

Harmonisation of Africa's seeds laws: a recipe for disaster

Players, motives and dynamics



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The African Centre for Biosafety (ACB) is a non-profit organisation, based in Johannesburg, South Africa. It was established to protect Africa's biodiversity, traditional knowledge, food production systems, culture and diversity, from the threats posed by genetic engineering in food and agriculture. It has in addition to its work in the field of genetic engineering, also opposed biopiracy, agrofuels and the Green Revolution push in Africa, as it strongly supports social justice, equity and ecological sustainability.

The ACB has a respected record of evidence based work and can play a vital role in the agro-ecological movement by striving towards seed sovereignty, built upon the values of equal access to and use of resources.

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AGRICULTURE, ENERGY AND LIVELIHOOD SERIES

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Acronyms

ARIPO	African Regional Intellectual Property Organisation
ACTESA	Alliance for Commodity Trade in Eastern and Southern Africa
AFSTA	African Seed Trade Association
AGRA	Alliance for a Green Revolution in Africa
AGROBIO	Agrobiodiversity and Biotechnology Programme
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
ASIESA	Alliance for the Seed Industry in Eastern and Southern Africa
ASIF	African Seed Investment Fund
ASTA	American Seed Trade Association
AU	African Union
AUSAID	Australian Agency for International Development
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Centre for Tropical Agriculture
CILSS	Permanent Interstate Committee on Drought Control in the Sahel. (<i>Comité permanent inter-État de lutte contre la sécheresse au Sahel</i>)
CIOPORA	International Community of Breeders of Asexually Reproduced Ornamental and Fruit Varieties
CNFA	Citizens Network for Foreign Affairs
COMESA	Common Market for Eastern and Southern Africa
COMRAP	COMESA Regional Agro-Inputs Programme
CORAF / WECARD	West and Central African Council for Agricultural Research and Development
CPVO	European Community Plant Variety Office
DFID	Department for International Development
DUS	Distinct, Uniform, Stable
DUSN	Distinct, Uniform, Stable, Novel
EAC	East African Community
EAPGREN	East African Plant Genetic Resources Network
EASCOM	Eastern African Seed Committee
EAT	Enabling Agricultural Trade
ECAPAPA	Eastern Central African Programme for Agricultural Policy Analysis
ECOWAS	Economic Community of West African States
FANRPAN	Food, Agriculture and Natural Resources Policy Analysis Network
FAO	Food and Agricultural Organisation
GATT	General Agreement on Tariffs and Trade
GM	Genetic Modification
GMO	genetically modified organism



GNIS	Groupement National Interprofessionnel des Semences et plants (French National Interprofessional Association for Seeds and Plants)
GRAIN	Genetic Resources Action International
HaSSP	Harmonised Seed Security Project
IFDC	International Fertilizer Development Centre
IIED	International Institute for Environment and Development
IP	Intellectual Property
IPRs	Intellectual Property Rights
ISF	International Seed Federation
ISTA	International Seed Testing Association
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
NSTA	National Seed Trade Association
OAPI	Organisation Africaine de la Propriété Intellectuelle (African Intellectual Property Organisation)
OAU	Organisation of African Unity
OPV	Open Pollinated Variety
PAAP	Policy and Advocacy Programme
PASS	Programme for Africa's Seed Systems
PBR	Plant Breeder's Rights
R&D	Research and Development
SCOSA	Sustainable Commercialisation of Seeds in Africa
SEPA	Seed Production for Africa
SIDA	Swedish Development Corporation
SPEAR	Seed Policy Enhancement in African Regions
SSASI	Sub-Saharan Africa Seed Initiative
TRIPs	Trade Related Aspects of Intellectual Property Rights
USAID	United States Agency for International Development
USPTO	United States Patent and Trademark Office
WAEMU	West African Economic and Monetary Union
WASA	West African Seed Alliance
WFP	World Food Programme
WIPO	World Intellectual Property Organisation



Whatever historical period, whatever the mode of production, plants and their products have been the necessary components of the material base on which the complex structures of human societies have been raised.

Jack Kloppenburg, *First the Seed* (1988)

About this paper

The core of the paper is focused on the pressures being exerted on African governments to adopt the 1991 Act of the International Union for the Protection of Plant Varieties (UPOV), particularly through regional harmonisation of plant variety protection (PVP) policies and laws.

At the outset, we provide some background information on seed production and PVP. We then examine what UPOV 1991 entails and discuss our concerns with African governments adopting its provisions. Thereafter, we provide a brief overview of efforts to harmonise seed **trade** laws, for the sake of completeness.

This is followed by a more in-depth discussion of the various PVP regional harmonisation efforts underway in Africa. In this regard, we deal in some detail with the PVP harmonisation efforts of the African Regional Intellectual Property Organisation (ARIPO). We then provide information about the central players involved in the vast network of well-funded initiatives rushing African governments into adopting PVP laws based on UPOV 1991. Thereafter, we discuss the adverse impacts PVP laws will have on the exercise of farmers' rights in Africa, and concomitantly, on agricultural biodiversity, food security, livelihoods, knowledge systems and culture. We conclude with a strong call for civil society to monitor and engage with the seed policy processes and defend customary and farmers' rights.

Executive Summary

Seeds are the very basis of human society and have been for all of human history. Until very recently, farming and seed breeding were undertaken by farmers on their own land, season after season. However, we are now witnessing the separation of these two interdependent activities, with seed breeding increasingly being privatised and farmers becoming increasingly dependent on seed varieties made available to them at the discretion of seed companies. This process of separation began in Europe and North America at the turn of the nineteenth century, and continues today in developing countries and developed countries alike.

However, in Africa, where the majority of farmers are still in control of their seed and knowledge systems connected to cycles of food production, the pressure is on to change.

Intellectual property over plant varieties was placed on the global trade agenda via the World Trade Organisation's (WTO) Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs). TRIPs gives countries the option of implementing a *sui generis* system of their choice with regard to intellectual protection over plant varieties. It was thus anticipated that African governments would try to find an equitable balance between the rights of breeders and farmers and develop



appropriate plant variety protection (PVP) legislation, by taking into account the African Model Law for the Protection of the Rights of Local Communities, Farmers and Breeders and the International Treaty on Plant Genetic Resources for Food and Agriculture.

Regrettably, this has not been the case. One by one, African governments are being co-opted into reviewing their seed trade laws and supporting the implementation of PVP laws through fast-tracked regional harmonisation processes and trading blocs. The strategy is to first harmonise seed trade laws at the regional level, such as border control measures, phytosanitary control, variety release systems and certification standards, and then move on to harmonising PVP laws. The effect of these collective efforts is the creation of a bigger, unhindered seed market, where the types of seeds on offer are restricted to commercially protected varieties.

Harmonised PVP laws in Africa are all based on the 1991 Act of the International Union for the Protection of Plant Varieties (UPOV) and these therefore go well beyond what TRIPs requires of member countries. UPOV 1991 was developed by industrialised countries over 20 years ago to suit their own interests. At its core is the strengthening of breeders' rights and the undermining and prejudicing of farmers' rights.

