into two subcommittees: the varietal registration subcommittee and the basic forest materials registration subcommittee.[202] Article 33 provides for the creation of a seed sector fund to support registration, quality control, and promotional activities.

It should be noted that only Title I ("General Provisions") and Chapter II of Title II ("Protection of Varieties") clearly distinguish the two types of varieties identified by the law, while the rest of the text only discusses "improved" varieties (although this is not always made explicit). Thus, the law confers different statuses on different categories of seed and corresponding seed systems; at least implicitly, it considers only "improved" seed to be full-fledged seed. Therefore, the law only applies in a limited way to peasant seed.

Thus, Burkina Faso's seed law acknowledges in principle that farm communities are the stewards and principal users of peasant seeds and varieties and must therefore be the first to benefit from their use (art. 15). The law gives the government the role of seeing to the preservation of these resources, setting out clear objectives and stressing the importance of the applicable international conventions (art. 3), which mainly refers to the *Convention on Biological Diversity* (CBD) and its protocols as well as to the *International Treaty on Plant Genetic Resources for Food and Agriculture* (ITPGRFA; see chapter V). However, because the seed law focuses on registered/commercial varieties, the provisions on traditional/

201 The provisions of the law are complemented by executive orders for purposes of application.

202 Loi semencière, s. 32.

peasant varieties do not clarify the status of peasant seed or the modalities of its administration. The result is that the law does not acknowledge peasants' role in the management, conservation, breeding, use, and exchange of seeds, no more than it does peasants' rights to save, use, exchange, and sell their seeds. In fact, it places concrete limitations on these rights. First, it provides that only varieties listed in the national seed catalogue (established by art. 8) can be produced in Burkina Faso.[203] This excludes peasant/traditional varieties *a priori,* since only registered varieties can be listed in the catalogue and registration does not apply to peasant varieties. Second, the law establishes that seed production and propagation are subject to listing in the registry of seed producers, which requires the payment of a tax.[204] Third, only certified seeds can be disseminated and marketed.[205] In this way, the law restricts production and dissemination – and, in particular, sale and commercialization – to seeds of "improved" varieties, which are protected by IPR/PBR. Sections 46 to 48 of the law establish harsh sanctions for violations, which may open the door to criminalization of peasant breeding and seed exchange practices, in particular where seeds are sold.[206]

Still, insofar as the seed law only applies in a limited way to peasant/traditional varieties, peasants can continue to use them in the course of their routine practices. The law, that is, does not infringe peasants' rights to save, use, exchange, and sell seeds of these varieties within peasant and community networks. But neither does it contain any provisions designed to protect peasant/traditional varieties from biopiracy, and hence from appropriation by individuals or companies. Only article 14 grants some protection where varieties are used for research purposes, although it places the emphasis on national sovereignty rather than the rights of farm communities to traditional varieties.[207]

Besides failing to clarify the status of peasant seed and traditional seed systems, the law institutes an IPR-based seed regime. This regime restricts peasants' rights to seeds derived from protected varieties. It should be noted in this context that the concept of "created variety" is itself problematic in that most "improved" varieties listed in the catalogue are basically traditional varieties that have been standardized, which suffices to claim IPRs over them (see also section IV.3).[208] Article 12 of the Burkina Faso seed law provides that the protection of plant breeders' rights "shall not infringe the right of peasants to freely use the variety for sowing in their own fields, nor the right of other breeders to use the variety for research purposes."[209] This implies a partial recognition of peasants' rights with respect to the use of IPR/PVC-protected varieties, but limits these rights to use in their own fields. It is important to realize that this section does not authorize the exchange or sale of seeds produced from protected varieties. Read in conjunction with the sections on seed production and commercialization (articles 16–26), the seed law thus places considerable limitations – backed up with harsh penalties – on the rights of peasants, as recognized internationally by the ITPGRFA (see section V.2), to save, use, exchange, and sell seeds.

It is equally important to consider that the law applies in the context of a subregional legal framework at the level of the ECOWAS-WAEMU-CILSS area. Although Burkina Faso's law predates this framework, the government of Burkina Faso is of the view that the two are consistent, although the law is more detailed. In addition, the SNS considers the national seed production protocols to be more rigorous. This being the case, no in-depth revision of the national seed law is apparently in the works, even though amendments may be necessary to harmonize it with the subregional framework.[210]

The subregional legal framework for seeds is the culmination of a multi-year process giving rise, in 2008, to ECOWAS regulation no. C/REG.4/05/2008, *Harmonisation of Rules Governing Quality Control, Certification and Marketing of Plant Seeds and Seedlings*. In 2014, this framework was adopted for the WAEMU and CILSS regions as well. A body called the Regional Seed Committee is in charge of coordinating the

203 Loi semencière, s. 8: "A national catalogue of varieties and basic forest materials registered in Burkina Faso is hereby created. The national catalogue of varieties and basic forest materials contains the list of plant species and varieties authorized to be produced in Burkina Faso."

204 Loi semencière, ss. 16, 18.

205 Loi semencière, s. 17.

206 Brac de la Perrière (2017), p. 24.

207 Institut de recherche et de promotion des alternatives en développement (IRPAD) & Biodiversity Exchange and Dissemination of Experiences (BEDE) (2016), p. 31.

208 Brac de la Perrière (2017), p. 24.

209 Loi semencière, s. 12.

210 Interview with the SNS, 2 June 2017.

implementation of this regulation.[211] It is important to note that this regulation has the status of community law and produces the same legal effects as domestic law. The entry into force of community regulations is not contingent upon parliamentary ratification; they become applicable in member states upon publication in the official journal.

The subregional seed regulation is among the common agricultural policy priorities of ECOWAS (ECOWAP) and "aims, *inter alia,* to create conditions favourable to the emergence of a strong seed industry, capable of guaranteeing a regular and timely supply of quality seeds, in sufficient quantities and at affordable prices, in the 17 countries of the subregional area."[212] It is thus consistent with subregional seed policies promoting commercial seed and fostering the implementation of a commercial, market-based seed system. The regulation revolves around three priorities: i) the primacy of the regulation's application to the entire territory of ECOWAS (and WAEMU and CILSS) member states; ii) complementary measures to be taken by member states, as well as complementary measures within the purview of the ECOWAS Commission, and iii) proper and orderly implementation procedures for the regulation. The West and Central African Council for Agricultural Research and Development (WECARD), in charge of coordinating and facilitating the Regional Seed Committee and the implementation of national seed committees in member states, plays a key role in the implementation of the subregional regulation. The implementation process for the regulation is supported by USAID. According to USAID's West Africa Mission Director, "the ultimate goal of this support is to expedite the quality certified seed trade by means of harmonized regional regulations."[213]

The subregional seed regulation is supplemented by several enabling instruments and procedure manuals. Its most important provision is for the implementation of a West African catalogue of plant species and varieties, a document common to the member states and containing the list of all plant species and varieties found in the different national catalogues. The West African catalogue was developed under the aegis of a project funded by the French ministry of agriculture and implemented by the FAO.[214] This document contains the restrictive list of varieties of which seeds are permitted to be produced and marketed within the ECOWAS-WAEMU-CILSS area (art. 70). Like Burkina Faso's seed law, the subregional regulation focuses on seeds of commercial/registered varieties, fails to clarify the status or administration of peasant seed, and imposes de facto limitations on peasants' rights with respect to seed production and dissemination. An updated version of the regional catalogue of 2008, along with an enabling regulation providing for the organization of the catalogue, were validated by the member states at the second statutory meeting of the Regional Seed Committee, presaging the upcoming publication of a new regional catalogue.[215]

As stated, the Burkina Faso and subregional legal frameworks for seeds favour the implementation of a commercial seed system based on intellectual property rights. These are exclusive 25-year rights held by breeders that represent de facto limitations on peasants' rights to produce, propagate, exchange, and sell seeds of IPR-protected varieties. Most West African states do not have their own intellectual property laws; they have instead ceded this power to the African Intellectual Property Organization (AIPO).[216] The *Agreement Revising the Bangui Agreement of March 2, 1977, on the Creation of an African Intellectual Property Organization,* a document adopted by AIPO in 1999, acknowledges three types of intellectual property applicable to seeds: plant breeders' rights (PBR), patentable inventions, and geographical indications. This agreement applies directly to the 17 AIPO member countries, including Burkina Faso.[217] On PBRs, "Annex X of this agreement recognizes breeders as the exclusive owners of the seeds covered by the plant variety certificate (PVC). Breeders thus have the right to prohibit anyone from making commercial use

211 Brac de la Perrière (2017), p. 19; Institut de recherche et de promotion des alternatives en développement (IRPAD) & Biodiversity Exchange and Dissemination of Experiences (BEDE) (2016).

212 Concept paper, formation of regional seed committee, August 2015, Abidjan (cf. Brac de la Perrière (2017), p. 19).

213 Alexandre Deprez, West Africa Mission Director, USAID, quoted in Brac de la Perrière (2017), p. 20.

214 Brac de la Perrière (2017), p. 21. This study notes that "France is the world's number one seed exporter and the largest European seed producer. It wields a strong influence in the [West African] region over the structuring of a regulatory framework favourable to the seed industry."

215 Ibid.

216 Ibid.; also, Institut de recherche et de promotion des alternatives en développement (IRPAD) and Biodiversity Exchange and Dissemination of Experiences (BEDE) (2016).

217 The AIPO member states are Benin, Burkina Faso, Cameroon, Central African Republic, the Comoros, Congo, Côte d'Ivoire, Gabon, Guinea, Equatorial Guinea, Mali, Mauritania, Niger, Senegal, Chad, and Togo.

of the variety; i.e., from using and/or reproducing it for purposes of profit."[218] Under articles 28–36 of Annex X, the PVC affords protection of the variety for a period of 25 years from the date of issue of the certificate. During this time, other users of the variety cannot use these seeds without the breeder's consent. Article 16 does provide that peasants can use seeds of protected varieties in their own fields. In principle, the agreement does not deny peasants' right to exchange and give seeds of PVC-protected varieties, but it prohibits these practices if they are for a commercial purpose.[219]

It is important to emphasize that AIPO established a system based on the 1991 Act of the International Union for the Protection of New Varieties of Plants (UPOV 1991). AIPO joined UPOV 1991 in 2014 and this regime now applies to Burkina Faso and the other West African countries, even though these countries have not individually joined UPOV.[220] Since AIPO joined UPOV, the two organizations have begun pushing for individual member countries to join as well. This would facilitate the implementation of AIPO's rules, which are already aligned with those of UPOV. According to an ongoing study of AIPO's impact on the protection of plant breeders' rights, the UPOV-based system is ill adapted to the national realities of West African countries and does not work. If these countries joined UPOV, it could then intervene directly to facilitate the implementation of its regime.[221]

UPOV 1991 sets up a restrictive IPR-based system and its application de facto jeopardizes peasants' rights to save, use, exchange, and sell seeds as recognized by the ITPGRFA (see chapter V). While the 1978 Act of the UPOV Convention allowed peasants to save, use, and exchange seeds, with UPOV 1991, "peasants' right to seed ha[s] become an optional exception left to the discretion of national governments; it is restricted to peasants' own use and must 'safeguard the legitimate interests of the breeder' (Article 15.2)."[222]

218 Brac de la Perrière (2017), p. 27.

219 Ibid.

220 See the list of member countries and organizations of UPOV, online at http://www.upov.int/export/sites/upov/members/en/pdf/pub423.pdf. The only country of sub-Saharan Africa appearing as an individual member is South Africa.

221 Interview with Mohamed Coulibaly and Robert Ali Brac de la Perrière, Ouagadougou, 25 November 2017.

222 Peschard (2016), p. 23.

4.2.2. THE BURKINA FASO NATIONAL AND SUBREGIONAL BIOSAFETY FRAMEWORKS

The tests conducted on Bt cotton in Burkina Faso took place in the absence of a legal framework on "biosafety" governing genetically modified organisms. While GM cotton experiments began in 2003, it was only in 2004 that the first legal framework for biosafety appeared in Burkina Faso, in the form of presidential order no. 2004-262/PRES/PM/MECV/MAHRH/MS, "National Rules Concerning Biotechnology Safety."[223] The order recalls that Burkina Faso has ratified the *Convention on Biological Diversity* as well as the *Cartagena Protocol* thereto (see section V.1) and therefore "cannot and must not avoid taking appropriate measures for the prevention of biotechnological risks." Yet this order of 2004, including a whole chapter (chapter II) establishing the rules for confined trials, appeared one year after such trials had already begun. The order provides for the creation of the National Biosafety Agency (ANB) and three other advisory bodies: the National Biosafety Observatory (ONB), the National Scientific Biosafety Committee (CSNB), and the internal scientific biosafety committees. It was not until 2006 that Burkina Faso enacted a law governing GMOs, law no. 005-2006/AN of 17 March 2006, subsequently repealed and replaced by law no. 064-2012/AN of 20 December 2012 on "the biotechnology safety regime." Section 3 of this law institutes the ANB, the ONB, and the CSNB. Section 4 clarifies the ANB's mission: among other things, to "oversee the application of rules for the assessment, management, information, and control of the risks inherent in the use, dissemination, and transboundary movement of genetically modified organisms likely to have harmful effects on the environment, or on human and animal health, and/or that affect the conservation and sustainable use of biological diversity." Although the ANB was created in 2006, its bylaws were not approved until 2015, by an executive order of July 2015.[224]

The law provides that the ANB shall conduct a prior assessment of risks to human and animal health, biological diversity, and the environment, as well as the socioeconomic consequences, before making

223 Presidential order no. 2004–262/PRES/PM/MECV/MAHRH/MS, "National rules concerning Biotechnology Safety," para.13, online at http://bch.cbd.int/database/attachment/?id=11742.

224 Executive order no. 2015-874/PRES/PM/MRSI/MEF/MARHASA/MERH/MS/MRA of 14 July 2015, Approving the bylaws of the National Biosafety Agency.

any decision relating to the import, confined use, dissemination, or commercialization of GMOs (art. 24). It even requires the ANB to order a study of the ethical and socioeconomic impacts on local populations before GMOs are released into the environment (art. 62). All risk assessments of GMOs must be made public (art. 38), and section 39 requires the ANB to consult the public on any plan to release or commercialize GMOs. Finally, the law allows any person, group, or private or public organization to file a complaint and demand redress in case of failure to conform to the law (art. 85), and administrative and criminal sanctions are prescribed for physical and legal persons found guilty (arts. 104–12).

Despite the absence of references to human rights impacts (the word "ethics" is substituted), the 2012 biotechnology safety law clearly affirms the precautionary principle. In practice, however, the most concerned actors – namely, the cotton growers – have little awareness of this law, and the precautionary principle has clearly been violated, especially where human and animal health are concerned. As mentioned previously, a study on the toxicity of GM cottonseed oil used for food in Burkina Faso ranked the oil as a WHO class III toxin, corresponding to a slightly hazardous product or one that is not entirely non-toxic.[225] Despite this human health risk, the ANB has yet to take any applicable measures. In addition, there has been no investigation to our knowledge of the suspect livestock deaths experienced by many Bt cotton growers.

Besides the 2012 law on the biotechnology safety regime, law no. 070-2015/CNT of 22 October 2015, Establishing the framework for the use of agro-sylvo-pastoral, fisheries, and faunal resources, authorizes the use of GMOs, clarifying that the state is responsible for "guaranteeing biosafety within the framework of the cultivation of genetically modified organisms by continuously assessing, in concert with the other actors, the effects and impacts of the growing of genetically modified organisms on ecosystems, soil fertility, and human and animal health."[226]

It is important to emphasize that a subregional framework for the "prevention of biotechnological risks" is in the process of development by ECOWAS, CILSS, and WAEMU experts at the level of West Africa. Under the impetus of a World Bank-funded project, the goal is to harmonize the various national biosafety laws so as to facilitate the free movement of GMOs in the West African area.[227] If this regulation is adopted pursuant to the project, member states will no longer be able to refuse entry of GM seeds onto their territory from another country, as long as the seeds comply with the country of origin's laws.[228] Another purpose of the regulation is to establish the principle of mutual recognition with respect to the modalities governing the assessment and management of risks arising from the movement of GMOs.[229] The draft regulation provides for the creation of a regional biosafety authority with a mandate to "coordinate the measures taken by member states with regard to decision-making around the dissemination in the environment of all LMOs [living modified organisms] and/or products derived from them."[230]

Although the draft includes safeguards applicable to the movement of GMOs, its adoption in the subregion will mean that a single country's approval of a GMO for commercialization will enable that GMO to move throughout the subregion, thus facilitating its introduction at the regional rather than the national level. The result will be to open up a regional market for GMOs for the benefit of multinational corporations.

4. 3. An official discourse denigrating peasant seed and peasant seed systems

Seed policies and legal frameworks favouring commercial seed and GMOs are based on a discourse that devalues and denigrates peasant seed and seed systems. The words used in the ideological battle over seeds matter: commercial seed is introduced and touted as "improved" or "quality" seed and is therefore

225 Association Interprofessionnelle du Coton du Burkina (AICB) (2015).

226 S. 82 of law no. 070–2015/CNT of 22 October 2015, Establishing the framework for the use of agro-sylvo-pastoral, fisheries, and faunal resources in Burkina Faso, is discussed in Agence nationale de biosécurité, Étude sur l'intégration de la biosécurité dans les politiques et plans d'actions nationaux au Burkina Faso, online at https://bch.cbd.int/mainstreaming/burkina%20faso-desk%20study.pdf.

227 See Draft regulation on the prevention of biotechnological risks in West Africa, online at https://de.scribd.com/document/317515091/Project-de-Reglement-de-l-UEMOA-Sur-La-Bio-Securite; see also World Bank, West Africa Regional Biosafety Project: Environmental and Social Management Framework (Vol. 3), online at http://documents.worldbank.org/curated/en/333041468007861804/Cadre-de-gestion-environnementale-et-sociale-pour-la-biosecurite.

228 Draft regulation on the prevention of biotechnological risks in West Africa, s. 8.

229 Ibid., s. 7.

230 Ibid., s. 17.

presented, implicitly or explicitly, as better than peasant seed. The clear implication is that peasant seed is not equally good, not capable of meeting the challenges facing peasants. For example, Burkina Faso's seed law defines an "improved variety" as a "variety of which one or more characteristics exhibit better performance than the varieties from which it is derived. It *better meets* the requirements of peasants, based essentially on the criteria of quality and quantity" (emphasis ours).[231] Multinational seed companies, too, justify their activities in West Africa by invoking the need to increase the availability of "high-quality seeds."[232]

In the dominant rhetoric, farm communities are considered and described as incapable of meeting the ongoing challenges: they need outside help, whether it be government assistance, research, international development projects, or seed company contributions, to find solutions. As described in section III.1, the consequences of climate change – most importantly, the increasing unpredictability and irregularity of rainfall – are the main pretext being used to induce peasants to use commercial seed. The dominant rhetoric claims that commercial varieties have a shorter season, purportedly reducing the likelihood of poor harvests in the face of an ever-shorter, drought-plagued growing season. The discussions with peasant communities during the international research mission show that changing climatic conditions are indeed a major challenge confronting the peasants of Burkina Faso: several respondents adduced this as one of the reasons why they began using commercial seed. But the respondents also indicated that the promise of a shorter cycle with commercial varieties is not always borne out by the reality. In addition, when the time comes to choose a variety, the length of the growing season is only one variable – albeit an important one – among many. Our respondents also stated that commercial varieties are often less resistant to extreme weather (e.g., heavy wind and rain), which is also increasing in the context of the climate crisis.

It is important to emphasize that the concept of "quality seed" is not a legal term but a political one.[233] More important, the dominant rhetoric promoting commercial seed is not credible given the facts on the ground or the history of the case. Today's crop diversity and varieties were initially developed by peasanth communities, who selected seeds at each harvest and adapted the existing varieties to changing conditions. This capacity and knowledge on the part of peasants is very much alive in West Africa. It is the origin of agricultural biodiversity, a fact recognized by international agreements such as the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) (see section V.1.2). Without a doubt, climate change represents a huge challenge for peasants, who are the first to suffer. But on the strength of their knowledge and the many traditional varieties at their disposal, they are also the best placed to face this challenge and find solutions. What we see instead is that, far from helping peasants find answers based on their knowledge and knowhow, current policies, activities, and research are proposing "solutions" that increase peasants' dependency and ultimately weaken them – despite the official rhetoric trumpeting the importance of food security.

A second thing to note is that the "improved" varieties promoted today, including GMOs, are developed on the basis of varieties created by farm communities over the centuries. The terms "created varieties" and "varieties new" have to be put into perspective. In addition, the scientific contribution to the creation of these varieties is in some cases minimal. In our discussions with farm communities, some respondents indicated that INERA agents had asked them for seeds of peasant varieties. The same researchers allegedly came back later offering seeds of the same variety as "improved" seeds.[234] In an interview, INERA representatives confirmed that the "scientific" work on the development of a "new" variety sometimes involves merely growing out and purifying genetic lines to obtain the greatest possible uniformity of crops derived from peasant seed.[235] There is nothing scientific about this process per se. One instance of this process of creating an "improved" variety in Burkina Faso is the traditional variety of sorghum known as Kapelga.[236] This sorghum variety is now listed in the national catalogue, with the consequence that it can be commercialized, but also that peasants' rights to propagate, use, exchange, and sell seeds of this variety may potentially be restricted. This is a form of biopiracy perpetrated by public research, which gives

231 Loi semencière, s. 5.

232 See, e.g., Syngenta Foundation for Sustainable Agriculture (2015).

233 Cf. Brac de la Perrière (2017).

234 Testimonies recorded at Pobé-Mengao (North).

235 Interview with INERA, 2 June 2017.

236 Ibid.

commercialization precedence over peasants' rights. INERA itself stated an objection to the fact that certain varieties "created" by public research and registered in the national catalogue are now being produced by commercial seed companies and sold to peasants at high prices.[237]

Seed companies are also striving to obtain plant variety certificates (PVC) on peasant varieties so that they can monopolize commercialization rights. An example in Burkina Faso is that of the "Burkina yellow pepper," a variety protected since 2015 by a PVC held by Senegal-based Tropicasem S.A.[238] It is important to emphasize that the protection of a variety and its inherent IPRs by a PVC does not require the person or entity applying for protection to prove that the variety in question did not formerly exist, but only that no variety exhibiting the same characteristics has been previously registered. The consequence is that once a variety is listed in the catalogue and protected by a PVC, peasants who use peasant varieties exhibiting the same characteristics are considered to be in legal violation of PVC-protected intellectual property rights.[239]

Our peasant respondents' reactions to commercial seed demonstrate that they do not reject technology or modern scientific innovation outright and that they are open to improvements that meet their needs. However, they reject the monopolization, by research institutions and seed companies, of genetic resources that they and their ancestors have created. In addition, peasant communities reject all limitations of their seed rights and access to seeds as a result of seed privatization, whether these be technological (non-reproducibility of traits in the case of hybrids and GMOs), legal (limitation of rights by IPRs), or economic (excessive expenses tied to the purchase of commercial seed; see section V.1).[240] Farm communities have stated their position that public research and political intervention must be based on their concerns, needs, interests, and rights and that peasants must have greater involvement in participatory approaches placing peasants and researchers on an equal footing in the co-construction of knowledge and the democratization of agricultural research. In this context, it is particularly necessary to recognize and take account of peasants' criteria of what constitutes a good or quality seed, and to respect and reinforce peasants' quality control systems for their own seeds.