Efforts towards the harmonisation of PVP policies and laws in Africa are characterised by high levels of political commitment and support, major funding and the conspicuous absence of farmer participation.

Additionally, the international seed lobby has rapidly created a vast network of well-funded initiatives, institutions and agreements rushing African governments into adopting PVP laws based on UPOV 1991. The players that are involved are numerous and include: African regional trade blocs such as the Southern African Development Community (SADC) and Common Market for East and Southern Africa (COMESA); intellectual property agencies such as the African Regional Intellectual Property Organisation (ARIPO); the World Bank; the United States Agency for International Development (USAID); Citizens Action for Foreign Affairs; the US patent and trademark office, the Seed Science Centre at Iowa State University; agrochemical/seed companies such as Monsanto, Syngenta, Pioneer Hi-Bred; seed associations such as the African Seed Trade Association (AFSTA), the Food and Agriculture Organisation (FAO), public sector research institutions such as the Consultative Group on International Agricultural Research (CGIAR); the Alliance for a Green Revolution in Africa (AGRA); and African research institutions such as the **Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA)** and the **Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN)**.

PVP harmonisation processes and their protagonists do not recognise the current practises of 80 per cent of African farmers but instead are set on undermining and disregarding the contribution these farmer-breeders have made, and are making, to seed breeding, genetic diversity and food security. Policies and laws based on UPOV 1991 will severely negatively impact on agricultural biodiversity, farmers and local communities, and consequently on food security. Furthermore, processes underway in developing harmonised legal frameworks that exclude civil society and farmer participation is a gross violation of human and customary rights of African communities.



Introduction

Following decades of neglect, the past few years have witnessed growing external investment in African agriculture, including in seed systems. Rising demand and constrained supply suggest profits can be made through investments in agricultural production. There is ongoing interest in using African land and resources for the production of food commodities for other parts of the world (with China the current driver). Biofuels, maize, rice and cassava are key focus areas.¹

The dominant narrative is that Africa missed out on the first Green Revolution – the package of hybrid seed, synthetic agri-chemicals, irrigation and credit – that resulted in rising agricultural productivity in the rest of the world. Investors share the principle that private enterprise is the ideal path to pursue, because the profit motivation generates economic activity. The immediate emphasis is not on direct ownership by multinationals. Rather the short-term focus is on building markets. This means business and technical skills, institutional arrangements and physical infrastructure (left to the public sector as far as possible, since few capitalists will be willing to invest in collective goods that their competitors will also benefit from). The Alliance for a Green Revolution in Africa (AGRA), for instance, has this explicit goal: of building scientific expertise and private agro-dealer networks to distribute seed and other inputs.²

In the context of seeds, what is of interest in these early stages is to put in place the legal framework for private ownership over germplasm, and this is currently one of the frontline battles for control over genetic resources. When it comes to propagating, multiplying and distributing seeds for commercial use, investors and supporters of the Green Revolution push in Africa are united in the belief that this must be owned and managed privately for gain. Successful seed companies may be acquired by multinationals at a later stage, and it is not necessary for multinationals to exert direct ownership over seed multiplication and distribution in the early stages.

A top priority for those supporting the Green Revolution push in Africa appears to be Intellectual Property Rights (IPRs), which are also bound up in laws related to counterfeiting.

Intellectual property on genetic resources is a recent invention by industry, with the aim to:

- Recoup investments and maximise profits by stopping farmers from saving, sharing or selling seed;
- Stop competing seed producers from using the seed for commercial purposes; and
- Stop seed breeders, public or commercial, from using a protected variety or technology in the development of a new variety.³

Protection of imported technologies is of central importance for profit-making companies. Much effort is going into developing PVP frameworks that assist commercial seed breeders to extract revenues from investments in Africa. The adoption of the 1991 Act of the International Union for the Protection of Plant Varieties (UPOV) is central to this project. UPOV 1991 explicitly narrows farmers' rights to exchange and use farm saved protected seed. A push for African countries to adopt the 1991 version of UPOV is fully under way in Africa, particularly through harmonising seed policies and laws, to ensure PVP across the region and facilitate regional seed trade.

Although the Alliance for a Green Revolution in Africa (AGRA) and others are not explicitly arguing in favour of technologies based on genetic modification (GM) in these early stages, the systems of production and distribution they are building are designed to spread hybrids seeds. The same channels can be used for the spread of GM seed in the future. Across the board, investors consider



that GM technologies have potential, but robust legal, production and distribution systems, and that greater access of farmers to agri-chemicals and markets, are prerequisites for the eventual, successful adoption of GM seed.

Seed production

African seed systems have generally existed outside global circuits of capitalist accumulation apart from some enclaves or niches developed during the colonial era. The focus of these enclaves was on commercially viable crops, especially for export as part of the colonial system of extraction. According to the International Centre for Tropical Agriculture (CIAT), 80 - 90 per cent of the world's seed stocks are provided through what they call the 'informal' seed system, and Africa is no exception.⁴ More than 80 per cent of all seed in Africa is still produced and disseminated informally.⁵ Consequently, Africa and the Middle East constituted just 2.7 per cent of the global commercial seed market in 2007.⁶

Farmer-controlled seed systems in Africa are integrated and locally organised. They are based on the ways farmers themselves produce, disseminate and procure seeds through on-farm saving and exchange with neighbours and others.⁷ This is connected to food supply and distribution systems, for example through the use of a maize harvest for a combination of food, feed and planting.

The harvesting of seed from preferred plants is the basis of crop domestication over the 10 000 years of agriculture. This has led La Via Campesina to say that 'all industrial seeds are the product of thousands of years of selection and breeding by our peoples'.⁸ Exploitation of chance mutations and natural selection processes were the main form of plant improvement for most of this time until the last 80 - 100 years. The development of the science of genetics at the end of the nineteenth century led to the rise of scientific research into the inheritance of traits in plants and crops. After 1945, other advances in science such as in vitro technologies and mutagenesis led to the development of 'high-yielding' seed varieties.⁹ Later genetic modification (GM) and molecular markers extended these technologies further. About half of the yield gains since the 1940s are attributed to genetic improvements by plant breeders, and the other half to mechanisation, irrigation and chemicals.¹⁰

Commercial seed firms and private breeders only emerged in the 1930s. Prior to that, farmers saved seed from their own crops and governments funded plant breeding research and development (R&D). The development of hybrids – cross-pollinating crops, such as maize – set the seed industry on a completely new trajectory. Hybrid seeds were developed from the 1920s for maize in the US (of which Pioneer Hi-Bred was literally the pioneer), and later for other crops, to cross desired traits identified in different varieties into a single plant.

Hybrid seeds

Hybrid seeds are produced from naturally out-breeding crops, from which inbred lines are produced by repeated self-pollination.¹¹ F1 hybrids refer to agricultural cultivars derived from two different parent cultivars, which are first inbred for selected characteristics (e.g. early maturity, disease-resistance or drought-tolerance) and then crossed with one another and evaluated for yield potential and other desired characteristics.¹² Crosses between two unrelated parents are known as single crosses. Those from three parents are known as three-way hybrids, and those from four parents are double-cross hybrids. The female product of a three-way hybrid is a single-cross hybrid and the male is an inbred line. The parents of a double-cross hybrid are both single-cross hybrids



(which must first be produced as indicated above). In a top-cross hybrid, one of the parents is an OPV (Open Pollinated Variety) and the other is a single cross or an inbred line.¹³

The original cross usually has to be performed every season to retain the desired characteristics of the hybrid. The seed can be saved, but the characteristics it was bred for will decline steeply after the first year. 'Farm saved seed of a three-way hybrid yields about 68 per cent that of fresh first generation (F1) seed of the same variety.'¹⁴ Single-cross hybrids suffer greater yield losses on recycling (replanting saved seed) than three-way or double-cross hybrids.¹⁵

Hybrid seeds are no less organic than OPVs. The main difference is that a saved OPV will reproduce the traits of the parent, whereas a saved hybrid seed will not reproduce the combined traits of the parents. Control over the 'pure lines' that were crossed to make the hybrid is thus important, because the hybrid can only be reproduced from season to season by going back and crossing the pure lines. Therefore ownership of the germplasm is essential for corporations to make a profit through PVP protection.

Open-pollinated varieties

Open-pollinated varieties (OPVs) are the basic material from which all seed cultivars are developed. They arise from landraces – crop species that evolved from wild populations due to selective pressures from farmers over time.¹⁶

OPVs can be divided into two categories. One category is of those crops that cannot be hybridised and OPV seeds are therefore used in the mainstream commercial market. These crops, such as wheat, soybeans, ground nuts, barley and dry beans, self-pollinate and it is not commercially viable to try to control pollination. Most commercial vegetable crops are mainly OPV. The other category of seeds is of those that can be hybridised. In commercial systems, there is a tendency towards hybrid seed in such cases, especially of commercially important agronomic crops like: maize, sunflowers, grain sorghum, sweet corn, zucchini, cauliflower, broccoli, and to a lesser extent onions and carrots, among the vegetable crops.

OPVs can be improved without hybridisation, although plant breeding is limited to selection of the seed-bearing plants. Hybridisation is just one technique among others to improve seeds. But for more than 99 per cent of the 10 000 years of agriculture (domestication of plants and animals), seed has been improved based on plant selection from the field. This was mainly in the hands of farmers until 60 or 70 years ago, when plant selection and breeding moved into laboratories in a significant way.

In sub-Saharan Africa, OPVs are most readily associated with resource-poor smallholder farmers because they are easily accessible, do not require high levels of external input and can adapt to local ecologies over time. OPVs can be saved on the farm from one season to the next with limited loss in yields. Although they may end up crossing with other varieties of the same plant that neighbouring farmers have planted, this should not automatically be seen as negative. While crossing may result in the inheritance of inferior traits, local crossing can also allow for adaptation to local conditions, resulting in greater robustness.

The value of OPVs is thus more significant for smallholder producers who rely on their production to meet their own food needs. Since the majority of agricultural production in Africa is on small farms,



mainly by resource-poor farmers, it is not surprising that OPVs still dominate. This goes for maize as well as other crops, although hybrid maize seed is expanding on the continent.

Maize as the 'thin edge of the wedge'

The main exception to farmer-controlled seed systems in Africa is maize hybrids, which have been 'the main growth engine for formal sector seed and for profitable commercial enterprise in Africa'.¹⁷ Maize is a staple food in large sections of Africa. In 2007 maize accounted for 56 per cent of the total harvested area of annual food crops in sub-Saharan Africa (SSA), 43 per cent of which is in southern Africa.¹⁸

Because maize is so widely grown in the region, and because African yields are so low when compared with other parts of the world, much attention has been paid to the improvement of maize varieties in Africa. Adoption rates of improved maize varieties (80 per cent hybrid and 20 per cent open-pollinated) are highest in South Africa, Zimbabwe (80 per cent), Zambia (73 per cent) and Kenya (72 per cent) and low in Angola (5 per cent), Mozambique (11 per cent), Tanzania (18 per cent) and Ethiopia (19 per cent).¹⁹ Rapid growth is being experienced in Zambia and Uganda and to a lesser extent Tanzania, Ethiopia and Malawi. Maize is thus an entry point for the expansion of commercial seed systems in Africa.

AGRA's (Alliance for a Green Revolution in Africa) activities reinforce this perception. Almost two-thirds of AGRA's Seed Production for Africa (SEPA) programme grants by value from 2007 to 2012 were allocated to maize, followed far behind by cassava and groundnuts as other crops with commercial potential.²⁰

Markets and systems of production and distribution can be built and extended through commercialisation of the maize sector. In this way it can be understood as 'the thin edge of the wedge', introducing new systems that link to the expansion of a class of commercial farmers. Markets for both seed and imported synthetic agrichemicals are created. Where the colonialism of the past was largely about the extraction of natural resources as cheaply as possible, the new wave of capitalist investment in African agriculture is about building domestic markets while also extracting surpluses in the form of debt repayments and dividends.

However, the basic infrastructure is not in place, and states do not appear able to create it. AGRA and others are doing the groundwork of building domestic scientific capacity (with multinational technical and financial backup), and building basic production and distribution capacity and systems in and outside the state.

Intellectual property rights and ownership of germplasm

IP is a form of business regulation, not a fundamental aspect of human needs. As such it is a subordinate activity that should be modified, reviewed and restructured according to how it helps or hinders the meeting of human needs. ...the measures by which it is judged requires a far wider range of inputs than those from legal and technical groups that make up the IP community and which dominate the practise of WIPO. Sisule Musungu²¹



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The introduction of Intellectual Property Rights (IPR) and Plant Breeders' Rights (PBR) or PVP in the middle of the twentieth century brought private sector interest, including from petrochemical and pharmaceutical companies.²² PBRs guaranteed a return on investment in plant breeding activities. However, as yield became the most important point of differentiation between seed brands, regional companies were able to compete effectively with the large multinationals who aimed for standardisation. Most of the multinationals exited the seed sector, but those with large investments in biotechnology, and specifically GM, consolidated their power in seed sectors across the world. This took the form of vertical integration of R&D (genetic modification) and germplasm assets, the seed and plant material itself (formerly owned by seed companies).²³

Today, formal seed systems are dominated by private corporations, which profit from ownership of germplasm and the technologies used to modify it. But a very significant base of germplasm and plant selection techniques still resides in the hands of farmers. There is a direct relationship between producer ownership of seed and techniques of reproduction on the one hand, and the economic importance of agriculture to the economy on the other. Those economies that remain highly reliant on agriculture as an economic activity (i.e. less industrialised countries) have not developed corporate or formalised systems of seed ownership and reproduction. Conversely, highly industrialised countries tend towards a separation of seed ownership from agricultural production.