237 Ibid.

238 African Intellectual Property Organization (AIPO) (2015). Tropicasem is a "sister distributor" of French seed company Technisem; see "Ronan Gorin, Technisem, Longué-Jumelles - Les racines de l'avenir," Anjou Eco, online at http://www.anjoueco.fr/document-3525-2249-Ronan-Gorin-Technisem-Longue-Jumelles-Les-racines-de-l-avenir.html#carte.

239 See GRAIN (2015).

240 Cf. Kastler (2016).

5. Human rights analysis

5.1. Seed-related human rights obligations of states

5.1.1. THE RIGHT TO FOOD AND NUTRITION

The state of Burkina Faso has human rights obligations that must guide and orient its policies, laws, and actions, including where seeds are concerned. In this context, it is particularly important to take into account international standards governing the human right to food and nutrition. However, all human rights being interdependent, access to seeds and their use is a necessary condition for the realization of several human rights, including economic, social, and cultural rights as well as civil and political rights. As a UN member state, Burkina Faso is bound by the *United Nations Charter* and the *Universal Declaration of Human Rights* (UDHR). In addition, the country has signed and ratified the *International Covenant on Economic, Social and Cultural Rights* (ICESCR), the *International Covenant on Civil and Political Rights* (ICCPR), the *African Charter on Human and Peoples' Rights* (ACHPR), the *Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa* (Maputo Protocol), the *Convention on the Rights of the Child,* and the *Convention on the Elimination of all Forms of Discrimination against Women* (CEDAW). Under these treaties, the government of Burkina Faso is obligated to respect, protect, and fulfil the rights described below.

The right to food and nutrition is a human right arising from the International Bill of Human Rights.[241] It falls under the heading of the right to an adequate standard of living, as enshrined in article 25 of the UDHR and guaranteed by article 11 of the ICESCR.[242] Article 11.1 of the ICESCR recognizes "the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions." Article 11.2 recognizes "the fundamental right of everyone to be free from hunger." The right to food was reaffirmed by article 12 of CEDAW[243] and article 24 of the *Convention on the Rights of the Child.*244

Burkina Faso ratified the ICESCR in April 1999 but did not enshrine it in the country's constitution. This right is, however, mentioned in certain agricultural policies, such as the National Program for the Rural Sector, and also in section 11(1) of law no. 070-2015/CNT of 22 October 2015, Establishing the framework for the use of agro-sylvo-pastoral, fisheries, and faunal resources in Burkina Faso, which reads: "The state shall guarantee the right of everyone to a sufficient standard of living, in particular regarding the right to food as a fundamental human right, by guaranteeing, at all time and in all places, the quantitative and qualitative availability as well as the physical and economic accessibility of quality food products answering the energy needs and food preferences necessary to lead a healthy and active life."

The human right to food was interpreted by the United Nations Committee on Economic, Social and Cultural Rights (CESCR), which supervises the implementation of the Covenant, in its General Comment (GC) no. 12.[245] GC no. 12 stresses that the right to food and nutrition goes beyond a minimum quantity of calories and nutrients, and that this right is realized "when every man, woman and child, alone or in community with others, have physical and economic access at all times to adequate food or means for its procurement."[246] Paragraph 8 clarifies the core content of the right to adequate food, determining that it includes the availability of food in a quantity and quality sufficient to satisfy individuals' dietary needs, on the one hand, and the accessibility of such food in ways that are sustainable and that do not interfere with the enjoyment of other human rights, on the other.

"Availability" refers to the possibilities for feeding oneself, either directly from productive land and other natural resources, including the use of seeds and other inputs, or through well functioning distribution, processing and market systems that can move food from the site of production to where it is needed in accordance with demand.[247]

"Accessibility" has both economic and physical components. *Economic accessibility* implies that the financial costs associated with the acquisition of food in sufficient quantity and quality should be at a level such that the attainment and satisfaction of other

241 The International Bill of Human Rights includes the Universal Declaration of Human Rights, the ICESCR, and the ICCPR.

242 United Nations (1966).

243 United Nations (1979).

244 United Nations (1989).

245 United Nations Committee on Economic, Social and Cultural Rights (1999).

246 General Comment no. 12, par. 6.

247 Ibid., par. 12.

basic needs are not threatened or compromised. The Committee explicitly states that socially vulnerable persons or groups such as landless persons and other particularly impoverished segments of the population may need to be covered by special programs guaranteeing economic access to food. *Physical accessibility* implies that adequate food must be physically or materially accessible to everyone, with special attention to vulnerable persons and groups and those affected by discrimination.

In view of the foregoing, it is clear that the direct availability of food obtained from agriculture is integral to the human right to food and nutrition for individuals and groups – i.e., peasants – who decide to exercise their right in this way, especially in rural areas. This implies economic access to productive resources, given that obtaining food that is sufficient and varied enough to lead a decent life means securing access to land and the other resources necessary to work the land, including seeds. Therefore, seeds, plants, and animals are as indispensable as water and land to obtaining food, so that the use thereof by individuals and communities for this purpose are integral to the right to food and nutrition.

International human rights law imposes two types of obligations on states: general obligations and specific obligations. To act in accord with their *general obligations*, states must adopt measures favouring the progressive realization of human rights. This includes refraining from any measures that would set back the realization of a human right; in the case at hand, that means measures that would hinder or curtail access to food. In addition, states must guarantee that no individual or group is discriminated against, in the enjoyment of his or her human rights, on the grounds of race, colour, sex, age, language, religion, opinions (political or otherwise), national or social origins, economic status, birth, physical or mental handicap, health, sexual orientation, or civil, political, or social status.

As to the *specific obligations* of states, all human rights, including the right to food and nutrition, carry three types of associated obligations: namely, the obligations to respect, protect, and fulfil the right. The *obligation to respect* the right to food means that states must not take measures undermining this right or preventing individuals or groups from enjoying it. The *obligation to protect* this right implies that states must take measures to prevent third parties (individuals, groups, companies, etc.) from interfering with the enjoyment of this right. Finally, the *obligation to fulfil* the right to food means that states must take measures to ensure that everyone can enjoy this human right and live a decent life.

Give the direct connection between access to seeds and their use, on the one hand, and the right to food and nutrition, on the other, these three specific obligations also apply to seeds. Therefore, the states parties to the ICESCR, including Burkina Faso and other West African states, have the obligation to respect, protect, and guarantee access to, and use of, the seeds, plants, and animals needed by individuals and communities to feed themselves.

States must therefore refrain from taking any measures whose impact would be to deprive anyone of access to seeds and the use thereof.[248] This includes, *inter alia,* the introduction of legislative or other measures hindering or curtailing peasants' access to their traditional means of obtaining peasant seed – i.e., peasant seed systems. Second, given their obligation to protect human rights, states must regulate the activities of patent or PBR holders so that they do not violate the right to food of peasants who need inputs in order to grow crops. Finally, states must promote the realization of the right to food by actively strengthening peasants' and communities' access to seeds and their use of these resources. States must also "improve methods of production [...] by making full use of technical and scientific knowledge."[249]

Along the same lines, article 21 of the *African Charter on Human and Peoples' Rights* guarantees that "[a]ll peoples shall freely dispose of their wealth and natural resources. This right shall be exercised in the exclusive interest of the people. In no case shall a people be deprived of it."[250]

The right of rural women to access and use seeds is recognized by article 14 of CEDAW. In March 2016, the Committee on the Elimination of Discrimination against Women, which oversees the application of CEDAW, approved General Recommendation no. 34 (GR 34) on the rights of rural women, which clarifies the content of this article. This document emphasizes women's fundamental role in "achieving food security, reducing poverty, malnutrition and hunger, and in

248 This paragraph is based in part on a report by the former special rapporteur on the right to food, Olivier de Schutter: De Schutter (2009), p. 5.

249 ICESCR, art. 11(2)(a).

250 ACHPR, art. 21.

promoting rural development," even though "their contribution is often unpaid, unacknowledged, and poorly supported."[251] The Committee goes on to affirm that states parties to the Convention should "ensure the realization of the right to food and nutrition of rural women within the framework of food sovereignty and that they have the authority to manage and control their natural resources."[252] Paragraph 56 affirms that "rural women's rights to land, natural resources, including water, seeds, forestry, as well as fisheries [are] fundamental human rights."[253] The document then clarifies that states are obligated to "implement agricultural policies which support rural women peasants, recognize and protect the natural commons, promote organic farming and protect rural women from harmful pesticides and fertilizers. They should ensure that rural women have effective access to agricultural resources, including high quality seeds, tools, knowledge and information [...]." One consequence is that States parties must "respect and protect rural women's traditional and eco-friendly agricultural knowledge and particularly the right of women to preserve, use, and exchange traditional and native seeds"; another is that they must "protect and conserve native and endemic plant species and varieties of food and medicinal resources, and prevent patenting by national and transnational companies to the extent that it threatens the rights of rural women."[254]

Article 15 of the *Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa* (Maputo Protocol) provides that "States Parties shall ensure that women have the right to nutritious and adequate food"; this entails taking the appropriate measures to "provide women with access to clean drinking water ... land, and the means of producing nutritious food,"[255] which includes seeds.

The right of indigenous peoples to seeds is confirmed by the *United Nations Declaration on the Rights of Indigenous Peoples*.[256] This declaration protects the rights of indigenous peoples to their collective biocultural heritage in general, including traditional knowledge and resources, territories, cultural and spiritual values, and customary laws. It affirms that "indigenous peoples have the right to practise and revitalize their cultural traditions and customs,"[257] and to "maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as their ... human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora [...]."[258] The Declaration further establishes that indigenous peoples have the right to participate in decision-making in matters which would affect their rights (article 18). It guarantees their right to "determine and develop priorities and strategies for the development or use of their lands or territories and other resources," and provides that states must "obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources [...]."[259]

The link between the right to food and nutrition, seeds, and agricultural biodiversity was explicitly set out for the first time in guideline 8 of the *Voluntary Guidelines to Support the Progressive Realization of the Right to Adequate Food in the Context of National Food Security,* adopted by the FAO Council in 2004.[260] This document calls on states to "facilitate sustainable, non-discriminatory and secure access and utilization of resources consistent with their national law and with international law and protect the assets that are important for people's livelihoods. States should respect and protect the rights of individuals with respect to resources such as land, water, forests, fisheries and livestock without any discrimination."[261] However, these guidelines, including guideline 8D, do not explicitly mention the right of peasants to save, use, exchange, and sell farm seeds that is protected by article 9 of the *International Treaty on Plant Genetic Resources for Food and Agriculture* (ITPGRFA) (see next chapter). In addition, they give no guidance as to the modalities whereby states are to respect, protect, and guarantee access to seeds, plants, and animals, as well as their use for the purpose of realizing the right to food and nutrition.

The former UN Special Rapporteur on the Right to Food, Olivier de Schutter, devoted a report to the subject of seeds and their importance to the realization of the right to food and nutrition. This report emphasizes

251 General Recommendation no. 34, par. 63.

252 Ibid., par. 64.

253 Ibid., par. 56.

254 Ibid., par. 62.

255 Organisation of African Unity (2003).

256 United Nations (2007).

257 Ibid., art. 11.

258 Ibid., art. 31.

259 Ibid., art. 32.

260 United Nations Food and Agriculture Organization (FAO) (2005b).

261 Ibid., Directive 8.1.

that by virtue of their human rights obligations, states must preserve and improve traditional informal peasant seed circuits – i.e., peasant seed systems – which entails, among other things, refraining from undue interference by providing protection against outside interference and actively ensuring that these systems can develop. Moreover, states must regulate the industrial seed sector so that peasants have access to inputs under reasonable conditions.[262] This second aspect is especially important in that intellectual property rights have been considerably reinforced in recent years, which has in turn encouraged the monopolization of genetic resources.[263] De Schutter writes: "The marked increase in intellectual property protection has led to a significant rise in patenting activity and in plant breeding."[264] The report stresses also that the experience of many countries demonstrates that IPRs are an impediment, not an impetus, to innovation and new variety development, casting doubt on one of the main arguments for IPRs put forward by their promoters. In addition, the document enumerates the consequences for farm communities and their seed systems of structuring national seed systems around IPRs: i) making peasants dependent on others for access to seeds; ii) marginalizing peasant varieties, with the concomitant risk of their progressive disappearance; iii) the difficulty of ensuring sufficient production of protected varieties, particularly in poor agroecological zones, due to their being unsuited to local conditions; and iv) reduction of agricultural biodiversity, inasmuch as IPRs reward and encourage species standardization and homogeneity, with grave consequences for resilience to climate change-related uncertainty in particular.[265] Finally, the report underscores the importance of promoting and protecting peasants' right to seeds, and of promoting peasant varieties and corresponding knowledge.

It is worth noting that the Draft UN Declaration on the Rights of Peasants and Other People Working in Rural Areas, which is currently under discussion by the United Nations Human Rights Council, contains specific articles covering seed rights and biodiversity. This process, initiated by the worldwide peasant movement Via Campesina, is expected to lead to recognition of the intimate relationship between the access to and use of seeds and biodiversity, on the one hand, and the dignity of people living in rural areas on the other. Such access and use thus constitute an integral part of peasants' human rights.[266]

262 De Schutter (2009), par. 7, pp. 5–6.

263 Ibid., p. 8.

264 Ibid., p. 14, par. 34.

5.1.2. PEASANTS' RIGHTS TO SAVE, USE, EXCHANGE, AND SELL SEEDS

The access to and use of plant genetic resources for food and agriculture are recognized as key elements of food security in the *International Treaty on Plant Genetic Resources for Food and Agriculture* (ITPGRFA). This treaty was negotiated over a twenty-year period and adopted by consensus by the FAO member states in 2001. Today, there are over 130 states parties, including Burkina Faso and other West African countries. It is the most important international treaty relating to the recognition and protection of peasants' seed rights. The objectives of the ITPGRFA are the conservation and

265 Ibid., pp. 15ff.

266 For further information, see http://www.ohchr.org/EN/HRBodies/HRC/RuralAreas/Pages/WGRuralAreasIndex.aspx.

sustainable use of plant genetic resources as well as the fair and equitable sharing of the benefits arising from their use, in order to provide for sustainable agriculture and food security. In addition, the treaty establishes a multilateral system to facilitate access to seeds and propagating materials and to provide for fair and equitable sharing of the benefits thereof.

A key element of the ITPGRFA is the recognition of peasants' rights in many of its provisions as a way of responding to the threats posed by intellectual property and to "draw attention to the unremunerated innovations of peasants that [are] seen as the foundation of all modern plant breeding." In article 9, the contracting parties recognize "the enormous contribution that the local and indigenous communities and peasants of all regions of the world, particularly those in the centres of origin and crop diversity, have made and will continue to make for the conservation and development of plant genetic resources which constitute the basis of food and agriculture production throughout the world." Based on this fundamental past, present, and future contribution by peasants, the treaty recognizes their right to "save, use, exchange and sell farm-saved seed/propagating material."[267] To protect and fulfil these rights, the treaty requires states to protect "traditional knowledge relevant to plant genetic resources for food and agriculture," and affirms the right of peasants to "equitably participate in sharing benefits arising from the utilization of plant genetic resources for food and agriculture." In addition, it guarantees their "right to participate in making decisions, at the national level, on matters related to the conservation and sustainable use of plant genetic

267 "The History of Peasants' Rights in the FAO: First use of Peasants' Rights," online at http://www.peasantsrights.org/about/fr_history_part1.html; ITPGRFA, preamble and arts. 9.1 and 9.3.

resources for food and agriculture."[268]

It should be noted that article 4 of the treaty provides that domestic laws must conform to the ITPGRFA, meaning that domestic legal frameworks must also guarantee peasants' seed rights. While article 9 does contain the apparent limitation that peasants' rights are protected "subject to national law and as appropriate," it also stipulates that article 9 shall not be interpreted in such a way as to "limit any rights that peasants have to save, use, exchange and sell farm-saved seed/propagating material."[269]

The implementation of peasants' rights as guaranteed by article 9 of the ITPGRFA remains a major challenge for the enforcement of the treaty. In practice, IPRs and their protection generally prevail over peasants' rights. The IPR protection system has been considerably reinforced and IPRs have undergone expansion in recent years. The main argument put forward to justify IPRs is that compensation for the resources invested by plant breeders (often private companies) in research and innovation must be provided, and research on "new" varieties encouraged and stimulated.[270] On these grounds, the protection of IPRs has been reinforced, largely at the request of industrialized countries and in favour of their industries. This has often been done through trade treaties,[271] including the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), which imposes IPR protection measures on WTO member states, and the 1991 version of the convention of the International Union for the Protection of New Varieties of Plants (UPOV 1991; see Box 6). At the same time, peasants' rights have yet to be realized in practice, in that there are no legal channels through which these rights can be asserted.[272] The contrast is glaring, especially when it is noted that "the marked increase in intellectual property protection has led to a significant rise in patenting activity and in plant breeding."[273] IPRs thus run counter to peasants' rights and erode their autonomy. UPOV 1991 is particularly troubling in that it prohibits the sale of varieties derived from a protected variety (art. 14.5) and prevents peasants from exchanging or selling seeds from the harvest of protected varieties (art. 15). Membership in UPOV – which is via AIPO in the case of Burkina Faso – obligates states to use all the facilities available to implement these provisions.[274]

It needs to be emphasized that thanks to pressure exerted by movements of peasants and other smallholders, the ITPGRFA Governing Body has set in motion the implementation of article 9. At its seventh session in October 2017, it approved the creation of an ad hoc technical expert group on peasants' rights tasked with developing guidelines for countries on the implementation of article 9. Peasant organization representatives will be part of this group and the process will include regional consultations.[275]

Other important elements of the ITPGRFA concern the conservation, prospecting, collection, characterization, assessment, and documentation of plant genetic resources for food and agriculture. Article 5 stipulates, *inter alia,* that states must encourage and support "peasants and local communities' efforts to manage and conserve on-farm their plant genetic resources."[276] In addition, article 6 requires the sustainable use of plant genetic resources, which includes pursuing agricultural policies that promote "the development and maintenance of diverse farming systems that enhance the sustainable use of agricultural biological diversity and other natural resources"; strengthening research that enhances and conserves biological diversity "for the benefit of peasants, especially those who generate and use their own varieties and apply ecological principles in maintaining soil fertility and in combating diseases, weeds and pests," and encouraging "the wider use of diversity of varieties and species in on-farm management, conservation and sustainable use of crops."[277]

Finally, the ITPGRFA establishes a multilateral system intended to facilitate access to plant genetic resources for food and agriculture and to provide for fairer and more equitable sharing of the resulting benefits.

268 ITPGRFA, art. 9.2.

269 ITPGRFA, art. 9.3.

270 Cf. Golay (2016), pp. 14–15.

271 De Schutter (2009), p. 6.

272 Ibid., p. 18.

273 Ibid., p. 14.

274 Ibid., p. 17.

275 The resolutions of the Seventh Session of the ITPGRFA Governing Body are available at http://www.fao.org/plant-treaty/meetings/meetings-detail/en/c/888771/. The civil society organizations' statements are available at http://www.ukabc.org/gb7.htm#b1.

276 ITPGRFA, art. 5.

277 ITPGRFA, art. 6.2(a)(b) and (f).

5.1.3. OBLIGATIONS CONCERNING THE PRESERVATION OF BIODIVERSITY

The principal objectives of the *Convention on Biological Diversity* (CBD) and its related protocols are "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources,"[278] including seeds. The *Convention on Biological Diversity* was adopted at the Rio Conference on Environment and Development in 1992 and came into force in 1993. Signed by 196 states parties including Burkina Faso, it is almost universally accepted today. The CBD protects the seed rights of indigenous and local communities, including farm communities, and guarantees appropriate access to these resources and to the protection of the traditional knowledge and practices of indigenous and local communities.

In the context of seeds and plant genetic resources, it is important to emphasize that in ratifying the CBD, the states parties committed to "integrat[ing], as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies."[279] The CBD explicitly acknowledges "the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitably benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components."[280] It further recognizes "the vital role that women play in the conservation and sustainable use of biological diversity and affirm[s] the need for the full participation of women at all levels of policy-making and implementation for biological diversity conservation."[281]

In addition, the CBD underscores the critical importance of *in situ* biodiversity conservation, which for agricultural biodiversity meaning the conservation of biodiversity in peasants' fields.[282] Article 8(j) establishes that each state shall "respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices." Concerning the sustainable use of the components of biological diversity, the Convention requires states to "protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements."[283] Article 12 contains provisions on research and training for the purposes of conserving biological diversity and contributing to its sustainable use. In addition, the CBD provides for the states parties to assess and monitor biodiversity-related matters, including assessment of the consequences of their programs and policies for the environment and biodiversity, particularly those that are likely to have significant adverse effects on biological diversity.[284]

As regards access to genetic resources and fair and equitable sharing of the benefits arising from their use, the United Nations adopted a protocol to the CBD called the Nagoya Protocol.[285] This protocol was adopted in 2010 and ratified by more than 70 states, including Burkina Faso. The Nagoya Protocol stipulates that states parties must "take legislative, administrative or policy measures, as appropriate, in order that the benefits arising from the utilization of traditional knowledge associated with genetic resources are shared in a fair and equitable way with indigenous and local communities holding such knowledge."[286] Access to genetic resources and traditional knowledge is subject to the prior informed consent of the country providing the resources, in accordance with mutually agreed terms (art. 6). The protocol further stipulates that states must take measures to ensure that "traditional knowledge associated with genetic resources that is held by indigenous and local communities is accessed with the prior and informed consent or approval and involvement of these indigenous and local communities, and that mutually agreed terms have been

278 United Nations (1992).

279 CBD, art. 6(b).

280 CBD, Preamble.

281 Ibid.

282 CBD, Preamble and art. 8(d). Article 9 of the CBD contains provisions on ex situ biodiversity conservation, which includes gene banks.

283 CBD, art. 10(c).

284 CBD, art. 14, in particular ss. 14(a) and (b).

285 United Nations (2010).

286 Nagoya Protocol, ss. 5(2) and (5).

established."[287] In addition, the parties undertake to respect indigenous and local communities' customary laws with respect to traditional knowledge associated with genetic resources, and not to "restrict the customary use and exchange of genetic resources and associated traditional knowledge within and amongst indigenous and local communities."[288]

5.1.4. OBLIGATIONS REGARDING BIOSAFETY

In ratifying the *Rio Declaration on Environment and Development* of 1992, Burkina Faso undertook to respect principle 15 thereof: the precautionary principle. According to this principle, Burkina Faso must take precautionary measures to protect the environment, even in the absence of scientific certainty that serious or irreversible damage will occur.[289] Article 8(g) of the CBD is very clear on states' obligation to implement or maintain "means to regulate, manage or control the risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts that could affect the conservation and sustainable use of biological diversity, taking also into account the risks to human health."[290] Finally, Burkina Faso and nearly all West African states have also ratified the *Cartagena Protocol on Biosafety* to the *Convention on Biological Diversity*, adopted in 2000.[291] The parties to this protocol agree to take measures to protect biological diversity and indigenous and local communities against the potential risks posed by genetically modified organisms.

The objective of the Cartagena Protocol is to "contribute to ensuring an adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, and specifically focusing on transboundary movements."[292] The Protocol applies to "the transboundary movement, transit, handling and use of all living modified organisms that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health," and the states parties undertake to take necessary and appropriate legal, administrative, and other measures to implement their obligations under the protocol.[293] It contains clear provisions on the transboundary movement, transit, handling, and use of living modified organisms (LMO), specifically as regards notification (art. 8), acknowledgment of receipt of notification and time periods (art. 9), the decision procedure (art. 10), LMOs for use as food (art. 11), and risk assessment (art. 15).