The past few years have witnessed growing external investment in African agriculture, including in seed systems. The context for this growing investment is structurally higher food prices globally, driven by limited arable land and rising urban populations, as well as changing diets, globally as well as in Africa. Maize prices are increasing as production in the US (the historical generator of surpluses for food aid to Africa) is diverted to biofuel production. Greater surpluses are required, and where better to turn than a geographical area viewed as underperforming but with potential in the form of underutilised natural and human resources?

Africa is thus seen as the 'new frontier' of wealth accumulation.²⁴ Rising demand and constrained supply suggest profits can be made through investments in agricultural production. As previously mentioned, there is ongoing interest in using African land and resources for production of food commodities to other parts of the world (with China the current driver).

The fact that all investors share the principle that private enterprise is the ideal path to pursue, because the profit motivation generates economic activity, is worth repeating. They do recognise that states can play a role, either in providing the basic infrastructure or more directly in public-private partnerships, especially around plant breeding research and development (R&D). However, when it comes to propagating, multiplying and distributing seeds for commercial use, these investors stand as one in the belief that this must be owned and managed privately for gain. The immediate emphasis is not on direct ownership by multinationals. Rather the short-term focus is on building markets. This means business and technical skills, institutional arrangements and physical infrastructure (left to the public sector as far as possible, since few capitalists will be willing to invest in collective goods that their competitors will also benefit from). The Alliance for a Green Revolution in Africa (AGRA) has this explicit goal, of building scientific expertise and private agro-dealer networks to distribute seed and other inputs. Successful seed companies may be acquired by multinationals at a later stage, and it is not necessary for multinationals to exert direct ownership over seed multiplication and distribution in the early stages.

What is of interest to them in these early stages is to set the legal framework for private ownership over germplasm, and this is the current frontline of the battle for control over genetic resources. This



may take the form of acquisition of companies that hold locally-adapted germplasm (e.g. Pioneer Hi-Bred's recent acquisition of Pannar, South Africa's last major domestic seed company) or it may take the form of securing intellectual property rights (IPR) over imported varieties and techniques.²⁵

PVP at the international level

TRIPs

In 1995, IPRs were integrated into the global system of enforceable trade rules of the General Agreement on Tariffs and Trade (GATT)/World Trade Organisation. The Agreement on Trade Related aspects of Intellectual Property Rights (TRIPs) bound all WTO member countries to rules for the protection and enforcement of IPRs over plant genetic resources. TRIPs requires that all countries wanting to trade on the global market to implement some form of PVP legislation. Article 27(3) of TRIPs requires member countries to put in place legislation to protect new plant varieties either through patents or a *sui generis* system (a system of its own kind) on plant variety protection, or both. In other words, members of the WTO can choose to develop their own *sui generis* system of PVP. In regard to the development of a *sui generis* system, TRIPs does not specify that member countries must adopt a specific set of rules, only that they adopt rules that provide effective PVP.

The International Union for the Protection of New Varieties of Plants – UPOV

The UPOV Convention was first adopted in Paris in 1961, revised in 1972, 1978 and in 1991, with the 1991 revision entrenching the interests of the big players in the seed industry. The 1978 Act entered into force in 1981 and the 1991 Act in 1998. Any new members wishing to join UPOV are required to implement UPOV 1991. It is worth noting that UPOV agreements were negotiated by developed countries to address their own needs. African governments did not participate in any of these negotiations. Unsurprisingly, UPOV 1991 especially, does not reflect the concerns of Africa, and imposes a 'one-size-fits-all' inflexible legal framework that limits the ability of countries to design their national laws to suit the particular needs and take into account the interests of small farmers.

The 1978 UPOV Act contained a number of flexibilities for farmers and breeders (see table below), but the 1991 Act is much more restrictive. The seed industry is already openly formulating the next version of UPOV, which will mean that they will have even more control over all aspects of seed and food, from harvest to the table for no better reason than to increase the profits of Du Pont, Bayer, Syngenta and Monsanto.^{26, 27}

African countries and membership of UPOV

South Africa and Kenya are members of UPOV 1978 and Tunisia and Morocco of UPOV 1991. Although South Africa has not yet ratified UPOV 1991, it has, as far back as 1996, and in terms of amendments to the Plant Breeders Rights Act at that time, began a process of implementing some of the UPOV 1991 provisions.²⁸

Furthermore, as long ago as 1999, countries in Francophone Africa were prompted by the World Intellectual Property Organisation (WIPO), the UPOV Office and the French IP office into adopting and ratifying UPOV 1991 via the Revised Bangui Agreement in 1999.²⁹ These international players – UPOV, WIPO and the French IP office – fully participated in the development of the text, which left little or no opportunity for formal interstate negotiation.

The Bangui Agreement is administered by the African Intellectual Property Organisation, (OAPI). This agreement fully implements the UPOV 1991 agreement and applies automatically as the national law in each of the OAPI member States. OAPI is composed of 16 member States: Benin, Burkina Faso,



Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Gabon, Guinea, Equatorial Guinea, Mali, Mauritania, Niger, Guinea Bissau, Senegal and Togo.

General concerns with UPOV 1991

Africa is awash with PVP legal frameworks at the national and regional levels. These are in various stages of development and are, almost without exception, based on UPOV 1991. This is so despite African countries having a clear choice in terms of the TRIPS agreement to develop their own sui generis PVP system. It appears as if a large contingent of African countries is poised to join UPOV 1991.

UPOV 1991 has been the subject of criticism³⁰ as it *inter alia* limits innovative activities in respect of protected varieties as well as prohibiting farmers from freely saving, using, exchanging or selling farm saved protected seeds. UPOV 1991 threatens crop diversity, and thereby reduces resilience to climate change. In this regard, the UN Special Rapporteur on the Right to Food has noted: 'Intellectual property rights reward and encourage standardisation and homogeneity, when what should be rewarded is agrobiodiversity, particularly in the face of the emerging threat of climate change and of the need, therefore, to build resilience by encouraging farmers to rely on a diversity of crops'.³¹

PVP systems that adopt UPOV 1991 are likely to precipitate:

- Progressive marginalisation of farmer managed seed systems and the disappearance of local varieties;
- Farmers becoming increasingly dependent on expensive inputs, creating the risk of indebtedness in the face of unstable incomes;
- An imbalance between the private and the public sectors in agricultural research, with R&D being orientated towards meeting the needs of farmers in rich countries while the needs of poor farmers in developing countries are comparatively neglected; and
- Agrobiodiversity being threatened by the uniformisation encouraged by the proliferation of commercial varieties.