It is important to emphasize that article 1 of the Cartagena Protocol reaffirms and clarifies the cornerstone of environmental law that is the

287 Nagoya Protocol, art. 7.

288 Ibid., ss. 12(1) and (4).

289 United Nations (1992).

290 CBD, art. 8(g).

291 United Nations (2000).

292 Cartagena Protocol, art. 1.

293 Ibid., ss. 2 and 4.

precautionary principle in the context of GMOs. Article 4 of Annex III on risk assessment stipulates that the "lack of scientific knowledge or scientific consensus should not necessarily be interpreted as indicating a particular level of risk, an absence of risk, or an acceptable risk."[294] States parties to the conventions corresponding to these international environmental law standards thus have the obligation to implement a regulatory framework for GMO imports as well as lab experiments and confined trials involving GMOs. In addition, they are obligated to implement monitoring and assessment systems for regular evaluation and analysis of the effects of GMOs on the environment and human health.

In the West African context, it is important to mention that the Cartagena Protocol allows for states to enter into bilateral, regional, and multilateral agreements and arrangements concerning intentional transboundary movements of LMOs.[295] As mentioned in section IV.2.2, a regulatory framework is going through the approval process at the WAEMU/ECOWAS/CILSS level.

5. 2. Extraterritorial obligations

The human rights obligations of states are not circumscribed by their own borders. Under international human rights law, states are obligated to respect, protect, and fulfil human rights outside their borders. These extraterritorial obligations imply that states must refrain from any action/inaction that is likely to give rise to human rights violations in third countries (obligation to respect), to ensure that non-state actors based on their territory that they are capable of controlling do not commit human rights violations (obligation to protect), and to contribute to the creation of an international environment conducive to the universal realization of human rights (obligation to fulfil). States' extraterritorial obligations originally derive from articles 55 and 56 of the *United Nations Charter,* which obligate states to promote the universal respect of human rights and to take joint and separate action to this end, which clearly implies that their obligations do not stop at their borders.[296] Subsequently, the jurisprudence of nearly every UN treaty body, but also the Inter-American Commission on Human Rights and the African Commission on Human and Peoples' Rights, has reaffirmed the extraterritorial nature of states' human rights obligations.[297]

In light of international law and this jurisprudence, in 2011, a group of experts drafted the *Maastricht Principles on Extraterritorial Obligations of States in the Area of Economic, Social and Cultural Rights,* summarizing and clarifying the extraterritorial obligations of states.[298]

For the purposes of this study, we shall analyze the extraterritorial obligations of states at several levels. First, there is the extraterritorial obligation of states that offer development cooperation to respect human rights and to guarantee that their programs do not restrict peasants' access to seeds, e.g., by weakening peasant seed systems and/or by creating dependency or debt. This obligation also comprises that of refraining from exposing the population of a third country to the risks of biotechnologies, through the promotion of GMOs or otherwise. Their extraterritorial obligations obligate states not to infringe human rights in "recipient" countries. States must, *inter alia,* take proactive measures to identify and assess the potential risks of development projects and programs that they finance, and guarantee effective remedies in case rights are violated.[299]

Second, the "home" states of private actors such as multinational seed corporations or international philanthropic foundations, where they are able to control these actors, have an extraterritorial obligation to protect human rights by regulating these actors, including their extraterritorial activities, so that they do not impede peasants' access to seeds or expose the population of third countries to the risks occasioned by biotechnologies. International human rights jurisprudence has clarified that this obligation applies in particular to the extraterritorial activities of companies based or having their headquarters in the state in question. For the matters concerned by this study, countries such as the United States, Switzerland,

294 Cartagena Protocol, Annex III, art. 4.

295 Ibid., art. 14.

296 United Nations Charter (1945), ss. 55–6.

297 See, inter alia, General Comments no. 12 (1999), no. 15 (2002), and no. 24 (2017) of the Committee on Economic, Social and Cultural Rights, General Comment no. 16 (2013) of the Committee on the Rights of the Child, General Recommendations no. 34 (2015) and no. 35 (2017) of the Committee on the Elimination of Discrimination against Women, and General Comment no. 3 (2015) of the African Commission on Human and Peoples' Rights.

298 The Maastricht Principles are available at http://www.etoconsortium.org/nc/en/main-navigation/library/maastricht-principles/?tx_drblob_pi1%5BdownloadUid%5D=22.

299 Maastricht Principles, par. 14.

and Norway have the obligation to take measures to ensure that multinational corporations based on their territory that carry out activities in the area of seeds and inputs do not violate the right to food of farm communities in Burkina Faso, which fundamentally depend on access to seeds in order to realize this right. These states must ensure that their companies have no impact on existing seed systems and do not erect financial obstacles to peasants' access to seeds and inputs. This obligation also requires states to penalize these actors in case of abuses and to offer remedies to persons affected by them, which may involve allowing access to their own courts.

Third, states' obligation to fulfil human rights requires them to take joint and separate action to create an international environment conducive to the realization of human rights. This obligation ensues chiefly from the *United Nations Charter,* under which the member states pledged to take joint and separate action in cooperation with the United Nations to guarantee the universal respect of human rights.[300] In the context of this study, this obligation means that states must promote multilateral agreements and international norms in the areas of trade, investment, and international development, among others, to protect peasant seed systems in Burkina Faso and facilitate peasants' access to, and use of, seeds. This includes cooperation on the implementation of article 9 of the ITPGRFA (see section V.1.2). States are likewise obligated to review and revise their bilateral and multilateral agreements to ensure that these do not violate peasants' seed rights. Furthermore, the extraterritorial obligation to fulfil human rights requires states to refrain from forcing another country to establish an IPR protection regime that hinders the realization of human rights by restricting peasants' access to and/or use of seeds or by reducing biodiversity. This aspect is particularly important in that the member states of the Organization for Economic Cooperation and Development (OECD)[301] play a key role in the seed value chain, including seed certification.[302] These states are also involved in encouraging countries – developing countries in particular – to join UPOV and especially the 1991 Act of its Convention, which establishes a restrictive system with respect to peasants' rights for the benefit of IPR/PVC holders.

5. 3. Application of obligations to the transformation of seed systems in Burkina Faso and West Africa

5.3.1. OBLIGATION TO RESPECT, PROTECT, AND FULFIL PEASANTS' ACCESS TO AND USE OF SEEDS

The results of the participatory research conducted in Burkina Faso clearly demonstrate that traditional varieties and peasant seed systems constitute the basis of the food system and the ways of life of farm communities in Burkina Faso and West Africa. In Burkina Faso, more than 80% of the population earns a living from agriculture and livestock production.[303] Peasant seed systems are functional, flexible, and effective systems guaranteeing peasants' access to seeds that answer their needs in terms of being adaptable, saveable, reproducible, and useful. These systems are rooted in the social relations, customs, and knowledge of peasant communities, which have, over the centuries, vitally contributed to the creation of species and varietal diversity, thereby ensuring that a varied and nutritious food supply remains available. While peasant seed systems are often described as "informal," they are governed by community-established rules and norms that determine the right to use and exchange seeds. That is, they are based on the customary and collective rights of peasant communities.

In addition, peasant seed systems afford peasants a high degree of autonomy, since these systems give peasants control over the resources essential to their way of life. This increases their resilience to external disruptions and their capacity to adapt to new threats, including the consequences of climate change, soil erosion, or new plant pathogens. The protection of peasant seed systems, along with the customary rights and knowledge on which they are based, and the protection of peasant varieties against their monopolization, constitute key elements of the

300 United Nations (1945), arts. 55–6.

301 The OECD has 35 member countries, most of which are in North and South America, Europe, and Asia. These essentially consist of the world's industrialized countries, but also emerging countries like Mexico, Chile, and Turkey. See http://www.oecd.org/about/membersandpartners/.

302 Syngenta Foundation for Sustainable Agriculture (2015), pp. 13–14.

303 Government of Burkina Faso (2014), p. 10.

comprehensive realization of the human right to food and nutrition as well as peasants' seed rights. Therefore, these objectives must serve as guides to national and subregional policy and legal frameworks, public research, and donors' international development policies and programs.

However, as described in the preceding chapters, current policies and legal frameworks focus almost exclusively on the implementation and strengthening of a commercial seed system based on IPR-protected varieties. The forced creation and promotion of such systems threatens peasants' access to and use of seeds by creating economic, technological, and legal barriers.

In the first place, the commercial seed system relies on the principle that peasants gain access to "improved" seeds by buying them. This imposes a considerable financial/economic burden on them, accentuated by the fact that commercial seed is closely tied to the adoption of agricultural practices based on the increased use of external inputs (chemical fertilizers, pesticides, herbicides, etc.). This burden forces many peasants to take out loans or to purchase seeds and/or inputs on credit. This exposes them to debt risk, especially in the event of a poor harvest when they fail to earn enough to repay the loan.

In the second place, commercial seed is typified by its limited reproducibility (two to three years, according to our interviews and discussions, or nil in the case of F1 hybrids) and by the difficulties it poses in terms of seed saving. Peasants can therefore no longer exercise their tradition of selecting seeds from the previous harvest – or, at least, only to a very limited degree. This forces them to buy seeds on a regular basis, accentuating the economic and financial problems just described. The result is a considerable loss of autonomy, placing the peasants in a situation of increasing dependency. The exposure of peasant communities to market forces as agriculture is reoriented towards a model centering around productivity, competitiveness, and the market – and seed systems are correspondingly transformed – confronts them with the risk of indebtedness, threatening their ways of vie. The organization of the cotton sector in Burkina Faso clearly illustrates the negative impacts on growers of a sector in which they are the last link in the value chain of a commercial crop whose fate is determined by the international market. The most obvious expression of peasants' loss of autonomy is their total dependence on the cotton companies for access to seeds – including the types of seeds they were forced to use with the introduction of GMOs – and their massive use of herbicides and pesticides, which degrade their health, the quality of their soils and water, and the health of ecosystems.

Third, the seed system based on IPR-protected varieties, which was put in place in Burkina Faso and the sub-region (by the harmonization framework of the ECOWAS-WAEMU-CILSS area), seriously threatens peasants' rights to use, save, exchange, and sell seeds, as guaranteed by the ITPGRFA. Indeed, several studies have pointed up the contradictions between the human and peasants' rights enshrined in the ITPGRFA, on the one hand, and IPRs – in particular, the IPR regime instituted by UPOV 1991 – on the other.[304] This situation affects Burkina Faso by virtue of its membership in AIPO, which has adopted a PBR/IPR regime based on UPOV 1991.

Although the international research mission did not take note of any ground-level breach of peasants' rights to use, save, exchange, and sell seeds, or to engage in customary farming practices – in large part because the commercial system is not yet functional or capable of guaranteeing the seed supply – the national and subregional legal frameworks in force do not afford adequate protection of these rights and even contain some features that could be used to criminalize small-scale farming practices, especially where seeds of protected varieties are concerned. As described above, Burkina Faso's seed law acknowledges the role of peasant communities as the users, stewards, and first beneficiaries of traditional/peasant varieties and recognizes peasants' right to use and save seeds derived from protected varieties for planting in their own fields. However, it does not guarantee peasants' rights as defined in article 9 of the ITPGRFA, nor does it clarify the status of peasant seed or the modalities whereby it is to be administered under peasant seed systems. In addition, the law restricts peasants' right to produce and disseminate seeds of protected varieties by means of sale or exchange.

Given these circumstances, and since the peasant communities of Burkina Faso and West Africa exercise their right to seeds through peasant seed systems, the promotion of commercial seed and an IPR-based seed system by the government of Burkina Faso and international development donors jeopardizes the realization of the human right to food and nutrition. Inasmuch as current policies are focused almost

304 See, e.g., Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) (2015) .

exclusively on commercial seed and Burkina Faso's law does not clarify the status of peasant seed, the legal frameworks in force are highly discriminatory, and therefore in contradiction with fundamental human rights principles.