Specific concerns with UPOV 1991

Scope of breeders' rights

*Regarding the scope of right, we need to have control over the material of a variety beyond propagating material. Everything that is not propagating material is harvest material and we need to have a grip on harvest material. For example, if a farmer buys a licence for a specific apple tree, then all derived products, such as apple juice or jam, can be traded freely. However, if there is no licence on the apple tree, then the right holders must have a way to control the apple juice or the jam.*³²

The scope of breeders' rights provided in Article 14 of UPOV 1991 vastly extends the rights of the breeders and severely restricts the scope of other breeders to innovate in respect of protected varieties. UPOV 1991 prohibits not only the production for the purposes of commercial marketing, and the sale and marketing of propagating material of the variety, but also 'production or reproduction; conditioning for the purpose of propagation; offering for sale; selling or other marketing; exporting; importing; and stocking for the above purposes', without the authorisation of the breeder (article 14 (1)); these prohibitions extend beyond the reproductive or vegetative propagating material, to the harvested material obtained through the illegitimate use of propagating material (article 14 (2)); to harvested products obtained through the illegitimate use of



harvested material; and so-called 'essentially derived' varieties and certain other varieties (article 14 (5): e.g. varieties that are essentially derived from the protected variety, varieties that are not clearly distinguishable from the protected variety, and varieties whose production requires repeated use of the protected variety).

Effectively, the extensive scope of breeders' rights could restrict others from freely using protected varieties for research and breeding purposes and limits development of new varieties from the protected varieties. Under UPOV 1978, Article 5(3) allowed the use of a protected variety as an initial source of variation for the purposes of creating other varieties, or for the marketing of such varieties. Breeder authorisation was only required in cases of repeated use of the protected variety. However, this option is not available under UPOV 1991.

The DUS or DUSN requirements

To qualify for protection under the UPOV 1991 system, a plant variety must be distinct, uniform, stable (DUS) and novel (DUSN criteria). These requirements are significant in that they specify which plant varieties can be protected by PVP and also define what actually qualifies as a plant variety. Standardisation is thus encouraged /legalised and hence does not acknowledge or accommodate more genetically diverse plant varieties, traditional varieties or cultivated landraces.

UPOV 1991 defines novelty not in terms of the previous existence or not of a variety, but in relation to whether or not it has been commercialised. Further, a variety would satisfy the criterion of 'distinctness' if the variety is clearly distinguishable from another variety, whose existence is a matter of common knowledge at the time of the filing of the application, particularly if it is not covered by an existing PVP application (which is subsequently allowed), or was not registered in an official register of varieties. This criterion has no agronomic value at all. It is irrelevant to farmers whether or not a variety is distinct.

The concepts of 'novelty' and 'distinctness' are narrowly defined and could lead to the misappropriation of farmers' varieties, which are often not commercialised, as well as not registered. In addition, the requirement of uniformity, – in any case a relative term – makes it impossible for farmer breeders to register any new varieties they develop as these varieties are inherently unstable and in permanent evolution. The level of uniformity is also a threat to food security as an increasingly narrow genetic base equals genetic vulnerability, making crops vulnerable to pests and climate stress.

Scope of species/genera to be protected and time frame for protection

UPOV 1991 has extended the time frame for PVP to 20 years (or 25 years for trees and vines). The rules on the range of species and plant material have been expanded in UPOV 1991 to cover varieties of all genera and species. For new members, UPOV 1991 requires the protection of at least 15 plant genera and species and to all plant genera and species after 10 years. There is just no way African countries can comply with these requirements without severely compromising farmer managed seed systems, genetic diversity and indigenous plants, particularly local varieties necessary to ensure food security.

Allowing for extended protection does not in any way benefit farmer managed systems and innovation through these systems. Such protection only benefits a few commercial seed breeders, which are likely to be multinational companies. It allows such breeders to dominate seed production and extract royalties from local farmers for the duration of protection.



Table 2: Comparison between UPOV 1978 and UPOV 1991

As can be seen from the table below, when compared to UPOV 1978, UPOV 91 vastly expands breeders' rights and restricts innovation with respect to protected varieties.

UPOV 1978: Breeders rights (Art. 5) :	UPOV 1991: Breeders rights (Art. 14) Art. 15(2) is also relevant
<p>PVP to extend to the production for commercial marketing; offering for sale; marketing, where more extensive protection may be agreed among a group of members.</p> <p>'Authorisation by the breeder shall not be required either for the utilisation of the variety as an initial source of variation for purposes of creating other varieties, or for the marketing of such varieties. Such authorisation shall be required, however, when the repeated use of the variety is necessary for the commercial production of another variety. section 5(3)'</p> <p>*Farmers & researchers were provided the space to carry on with their activities.</p>	<p>PVP to extend to propagating material of the protected variety, to production, reproduction (multiplication), conditioning for propagation, offering for sale, selling, exporting, importing and stocking.</p> <p>PVP extends to: harvested material, produce made from harvested material, essentially derived varieties, varieties not clearly distinguishable, varieties that need repeated use of the protected variety.</p> <p>Article 15 (2): The breeder's right shall not extend to acts done for the purpose of breeding other varieties, and, except where it concerns an essentially derived variety or certain other varieties as defined in Art. 14(5).</p>

Restrictive exemptions and farmers' rights

Article 15 of UPOV 1991 prescribes restrictive exceptions to breeders' rights. It contains compulsory exceptions to breeders' rights: acts done privately and for non-commercial purposes, acts done for experimental purposes, and acts done for the purpose of breeding other varieties except for essentially derived varieties, as well as other varieties defined in Article 14(5) of UPOV 1991. These limited exceptions tend to be interpreted narrowly. For instance, according to a UPOV publication, only '... propagation of a variety by a farmer exclusively for the production of a food crop to be consumed entirely by that farmer and the dependents of the farmer living on that holding, may be considered to fall within the meaning of acts done privately and for non-commercial purposes'. Does this mean that even consumption by the farmer and his or her neighbour or the village could not fall within this exception?³³ Further, it is clear from the limited exceptions that commercial activities of rural agricultural populations, which are critical to improved rural livelihoods, are also not allowed.

In relation to farmers' rights, UPOV 1991 only provides an 'optional exception' pertaining to the use and exchange of farm saved seed of protected varieties. Even this optional exception is limited in scope. It only allows an exception for farmers to use protected varieties 'for propagating purposes on their own holdings, the product of their harvest which they have obtained by planting on their own holdings' and 'the protected variety', subject to the 'safeguarding of the legitimate interests of the breeder'.

So effectively under UPOV 1991, farmers are not even considered deserving of a mandatory exception. Moreover, farmers are not allowed to freely exchange or sell farm saved seeds of



protected varieties. The use and exchange of farm saved seed is a practise that underpins agricultural systems in most developing countries; and in Africa in particular. Even rural trade is not allowed based on the further use and exchange of protected varieties. Further, even the limited exception provision in UPOV 1991 is subject to the safeguarding of the legitimate interests of the breeder – i.e. subject to payment of a royalty to the breeder!

The World Intellectual Property Organisation (WIPO)

WIPO is a specialised agency of the United Nations tasked with the protection and promotion of intellectual property throughout the world. It operates at many levels, giving administrative and technical assistance on IP not only to governments but also to other agencies within the UN. It also provides legal and technical assistance to implement the World Trade Organisation's Trade Related Intellectual Property Rights (TRIPS) agreement.