It is important to emphasize that these consequences are of particular concern to women and their rights. As discussed earlier in the report, the research mission documented the crucial role played by women in the management of seeds, including the selection, saving, and use thereof. Several female respondents stressed that they are the ones on whom the task of preserving and propagating seeds of peasant varieties falls when communities and households introduce commercial seed. In addition, the research has shown that women are more skeptical of commercial seed and that they insist on preserving their seed-related practices and knowledge. The transformation of seed systems by the forced promotion of a commercial system thus hinders the realization of rural women's seed rights, as discussed in General Recommendation no. 34 of the Committee on the Elimination of Discrimination against Women.

It is obvious that major economic interests emanating from various actors, most notably multinational seed companies, lie behind the push for the forced transformation of seed systems. It is also important to emphasize that the push for a market-based seed system and exclusive rights falls within a broader process geared towards shifting agriculture over to a model centering around productivity, competitiveness, and the market – a model based on increased mechanization and intensive applications of external inputs, which reduce biodiversity and exacerbate the climate crisis.

It should be noted that the introduction and use of "improved" varieties and seed are not *ipso facto* incompatible with the realization of the right to food and nutrition. Our discussions with peasant communities show that peasants are not opposed to new varieties that can complement their traditional varieties, nor to modern research that can help them improve their methods of production. The communities clearly manifested their interest in improving their traditional plant breeding, seed saving, and seed use practices in the face of the new challenges represented by climate change and other factors. Yet it is essential to guarantee that the commercial seed system not only does not restrict peasants' seed rights, but also serves peasants' interests;[305] the coexistence of the two systems must be organized in such a way as to build peasants' capacity and autonomy. Experiences in other countries demonstrate that in the absence of an adequate regulatory framework, peasant and industrial seed sectors have great difficulty coexisting.[306] The tendency is for peasant varieties and seed systems to progressively vanish. Given this, the comments of the Burkina Faso government and INERA representatives to the effect that the final goal should be to replace peasant seed with commercial seed are problematic.

Furthermore, the argument to the effect that neither the government nor the seed companies are forcing peasants to buy seeds of commercial/protected varieties has to be put in perspective, given the large direct and indirect subsidies granted by the government and the various programs and projects

305 Cf. De Schutter (2009), p. 11.

306 Ibid., p. 15.

devised by the companies for the aggressive promotion and propagation of these seeds. As described above, many programs and initiatives rolled out –including those rolled out under the aegis of international development projects funded by industrialized countries – induce peasants to adopt commercial seed without explaining the full cost implications and other consequences at the outset. To these activities may be added those of the agribusiness multinationals, which often take the form of public-private partnerships for sales of inputs. As demonstrated by our discussions with farm communities, only after several years, when subsidies are cut, do peasants realize the magnitude of the expenses they must incur and the considerable autonomy they have lost. Another result is the loss of agricultural biodiversity as farm communities abandon species and peasant varieties.

In light of the foregoing, the realization of the human right to food and nutrition, and of peasants' seed rights, in Burkina Faso and West Africa demands two principal sets of measures. First, pursuant to their human rights obligations, Burkina Faso and the other states of the subregion must adopt and implement policies to guarantee peasants' rights – among other things, by strengthening peasant seed systems. This involves measures to build peasants' capacity to propagate and save peasant seed as well as to support them in adapting peasant varieties to new conditions brought on by climate change and other factors. Public agricultural research should play a key role in this context by working in the peasants' interests (art. 6.2(b) of the ITPGRFA) and by using participatory processes in which peasants are on an equal footing with researchers. Such co-construction of knowledge must take account of peasants' definitions of good/quality seed and must respect and reinforce their systems so as to provide for quality control of peasant seed.

At the same time, the national and subregional

legal frameworks must be revised or complemented by measures clarifying the status of peasant seed and the modalities of its administration by farm communities through their seed systems. This includes the implementation of effective protection of peasant varieties against biopiracy and monopolization of traditional/peasant genetic resources by other actors, including research institutions and seed companies. The cases of Kapelga sorghum and Burkina yellow pepper show that the monopolization and privatization of peasant communities' resources are real threats. These cases also demonstrate that the "formalization" of traditional/peasant varieties (their inclusion in the formal system through listing in the catalogue, or their registration as peasant varieties) is not necessarily the best way to protect these varieties, nor the peasant practices, including seed management, with which their use is bound up. Other peasant-accessible modalities for the implementation of effective protection and quality control mechanisms must be found through a process of dialogue and consensus-building involving peasant representatives.[307] Legal protection of peasants' knowledge in the area of genetic resources, as required by article 9.2 of the ITPGRFA, constitutes a key means of protecting peasants against the appropriation of peasant seed by patents on the genetic information it contains.[308]

The second set of measures concerns the need to ensure that the implementation of a commercial seed system does not infringe or violate peasants' rights to seeds. On this score, the application and implementation of article 9 of the ITPGRFA constitute an urgent requirement that must be made a priority for the government of Burkina Faso, the subregional institutions, and the industrialized countries. A key factor in this context is that the national and subregional legal frameworks must clearly recognize and guarantee peasants' rights to save, use, exchange, and sell seeds, including seeds derived from protected varieties. In this context, the process set in motion by the ITPGRFA Governing Body for the implementation of peasants' rights at its seventh session, held in October 2017, must be seized as an opportunity to protect and enhance peasants' seed rights.

In Burkina Faso, a draft law on plant genetic resources for food and agriculture and on the sharing of the benefits resulting from their use, developed by the National Commission for the Administration of Plant Genetic Resources (CONAGREP), contains a chapter on peasants' rights that reiterates elements of article 9 of the ITPGRFA. It is important, however, that such a law also recognize peasant seed systems with an eye to their protection, and that it define peasant seed on the basis of farming practices and methods relating to its use, while also recognizing its importance to food security and sovereignty, peasant agroecology-based food production systems, climate change adaptation, and food system diversity. It is also crucial that the relationship between the provisions of such a law and those of the seed law be clarified. The plan to update the seed law in the context of its alignment with the subregional harmonization framework represents another opportunity to fill the gaps in the peasant seed system and address the conflicts pitting the commercial system against peasant systems.

5.3.2. OBLIGATION TO PRESERVE BIODIVERSITY

Our interviews and discussions with Burkina Faso peasant communities clearly show that they are witnessing a loss of species and varieties grown in peasants' fields as a result of the introduction and use of commercial varieties. The last national report submitted by Burkina Faso to the conference of the parties of the *Convention on Biological Diversity* confirms that the expansion of commercial agriculture and "selected" varieties in the country has reduced agricultural biodiversity.[309] The promotion of commercial varieties leads to homogenization, standardization, and ultimately a decline in the numbers of species and varieties grown in peasants' fields.[310] Worldwide, the expansion of industrial agriculture has led to the disappearance of some 75% of plant genetic diversity "as peasants worldwide have left their multiple local varieties and landraces for genetically uniform, high-yielding varieties."[311] Biodiversity is lost not only when varieties of a given species vanish but also when smaller

307 The registration of peasant varieties can require them to be standardized as per DUS standards, which poses problems, as described in this report. If the possibility is allowed for these varieties to be registered without fulfilling the DUS criteria, the question then becomes which standards should be used to identify these varieties.

308 Article 8(j) of the CBD, ILO Convention 169, and the United Nations Declaration on the Rights of Indigenous Peoples require the protection of indigenous peoples' knowledge.

309 Government of Burkina Faso (2014), p. 43.

310 De Schutter (2009), p. 17.

311 United Nations Food and Agriculture Organization (FAO) (2005a), p.3.

numbers of species/crops are available to provide food for humanity. In 1999, 75% of the world's food came from only twelve plant species and five animals.[312]

These figures clearly illustrate that plant genetic diversity is gravely threatened today and that the industrial model of agriculture has much to do with this state of affairs. The steep decline in biodiversity, including agricultural biodiversity, makes peasants much less resilient to the vagaries of weather, which are becoming increasingly pronounced, extreme, and frequent in the context of climate change, and to the appearance of new pests and of diseases. Rich biological diversity is what makes the environment and communities more resilient to such threats. In addition, biodiversity-rich environments offer benefits such as improved soil water retention, reduced soil erosion, and cleaner air and water.[313] Agricultural biodiversity is also a sine qua non for the realization of the right to adequate food, the right to health, and the right to a sufficient standard of living.

Even if the worldwide situation has indeed become alarming, it must be noted that Burkina Faso and West Africa still enjoy a rich biological diversity and agricultural biodiversity. Over the centuries, farm communities have played a fundamental role in the creation of this diversity and continue to preserve and develop it in their fields, despite the pressures weighing on them. As indicated earlier, peasant communities still grow a large number of species and varieties,[314] including varieties of little economic importance that nevertheless have notable social, environmental, and nutritional functions. The key point is that peasants are the guardians and stewards of biodiversity, including agricultural biodiversity. This is recognized by a large number of scientific studies, as well as by reports such as the national report submitted by Burkina Faso to the CBD[315] and by international treaties such as the CBD and the ITPGRFA.

The close relationship binding peasant communities to biodiversity is such that it can be considered "the manifestation of the creativity and knowledge of peasants in their interactions with the natural environment to satisfy their needs and aspire to autonomy."[316] Biodiversity is an essential pillar of peasants' strategies of survival and autonomy and is inseparable from the peasant knowledge that leads to its development and conditions its use, all this being integrated within a dynamic web of relations between human beings and nature.[317] Thus, "no peasant variety, regardless of territory or ecosystem, can survive without the communities that take charge of its selection and conservation."[318] Whence the importance of biodiversity, and the peasant knowledge associated with it, to the realization of the right to food and nutrition.

In view of the foregoing considerations and the international commitments of the countries of the region, it is imperative that Burkina Faso and the other West African states orient their policies towards the preservation and promotion of biodiversity and knowledge. As mentioned previously, rural women play a key role in preserving species and peasant varieties. Therefore, their seed rights and knowledge must be particularly respected and protected.[319]

However, it is clear that current seed policies reduce agricultural biodiversity instead of preserving and promoting it. As stated, Burkina Faso's seed law provides that traditional varieties must be administered in accordance with the international conventions (including the CBD) that the country has ratified.[320] Yet the policies and programs in force promote the standardization and homogeneity of agricultural species and varieties, thereby threatening the diversity characteristic of peasant communities. The push for commercial seed and market-oriented agriculture exert pressure on peasants to leave peasant varieties behind. Given the fundamental role of farm communities as guardians and stewards of biodiversity, the country's policies, including its seed policies, must aim to support peasants, their agroecological practices, and their knowledge.

312 Ibid.

313 Cf. International Planning Committee for Food Sovereignty (IPC) (2016), p. 4.

314 Although this report is primarily concerned with seeds, it is worth noting that the biodiversity stewarded by farm communities also comprises animal species and breeds.

315 Government of Burkina Faso (2014).

316 Kastler, Onorati, and Brac (2013).

317 Cf. International Planning Committee for Food Sovereignty (IPC) (2016), p. 4.

318 Brac de la Perrière and Kastler (2011), p. 53.

319 Cf. CEDAW, GR no. 34.

320 Loi semencière, s. 3.

5.3.3. OBLIGATION TO PROTECT THE POPULATION FROM THE RISKS AND HAZARDS OF BIOTECHNOLOGIES

The manner in which GM cotton was introduced in Burkina Faso bears witness to clear violations of the precautionary principle on the part of authorities, throughout the process that led the country to grow Bt cotton on a large scale. As a state party to conventions corresponding to international environmental law and human rights standards, Burkina Faso had the obligation to implement a regulatory framework to regulate imports, lab experiments, and confined trials for Bt cotton. Yet the first confined trials of Bt cotton took place in the absence of a legal framework or a national institution competent to assess the risks of GM cotton to people, animals, soils, and the environment in general. In this way, 275 tonnes of GM cotton seeds were imported from the United States, and trials were conducted starting in 2003, in a legal void that amounted to a flagrant violation of the precautionary principle. It was only *a posteriori* that the rules governing confined GMO trials and the authority in question – the ANB – saw the light of day.

While imports of these seeds were authorized by an "exceptional and non-renewable" executive order from the minister responsible for the environment, there was no government body in Burkina Faso at that time with a mandate to 1) assess the risks of Bt cotton to the environment and to human and animal health, 2) rule on imports, experimentation, public promotion, and commercialization of Bt cotton, or 3) supervise the application of safety and risk assessment rules.[321] The ANB only came into being in 2004.

We have no knowledge of any studies having been done to assess the risks arising from confined trials of Bt cotton, even though this is required by section 24 of Burkina Faso's biotechnology safety law. A memorandum by the AICB mentions research performed prior to the dissemination of Bt cotton to assess its socioeconomic, environmental, and public health impacts, as prescribed by the biosafety regulatory framework of Burkina Faso.[322] It is troubling to note that the results of these studies do not seem to have been given serious consideration by the ANB in its decision approving the dissemination and commercialization of Bt cotton. It also comes to light that the trials conducted by INERA in 2006 found GM cotton fibre to be of poor quality in terms of its length and strength.[323] The ANB should have anticipated that these results portended lower yields and lost income for cotton growers, and should therefore have either prohibited the dissemination of Bt cotton or put safeguards in place. The biotechnology safety law clearly stipulates that the ANB may not issue approval unless it is clearly proved that GMOs "do not harm the socioeconomic environment."[324]

If the precautionary principle had been seriously respected, the results of the risk assessment would not have permitted the ANB to approve the distribution of genetically modified seed to thousands of growers. The AICB memorandum reports on the research done on the efficacy of the Bt gene, the impact of Bt cotton on the environment, the biochemical characteristics of the seeds, the economic aspects of Bt cotton, and the toxicity of Bt cottonseed oil and oilcakes. On this last aspect, the results of a study by the Institut de recherche en sciences de la santé (IRSS) placed the oil and oilcakes in WHO toxicity class III, equivalent to "slightly hazardous" pesticides that are not acutely toxic.[325] For the director of the National Biosafety Laboratory, these results were enough for the ANB to give the green light, in the absence of "unmanageable risk."[326] In addition, the ANB states to have taken into consideration the results of studies done elsewhere on the toxicity of these cotton by-products.[327] Yet this decision on the ANB's part entailed health risks for those members of the population who consumed Bt cottonseed oil, which is not strictly non-toxic. This decision should have been weighed with great care, since this is not a product that would merely be handled by human beings, but also taken internally. What is more, there was no labeling to inform consumers that the oil had been extracted from GM seed.

In this way, Burkina Faso failed to fulfil its obligations as regards the human right to adequate food and nutrition, which, according to international norms, refers *inter alia* to the right to food "*free from* adverse

321 Association Interprofessionnelle du Coton du Burkina (AICB) (2015).

322 Ibid., p. 7, and Burkina Faso's law of 2012 concerning the biotechnology safety regime, ss. 24 and 62.

323 Association Interprofessionnelle du Coton du Burkina (2015), p. 15.

324 Burkina Faso's law of 2012 concerning the biotechnology safety regime, s. 46.

325 Association Interprofessionnelle du Coton du Burkina (2015), p. 9.

326 Interview with the ANB, 6 June 2017.

327 Ibid.

substances" (emphasis added).[328]

As stated, there was, to our knowledge, no continuous review of the effects of GM cotton on human and animal health and ecosystems after it was introduced into the environment. Yet nearly all the cotton growers interviewed in the communities of the western region, as well as peasants cultivating cotton fields nearby, related having lost a sizeable number of animals during the period when Bt cotton was being grown.[329] The respondents stated that no authority had been willing to investigate the possible links between this unusual mortality and Bt cotton. Questioned on this subject, the INERA representatives denied this causal connection, claiming instead that such cases are often held up as examples by anti-GMO activists.[330] INERA claimed that this abnormal animal mortality, if real, must have been due to improper pesticide handling by the growers, who had allegedly failed to follow the directions on the package.[331] Yet INERA also confirmed that there has been no investigation or study to understand these extraordinary cases of animal mortality, leaving the growers with no explanation or compensation for these losses.[332]

It is evident from our interviews with cotton growers that they had little or no knowledge of GMOs in general, and Bt cotton in particular; among other things, they did not know exactly what distinguishes it from "conventional" cotton.[333] The information given to them by the cotton companies, INERA, and the government merely touted the benefits of Bt cotton, without mentioning any risks or hazards linked to its production.[334] This is also evident in the AICB memorandum, which describes how peasants were informed of the benefits and efficacy of Bt cotton during field demonstrations, but were not warned about the necessary precautions.[335] An even more serious lapse is revealed by the numerous peasants who stated that they had consumed Bt cottonseed oil without knowing the risks, being told of any precautions to take, or being informed of the results of the IRSS study. Even if the risks linked to Bt cotton were found minor by the Burkina Faso authorities, it was still incumbent on them to inform the population, and especially the cotton growers, of the peculiar features of Bt cotton. Burkina Faso had an obligation to respect the right to information, a fundamental right enshrined in the *Universal Declaration of Human Rights* (art. 13) and protected by the constitution of Burkina Faso (art. 8), by acting transparently.

On the eve of the introduction of new genetically modified crops, in particular Bt cowpeas, Burkina Faso has the obligation to take measures to respect, protect, and fulfil its people's human rights, especially since cowpeas are a food crop on which many farm families greatly depend. In addition, there is a very high risk of contamination of non-GMO fields and other cowpea varieties, as even the promoters of Bt cowpeas admit (see section IV.1.2). This, of course, means a higher risk to human health and also food sovereignty, because Bt cowpea seed is more expensive and likely to be unaffordable for many peasants, or to plunge them into a vicious cycle of debt. Burkina Faso cannot shirk its obligation to respect the right to adequate food, which implies "the availability of food … free from adverse substances" and "the accessibility of such food."[336]

5.3.4. EXTRATERRITORIAL OBLIGATIONS

As explained earlier, the dynamics described in this section also concern the extraterritorial obligations of industrialized countries, both directly and indirectly.

The first consideration is that in the framework of their international development policy, states have the obligation to refrain from violating human rights in "recipient" countries. Among other things, they must take proactive measures to identify and assess the potential risks of the development projects and programs they fund and to provide for effective remedies in case of violation.[337] Yet this study has illustrated that many agriculture and food-related development projects fund the promotion and dissemination of commercial ("certified" or "improved") seed among Burkina Faso peasants. As explained previously, this potentially jeopardizes peasants' access to and use of seeds by imperiling peasant seed systems and provoking a situation of dependency associated with an increased risk of indebtedness.

328 CESCR, General Comment no. 12, par. 8.

329 See section III.2.6.

330 Interview with INERA, 2 June 2017.

331 Ibid. See also interview with the SNS, 2 June 2017.

332 Interview with INERA, 2 June 2017.

333 Testimonies recorded in the western region.

334 Ibid.

335 Association Interprofessionnelle du Coton du Burkina (2015), p. 10.

336 CESCR, General Comment no. 12, par. 8.

337 Maastricht Principles, par. 14.

This is true of programs such as the G7's New Alliance for Food Security and Nutrition in Africa (NAFSN); the Alliance for a Green Revolution in Africa (AGRA), a program of the Bill & Melinda Gates Foundation that is supported by certain states, and the USAID-funded West African Seed Program (WASP). These programs and initiatives all invoke the argument that hunger in Africa is due to the low productivity of the agricultural sector and that reforms facilitating foreign investment in this sector are necessary to make way for mechanization and the use of chemical inputs and commercial seed.[338] These programs fail to consider peasant modes of production and seed systems, which are essential to the autonomy, food sovereignty, and right to food of farm families. To these families, the programs in question actually constitute a threat.[339]

Burkina Faso's commitments under the NAFSN cooperation framework ignore the importance of peasant seed and seed systems in realizing the right to food and nutrition of Burkina Faso peasants.[340] Among the goals of the financial support received from the United States (45.1 million USD), France (40 million USD), Germany (67.5 million USD), Japan (0.5 million USD), and the European Union (94.4 million USD) are to increase "improved seed use," "increase [...] the gross dose of fertilizer use," "facilitate private sector participation in fertilizer supply contracts," and "review the seed legislation to clearly define the role of the private sector in certified seed selection, production and marketing."[341] The donor states – the United States, France, Germany, Japan, and the European Union – have totally ignored the protection of peasant seed systems, even though these are better adapted to the local environment and indispensable to the realization of the right to food for the majority of Burkina Faso peasants. By financially supporting the implementation of a commercial seed system and providing no support for the development and operation of peasant seed systems, they have likewise flouted their extraterritorial obligation to respect the way in which Burkina Faso peasants exercise their right to food. As the former UN Special Rapporteur on the Right to Food stressed, the implementation of measures hindering peasants' access to their traditional seeds constitutes a violation of the right to food; by actively encouraging such policies, these states have violated their human rights obligations. Before providing financial and technical support in Burkina Faso through NAFSN, they should have undertaken a prior and ongoing assessment of the impact of NAFSN's policies with reference to the right to food, so as to ensure that they were not interfering with peasants' access to traditional seeds by their actions.

Similarly, the WASP project, funded by a 9 million USD contribution from USAID, is coordinating the implementation of the harmonization framework at the subregional level and is committed to increasing the production of certified seeds in West Africa. WASP's approach, too, neglects the right to food; the United States has failed to assess the potential impact of WASP on access to seeds and their use by the peasants of Burkina Faso and West Africa.[342]

AGRA is another public-private development initiative largely funded by the Bill & Melinda Gates Foundation; it also receives funding from public institutions including the Norwegian Agency for Development Cooperation, USAID, and the Swiss Agency for Development and Cooperation.[343] In Burkina Faso, one goal of AGRA is to facilitate peasants' access to "improved" seed and inputs thanks to 37 million USD worth of technical and financial support.[344] It is working closely with the Burkina Faso-based seed company NAFASO, which it supported financially from 2008 to 2010, and which is also involved in the GM cowpea project as well as a project on drought-resistant rice varieties.[345] As in the case of the states financing NAFSN and WASP, the United States, Norway, and Switzerland, as the backers of AGRA, have the obligation to ensure that the latter's activities in Burkina Faso do not interfere with the realization of the right to food and nutrition and that they respect peasant seed systems.

Second, private actors such as multinational seed corporations and international philanthropic foundations or organizations are actively involved in the transformation of seed systems in Burkina Faso, where the commercial seed market is taking up ever more room in conjunction with the chemical input market. This study has highlighted the role

338 De Schutter (2015), p. 12; McKeon (2014), p. 8.

339 De Schutter (2015), p. 28.

340 New Alliance for Food Security & Nutrition (2012).

341 Ibid., p. 5.

342 "West African Seed Program," fact sheet, USAID, November 2015, online at https://2012-2017.usaid.gov/west-africa-regional/fact-sheets/West African-seed-program-wasp.

343 See: https://agra.org/our-partners.

344 See AGRA website at https://agra.org/where-we-work/burkina-faso/.

345 Interview with the executive director of NAFASO, Sawadogo Abdoulaye, in Bobo-Dioulasso, 26 May 2017.

played by the US-American company Monsanto in the introduction of GM cotton in Burkina Faso and the possible future introduction of GM cowpeas and sorghum. In addition, initiatives like AGRA and NAFSN give an outsized role to the private sector, counting on it to invest in "improved" seed, inputs, and agricultural machinery. The Norwegian multinational Yara International, the world's leading producer of fertilizer, has committed to investing 5 million USD in Burkina Faso through the Grow Africa platform with a view to developing the country's fertilizer market.[346] Alongside Monsanto and Yara International, the multinational Syngenta has also specialized in agrotoxins and seeds and has made major commitments to invest in Africa through NAFSN. In the context of this study, the United States, Switzerland and Norway have the obligation to take measures to ensure that seed and input multinationals based on their territories do not violate or infringe farm communities' right to food in Burkina Faso. These countries must ensure that the activities of the companies they are in a position to regulate do not undermine Burkina Faso peasants' access to seeds or restrict their use thereof.