WIPO's promotional role in the implementation of IP in developing countries has had a profound and – up to now – underestimated impact on biodiversity, food security and access to medicine. WIPO has been heavily criticised for its narrow focus on promoting and expanding IP, often disregarding the crucial development-oriented elements of its mission statements.³⁴ This has raised questions about whose interests it represents. Although WIPO is legally separate from UPOV, the two agencies are close, sharing a building in Geneva and WIPO's Director General is also the Secretary General of UPOV. The 1982 WIPO/UPOV Agreement sets out the reciprocal relationship between the two agencies.³⁵

As part of their food security and development agenda, WIPO hosts workshops and training on IP in Africa on the pretext that PVP supports food security strategies on the continent.

The Protection of Farmers' Rights and Alternatives to UPOV

The Seed Treaty

The International Treaty on Plant Genetic Resources for Food and Agriculture (also known as the Seed Treaty) came into effect in June 2004. To date, 127 countries have ratified the Treaty, including many African countries.³⁶ Article 9.1 of the Treaty recognises the contribution of local and indigenous farmers to the conservation and development of plant genetic resources globally, but then in Article 9.2 leaves the responsibility for the realisation of those rights with national governments, subject to their own priorities and national legislation. Article 9(2)(c) recognises the rights of the local and indigenous communities and farmers 'to participate in making decisions at the national level on matters related to the conservation and sustainable use of plant genetic resources for food and agriculture.'

The elements of Farmers' Rights in the Seed Treaty thus include the:

- a.) Protection of traditional knowledge relevant to plant genetic resources for food and agriculture;
- b.) Right to equitably participate in sharing benefits arising from the utilisation of plant genetic resources for food and agriculture;



- c.) Right to participate in making decisions, at the national level, on matters relating to the conservation and sustainable use of plant genetic resources; and
- d.) Farmers' rights to farmed saved seeds.

The preamble of the Seed Treaty defines farmers' rights as *Affirming also that the rights recognised in this Treaty to save, use, exchange and sell farm saved seed and other propagating material, and to participate in decision-making regarding, and in the fair and equitable sharing of the benefit arising from, the use of plant generic resources for food and agriculture, are fundamental to the realisation of Farmers' Rights, as well as the promotion of Farmers' Rights at national and international levels.*

The Treaty entered into force a decade ago and there has been little progress at the national levels, on the implementation of the farmers' rights provisions. However, it is duly noted that at every meeting of the governing body, new decisions are taken with regard to strengthening the implementation of the provisions relating to farmers' rights.

Nevertheless, the UN Special Rapporteur on the Right to Food has recommended that governments: 'Put in place mechanisms ensuring the active participation of farmers in decisions related to the conservation and sustainable use of plant genetic resources for food and agriculture, particularly in the design of legislation covering ... the protection of plant varieties so as to strike the right balance between the development of commercial and farmers' seed systems.'³⁷

An African Initiative to protect Farmers Rights: The African Model Law³⁸

The Organisation for African Unity (OAU) initiative to develop a 'Model Legislation on the Protection of the Rights of Local Communities, Farmers and Breeders and for the Regulation of Access to Biological Resources' began in 1997. This was meant to assist African countries to deal constructively with the demands of Article 27(3) of the TRIPS Agreement, already discussed above. Twenty-five countries participated in the development of the Model Law, and it was endorsed in 2000 by the African Union (AU). The Model Law recognises Plant Breeders' Rights and provides for their protection, but balances such protection against the rights of farmers and communities. It excludes patents on life (see Annex 2, for a discussion on TRIPs and Patents on Life).

In terms of the Model Law, *Farmers' Rights* entail the protection of farmers' breeds and seeds according to criteria based on customary practises, the right to save, use, multiply and sell seeds, with the limitation that sale of material owned by a breeder should not be on a commercial scale. In terms of the Model Law, *Plant Breeders' Rights* are protected, and intellectual property over new varieties that are distinct, stable and sufficiently homogenous or a multi-line are recognised, as well as the exclusive right of the breeder to sell and produce such varieties.

The African Model Law goes beyond the Seed Treaty and grants exclusive rights to farmers over their varieties, which is really a form of intellectual property. , As a model law, it stands to reason that it will have to be adapted to particular national contexts. The most important contribution of the Model Law is that it provides, at the very least, an alternative to UPOV for African countries and sets down some important guiding principles for adaptation at the national level.

UPOV and WIPO officials were not supportive of the African Model Law. In 2001, the OAU invited UPOV and WIPO office representatives to a conference and gave them an opportunity to comment on the Model Law. The UPOV office was highly critical, producing a document in which they



redrafted more than 30 of the Model Law's articles; making a mockery of the Model Law and insulting their hosts.

Ethiopia has implemented the African Model Law by way of the 2006 *Proclamation on Access to Genetic Resources and Community Knowledge, and Community Rights*, which provides that 'no legal restriction shall be placed on the traditional system of local communities on the use and exchange of genetic resources and community traditional knowledge.' This proclamation gives communities the right to receive 50 per cent of the share that the state obtains in monetary form from the use of their genetic resources. The proclamation vests the rights to knowledge with rights holders within communities, but the rights to the genetic resources themselves are vested in the State and the Ethiopian people.³⁹

It appears as if the political will of the AU to promote the Model Law has been substantially compromised by its partnerships with the seed and biotechnology machinery and the financial resources supporting the implementation of UPOV 1991. The AU has signed an Memorandum of Understanding (MoU) with the African Seed Trade Association (AFSTA) in 2008, the terms of which are unknown. However, what is known is that AFSTA is leading the seed law harmonisation process in Africa and plays an important role in advocating in favour of commercial seed supply through its own partnerships with the African Union/NEPAD, and the national seed trade associations in West Africa.⁴⁰ The AU also signed an MoU with the African Agriculture Technology Foundation (AATF) on technology transfer, it is no secret that the AATF strongly promotes new technologies, particularly GMOs.⁴¹

***Sui Generis* system at the national level: The Indian example**

An interesting example of a *sui generis* PVP system not based on UPOV 1991 is the Indian legislation on plant varieties protection.⁴² This legislation aims to protect farmers' rights and acknowledges their contribution in conserving, improving and making available plant genetic resources for the development of new varieties. It also allows for PVP to stimulate investment for R&D in the public and private sectors. In an attempt to strike a balance between plant breeders' and farmers' rights, the legislation contains several interesting provisions:

- PVP does not extend to all plant genera and species, and where PVP is granted, it can be removed from the scope of protection on public interest grounds;⁴³
- All stakeholders involved in plant breeding, particularly farmers and commercial plant breeders are allowed to seek PVP in respect of the varieties they develop;⁴⁴ and
- Any applicant wishing to register for PVP needs to provide information about the origin of the genetic material that the variety uses (disclosure of origin).⁴⁵

Applicants for PVPs must also declare: that the variety for which protection is being sought does not contain any gene or gene sequence involving terminator technology; that the genetic material or parental material acquired for breeding, evolving or developing the variety has been lawfully acquired; the complete passport data of the parental lines from which the variety has been derived along with the geographical location in India from where the genetic material has been taken; all information about the contribution, if any, of any farmer, village community, institution or organisation in the breeding, evolution or development of the variety and also information on the use of genetic material conserved by any tribal or rural families in its breeding. The above conditions do not, however, apply to the registration of farmers' varieties.



AGRICULTURE, ENERGY AND LIVELIHOOD SERIES

In respect to farmers' rights,⁴⁶ it allows farmers to save, use, sow, re-sow, exchange share or sell his farm produce including seed of a variety protected under the legislation 'in the same manner as he was entitled before the coming into force' of this legislation, with the condition that the seeds farmers are entitled to sell cannot be branded. The legislation also seeks to reward the farmer 'who is engaged in the conservation and preservation of genetic resources of landraces and wild relatives of economic plants and their improvement through selection and preservation'.

Strategies to harmonise seeds policies and laws

There are a number of strategies involving an extensive array of actors pushing for the adoption of strong PVP on the part of African countries. The strategies include legal and policy mechanisms such as the harmonisation of seed laws, trademarks, counterfeit laws, contracts, farm credit policies, and free trade agreements. While we are concerned about all of these strategies, we discuss in detail here the various seed harmonisation efforts underway in Africa.

Free Trade Agreements and TRIPS – Plus

The number of bilateral and regional Free Trade Agreements has increased exponentially in the last few years – 60 in 1995 to 300 in 2007 – mainly in response to the stalled negotiations at the WTO. The EU and US have used bilateral Free Trade Agreements (FTAs) and Economic Partnership Agreements (EPAs) to coerce developing countries into adopting stricter PVP laws than is required by the TRIPS agreement. Many of these FTAs and EPAs include clauses that require signatories to accede to and implement UPOV 1991. FTAs between the US and Peru, Morocco, Tunisia, Central America, Mexico and Ecuador respectively, all require these countries to join UPOV 1991 within a certain period of time. Peru has already complied and is strongly supporting the US/ EU position in negotiations with the Andean countries. The US-Sub-Saharan African FTA, African Growth and Opportunity Act (AGOA), stipulates that trade benefits are dependent on the extent to which countries protect IPRs.⁴⁷ Developing countries, who are unable to exact political muscle, often gain very little in terms of much sought after market access and surrender too much policy space in terms for strong IP.

Bilateral Trade Fever

Free-trade agreements around the world

FTAs negotiated globally	Approx. 300
FTAs negotiated since 2002 in Asia-Pacific	119
Percentage of world trade occurring through FTAs	50%
Countries with which China is negotiating or has proposed FTAs	28
EU FTAs	21
U.S. FTAs	10

Source: Business Roundtable, March 2007
www.bilaterals.org



Recently, there has been an alarming proliferation of regionally harmonised seed policies and laws in Africa, via already established regional trading blocs. These efforts are characterised by high levels of political commitment and support, big funding, and the absence of civil society participation – particularly small farmers in Africa.

One by one, African governments are being co-opted into reviewing their seed laws and buying into a process of implementing PVP laws through a fast-tracked regional harmonisation process.

The strategy is to first harmonise seed laws such as border control measures, phytosanitary control, variety release systems and certification standards, before moving onto harmonising PVP laws. For instance, the Ministers of Agriculture from the Southern African Development Community (SADC) approved the Protocol for Regional Harmonization of Seed Policies in 2010. Funding has apparently been made available to pilot the domestication of the Protocol at the national level in four countries: Malawi, Swaziland, Zambia and Zimbabwe. The three areas of harmonization include: (1) SADC Crop Variety Testing, Registration and Release system; (2) SADC Seed Certification and Quality Assurance System, and (3) SADC Quarantine and Phytosanitary measures for seed.⁴⁸ It is expected that a SADC Protocol on PVP will soon materialise.

The total effect of these collective efforts, is that a bigger, unhindered seed market is being created, where the type of seeds for sale are restricted to commercially-protected varieties. To put all these systems in place and administer and police them requires a high level of financial, technical, administrative and judicial capacity from each government. In countries where 80 – 90 per cent of the food is produced from farmer managed seed systems, investing scarce resources and capacity to enforce laws that benefit commercial seed breeders is scandalous.

Harmonisation of seed trade policies and laws

Variety Release systems

The **Economic Community of West African States** (ECOWAS) and the Southern African Development Community (SADC) have both approved common variety release systems in December 2008 and June 2009 respectively. The East African Community (EAC) has approved a common seed catalogue.⁴⁹ A variety release system includes the evaluation, release and registration of a new variety. A regional variety release system means that these countries have agreed that a seed variety that has been approved for release in one country, or in the case of SADC and EAC, two countries, may be released in all the member countries. The advantage of this system for seed companies is that it expedites the release of seed varieties in the region, with minimum controls being placed over whether, indeed, the new varieties are suitable for the particular agro-ecology of the member states.

Seed Certification and Testing

ECOWAS, EAC and SADC have all developed common seed certification standards and accreditation. In addition, SADC has put in place a regional seed testing system according to the standards of the International Seed Testing Association (ISTA).⁵⁰

The purpose of seed certification and seed registration is to ensure that when farmers buy seed, quality is guaranteed and it also allows for the identification of the origin and characteristics of the seed. It is also one way in which access to seeds can be controlled in the absence of IP legislation. Seed certification enables the seed to be traced back to the breeder who then controls who has access to breeder's (or pre-basic) seed. The agency doing the certification can refuse multiplication



that is not approved by the breeder. This means that a breeder, whether public or private, can have an exclusive contract with a seed company for the production of a specific variety.

The requirements that seed should comply with specifications and performance tests and be certified before they may legally be sold on the market, is one way to make the informal seed market illegal. This is the case in Kenya, where it is illegal to sell uncertified maize seed, and the sale of other seed is limited to unlabelled seed, This in essence makes the development of an informal market an illegal practice.⁵¹

Phytosanitary Measures

The **Economic Community of West African States** (ECOWAS) is in the process of preparing a quarantine pest list and seed import-export manuals, while SADC has already implemented both of these.⁵² Phytosanitary measures are a way to limit the spread of diseases and pests, by controlling and testing seed samples before importing or exporting these seeds to another country. According to the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) this process used to take weeks but through their intervention it now takes only two days. It is in the national interest to have tight controls over imported seeds, especially from other continents, and in particular where there is a risk of GM contamination.⁵³ However, as Joe Cortes (see below more about Joe Cortes) explains, 'people from the private sector constantly complain about this',⁵⁴ i.e. the time and cost involved in importing and exporting seeds. So it was reduced.

Harmonisation of seed trade laws is taking place on a number of overlapping regional levels. As mentioned above, ECOWAS, SADC and EAC are all busy with harmonisation, and the Common Market for Eastern and Southern Africa (COMESA) has joined and mandated the Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA) to implement harmonisation of seed laws on the COMESA level, in partnership with the Iowa State University Seed Science Centre and the African Seed Trade Association (AFSTA).