Third, the industrialized countries, and in particular the European states and the European Union, are the main promoters of the IPR protection regime, through TRIPS and UPOV in particular. This report has discussed how the strengthening of IPR protection for plant breeders has gone along with a failure to implement and effectively protect peasants' rights as guaranteed by the ITPGRFA. These new rights threaten peasants' access to and use of seeds, hence the realization of their right to food. That has not prevented the European Union countries from strongly promoting an IPR-based system based on the 1991 Act of the UPOV Convention, which favours the holders of plant breeders rights and IPRs – in other words, the seed industry. The first UPOV Convention can be considered "the founding act of the European seed model."[347] These states have thrown their weight behind the campaign to recruit other countries – and particularly developing countries – to UPOV and the 1991 Act, which establishes a restrictive system vis-à-vis peasants' rights. As previously explained, IPRs in general, and UPOV 1991 more specifically, are often at odds with human rights and peasants' right to seeds.

In this context, it should be emphasized that the industrialized countries are among the states that oppose the adoption of a declaration on the rights of peasants by the United Nations Human Rights Council. The articles of the draft declaration on peasants' right to seeds and biodiversity are among the most highly contested.

346 See Grow Africa website at https://www.growafrica.com/groups/yara-international-asa-burkina-faso.

347 Kastler (2015), p. 2.

6. Recommendations

Recommendations to the government of Burkina Faso

1. Enshrine the right to food and nutrition, as well as peasants' right to seeds and biodiversity (by virtue of their customary rights) in the new constitution of Burkina Faso, slated for adoption in 2018.

2. Adopt legal provisions/measures recognizing and effectively protecting peasant seed systems and guaranteeing peasants' rights to save, use, exchange, and sell peasant seed. These provisions should, *inter alia*:
   - Define peasant seeds on the basis of the peasant practices and methods used for their management and use, while also acknowledging their importance to food security and sovereignty, peasant agroecological farming systems, climate change adaptation, biodiversity, and food system diversity.
   - Recognize and guarantee the collective character of peasants' rights to seeds and the customary rights on which peasant seed systems are based.
   - Clarify the status of peasant varieties and the modalities of their administration by peasant communities through their seed systems.
   - Pursuant to article 9.2 of the ITPGRFA, provide legal protection for peasants' knowledge tied to genetic resources.
   - Accord special attention to the protection of rural women's rights to seeds and their knowledge.
   - Clarify that IPRs shall not in any way infringe peasants' rights to seeds.
   - Implement effective measures to protect peasant varieties against genetic contamination, biopiracy, and monopolization of genetic resources by research institutions (public and private), seed companies, or other entities, by patents on the genetic information contained in peasant seed or by any other method.
   - Strengthen peasant seed systems based on articles 5, 6, and 9 of the ITPGRFA.

   It is imperative that these measures be developed via a process that allows for effective peasant participation. The plan to revise and update the seed law in the context of its alignment with the subregional harmonization framework presents an opportunity to fill the existing gaps with respect to peasant seed, peasant seed systems, and peasants' rights. As well, the draft law on plant genetic resources for food and agriculture and the sharing of the benefits resulting from their use, which was drafted by CONAGREP, should be used as another such opportunity by adding provisions on peasant seed based on articles 5, 6, and 9 of the ITPGRFA while also clarifying the relationship between the new law and the seed law.

3. Redirect national and regional seed, agricultural and food policies towards peasant agroecology via a process allowing for effective peasant participation. This process should take account of the recommendations emerging from the November 2015 regional meeting on agroecology for sub-Saharan Africa, co-organized by the government of Senegal and the FAO. The policies should, *inter alia*:
   - Transform agricultural subsidy systems, and trade and investment policies, to support peasant agroecology and provide appropriate financing of policies allowing for its development.
   - Support the development of peasant communities' knowledge and knowhow.
   - Support and reinforce local seed exchange systems such as community seed banks, seed fairs, and community registers of peasant varieties, build tools to improve peasants' access to a great diversity of varieties and species, and preserve agricultural biodiversity.
   - Create incentives for the use of products derived from peasant varieties and agroecology in the processing and marketing sectors, or through public procurement, as in the case of school food programs.
   - Create an agency in charge of agroecology and the agroecological transition under the ministries of Agriculture and Water Resources, Animal and Fisheries Resources, and Environment.

4. Reorient public agricultural research and training towards peasants' rights, needs, and interests. This includes, *inter alia*:
   - Incorporating peasant agroecology and the agroecological transition into national and academic research programs, and the curricula of peasant training centres such as field schools, farm schools, peasant-to-peasant training, and school gardens.
   - Supporting inclusive and participatory agricultural research in which peasants are

involved on the same footing as researchers, with an eye to the co-construction of knowledge. It is imperative that peasants be involved in all phases of such programs, from design to implementation to evaluation.
- Increasing the resources allocated to public agricultural research for participatory research programs focusing on crops useful to peasants and on peasant agroecology.
- Implementing training programs for peasants on the basis of their needs and requirements.

5. Suspend all ongoing GMO trials and all projects aiming to introduce GMOs, most notably Bt cowpeas.

6. Embark on a participatory process, with effective peasant participation, to assess the impacts of growing Bt/GM cotton and the GMO policy. This includes, *inter alia*:
   - Conducting studies to assess the consequences of growing Bt cotton for soil quality, ecosystems, and human and animal health. These assessments must be done by an independent body, involve independent organizations/experts and the concerned parties, and provide for public participation.
   - Carrying out an assessment of the role of the ANB and other actors involved in the introduction and monitoring of Bt cotton and in the promotion of GMOs. This assessment must be performed by an independent organization, involve independent organizations/experts and the concerned parties, and provide for public participation.
   - Holding a national debate on GMOs and biosafety, making the aforementioned impact studies and all other relevant information available to public.

7. Rigorously apply the precautionary principle to GMOs, including organisms developed by new non-transgenic genetic techniques (e.g., cell fusion, mutagenesis).

8. Ensure that the ANB fully plays its information and risk assessment role on the basis of its mission and bylaws, and ensure that there are no conflicts of interest.

Recommendations to ECOWAS, WAEMU, and CILSS member states, the ECOWAS Commission, the WAEMU Commission, and the CILSS Executive Secretariat

1. Suspend the application of the *Regulation on Harmonisation of Rules Governing Quality Control, Certification and Marketing of Plant Seeds and Seedlings* until such time as it is complemented by provisions protecting and promoting peasant seed systems and peasant seed, while also implementing mechanisms to regulate any conflicts that may arise between the commercial seed system and peasants systems.

2. Ensure that the pending *regulation on the prevention of biotechnological risks in West Africa* and its application are based on the precautionary principle and that they provide effective protection for the West African population from the risks associated with biotechnologies.

Recommendations to the African Commission on Human and Peoples' Rights

Develop guidelines on seed policies and legal frameworks that favour the realization of the human right to food and nutrition, using a process providing for effective peasant participation.

Recommendations to international development donors

1. Assess the human rights impact of development programs and projects affecting seeds to ensure that they do not have any negative impacts on human rights, particularly peasants' rights to seeds and seed systems. These assessments must be performed by an independent body with public participation and the results must be made public, specifying the measures that will be taken to prevent, halt, or repair any harm that may be caused. The assessments must involve collaboration with national human rights bodies and the concerned parties, peasants in particular.

2. Withdraw their support from the New Alliance for Food Security and Nutrition in Africa (NAFSN) and halt the implementation of its cooperation frameworks as well as the negotiation of any new framework that weakens peasant food production and local food systems.

Recommendations to all states

1. Support and adopt the United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas that is currently being developed by the United Nations Human Rights Council, with a view to reinforcing the protection of these groups under the aegis of human rights, which includes access to and use of seeds.

2. Take the necessary regulatory and other measures to ensure that any private actors they are in a position to regulate, including international corporations, international financial actors, philanthropic organizations, and other non-state actors, do not interfere with the realization of human rights, particularly peasants' rights to seed and biodiversity.

3. Support and participate in the process underway before the United Nations Human Rights Council leading to the adoption of a legally binding international instrument designed to regulate, within the framework of international human rights law, the activities of transnational corporations and other enterprises, so as to introduce binding international principles clearly defining their responsibilities, particularly in regard to impact assessment, due diligence, and responsibility, and making them legally liable for any human rights violations they may commit.

4. Respect their commitments under the ITPGRFA and support the implementation of article 9 thereof, including the ad hoc technical expert group formed by the ITPGRFA Governing Body at its seventh session in October 2017 with a mandate to develop guidelines for countries on the implementation of article 9.

5. Refrain from all interventions aimed at promoting the introduction of IPR-based protection regimes for plant genetic resources in other countries, and, in particular, from promoting membership in UPOV.

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Annex

List of the communities visited during the international fact-finding mission in May and June 2017

	Name of the community/village	Region
1	Pobé-Mengao	North
2	Titao	
3	Ninigui	
4	Thiou	
5	Pè	West
6	Soungalodaga	
7	Sebedougou	
8	Nematoulaye	
9	Farakoba	
10	Makognedougou	
11	Binkoora	
12	Yegueresso	
13	Bama	
14	Bobo Dioulasso	
15	Pama	East
16	Fada N'Gourma	
17	Bogandé	
18	Bilanga-Yanga	
19	Yamba	
20	Nagré	
21	Diapangou	

GLOBAL NETWORK
FOR THE RIGHT TO
FOOD AND NUTRITION

The **Global Network for the Right to Food and Nutrition** is an initiative of public interest CSOs and social movements - peasants, fisherfolk, pastoralists, landless people, consumers, urban people living in poverty, agricultural and food workers, women, youth, and indigenous peoples - that recognize the need to act jointly for the realization of the right to adequate food and nutrition. The Network opens a space for dialogue and mobilization of its members to hold States accountable with regard to their territorial and extraterritorial obligations to realize this right; it supports the struggles of social movements and groups fighting against violations of this right; it supports and does its best to protect human rights defenders against repression, violence and criminalization; it moves to end the impunity of state-condoned violations and of non-state human rights abusers; and it promotes the holistic interpretation of the human right to adequate food and nutrition, including the full realization of women´s human rights, within the food sovereignty framework.

www.righttofoodandnutrition.org

The **Global Convergence of Land and Water Struggles** is an alliance of social movements, grassroots organizations and other civil society organizations (CSOs) fighting for the rights of communities to land, water and peasant seeds. The Convergence is rooted in the struggles of communities and grassroots organizations, with the aim of linking and strengthening struggles by creating spaces for joint and coordinated activities. The declaration "*Rights to Land and Water, a common struggle. Dakar to Tunis: Declaration of the Global Convergence of Land and Water Struggles,*" which was adopted at the World Social Forum in Tunis in March 2015, contains the vision, principles and aspirations of this Convergence and serves as basis for building a strong and united movement fighting for policies that respect and defend human rights and food sovereignty. The West African Convergence Platform was created in June 2015 and is composed of more than 300 peasant organizations (including farmers, fishers, forest dwellers, etc.) as well as organizations representing victims of land and water grabbing (in rural, peri-urban and urban areas), people from poor neighborhoods, young people, women, subregional networks and NGOs in the 15 countries of the ECOWAS and WAEMU spaces. The member organizations and social movements organize in national platforms to carry out coordinated activities within the context of Convergence. The first action carried out by the West African Convergence was a regional caravan in March 2016 that crossed Burkina Faso, Mali and Senegal, without counting the mobilization of several country delegations to join the caravan in these countries.

www.caravaneterreeau.info