The draft COMESA Seed Trade Harmonisation Regulations was published in 2012. Upon a request by the African Centre for Biosafety (ACB) to ACTESA that an opportunity be made available for farmers and other civil society groups to make an input into the process, the answer was: 'It is not possible. NGOs and farmer movements do not certify seed or conduct seed inspections on quarantine pest list.' It is expected that COMESA's trade ministers have endorsed these regulations during October 2012,⁵⁵ or will do so very soon. The regulations are basically an extension of formal national seed systems into the region. Although these do not impose GM seeds or attempt to alter national bio-safety laws in any way, harmonised seed laws can facilitate the spread of GM into the region once bio-safety laws are harmonised in favour of GM – a separate endeavour already well underway by **Common Market for Eastern and Southern Africa** (COMESA).^{56, 57} Seed trade harmonisation regulations also enable the spread of other certified seed into the region.

According to the **Association for Strengthening Agricultural Research in Eastern and Central Africa** (ASARECA), as a result of their harmonisation and rationalisation of seed laws, private sector activity has showed a significant increase. 'Local seed production in Uganda, Kenya and Tanzania tripled from 43 000 to about 122 000 tonnes between 2002 and 2008. Seed imports into the region almost doubled from 9,000 to about 15 000 tonnes over the same period, while exports from Kenya and Uganda increased from less than 1,000 to more than 3,000 tonnes in the same period.'⁵⁸



However, these figures discount the effect of the millions of US dollars that AGRA has pumped into building up the seed sector in these priority countries. These figures in any event represent sales and not farmers' experiences with the introduced seeds.

Harmonisation of PVP policies and laws

Generally speaking, most African countries have modelled their IP laws on those of their former colonisers, in particular the United Kingdom, France and Portugal. During the mid- to late 1990s, there was a rush to implement IP laws in the developing world to comply with the WTO's TRIPs agreement, and two African regional organisations responsible for intellectual property rights were formed: OAPI (Organisation Africaine de la Propriete Intellectuelle) and ARIPO (African Regional Intellectual Property Organisation).

OAPI countries

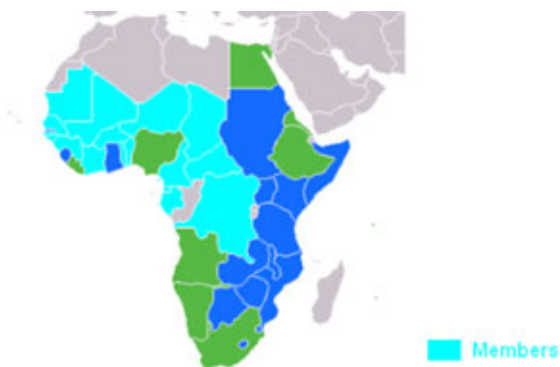


ARIPO

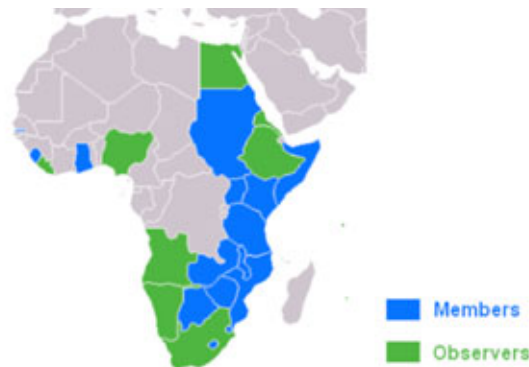


Source: <http://www.inventa-international.com/aripo>

OAPI Members



ARIPO Members countries



OAPI was established in 1977 by way of the Bangui Agreement and it represents 16 countries in West and Central Africa; its headquarters are situated in Yaounde, Cameroun.⁵⁹ The Bangui Agreement was revised in 1991 when it was brought in line with the TRIPS agreement and it committed its members to comply with UPOV 1991. However, very few of its members have implemented PVP at the national level. Most of OAPI's members are least-developed countries for whom the administrative requirements will be onerous and where up to 95 per cent of the seed is farm saved, making plant breeders' rights rather irrelevant to the economy. Nevertheless, the Bangui Agreement



is still a coup for the seed industry because it means that there will be a totally harmonised regional approach and if one country grants PVP on a variety, it can be automatically released in all the countries.

SADC has developed a PVP Protocol, with five countries in SADC, namely Mauritius, South Africa, Tanzania, Zimbabwe and Zambia already having national PVP legislation in place. This will be more fully examined in forthcoming ACB research papers.

The harmonisation of PVP laws across regions, and eventually across the whole continent, is promoted as being vital to stimulate regional seed trade in Africa and thereby, give farmers access to a wider range of 'improved' varieties. For the seed industry, it is not just the tapping of a bigger seed market, but the even bigger reward is that harmonisation through trade blocs will ensure that even the more reluctant countries are forced to enact PVP laws that comply with the highest level of IP protection.

But as already mentioned, it is not any kind of PVP that the seed industry wants harmonised; they are insisting that the much more restrictive UPOV 1991 Act should be the template for all countries. By harmonising seed laws and PVP laws, Africa is rolling out a 'red carpet for the corporations'.⁶⁰

The **African Regional Intellectual Property Organisation** (ARIPO) has developed a draft policy and legal framework for PVP.⁶¹ ARIPO, based in Harare, is the regional patent office for 18 English-speaking African countries and was established in 1976 through the adoption of the so-called Lusaka Agreement.⁶² **CIOFORA**, an **international** association of plant breeders and the US patent and trademark office are openly and strongly supporting the process.⁶³ Indeed, CIOFORA and the horticulture industry are among the key and most aggressive players involved in pushing for PVP laws to be adopted in developing countries.

On 6 November 2012, a number of African groups from civil society in Africa supported a submission to ARIPO in respect of its draft PVP harmonisation policy and legal framework. In such submission, the groups pointed out that the draft legal framework was not written with the interests of sub-Saharan African states in mind, particularly ARIPO member states. This is so, because no attempt has been made to develop a sui generis system suitable to the African context. Instead, it blindly copies and expands on UPOV 1991. The groups called upon **the ARIPO Secretariat as well as ARIPO Member states to:**

1. **Reject the ARIPO regional PVP legal framework based on UPOV 1991 and refrain from joining UPOV;**
2. **Revise the Draft regional policy and legal framework by taking into account the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and the Organisation for African Unity (OAU) Model Law that acknowledges the contribution of farmers as breeders and that upholds and promotes the customary practises of small-scale farmers within the ARIPO region;**
3. **Reject the legal framework based on a 'one grant system' (whereby the ARIPO regional authority has the power to grant and administer breeders' rights on behalf of the contracting states). Instead, regional legal frameworks should encourage and provide policy space to its member states to develop PVP laws that reflect national agricultural systems (which vary in the region), the different levels of development, interests and needs;**
4. **Urgently provide adequate opportunities for consultations with farmers, farmer movements and civil society organisations working in the sector, before any further work is undertaken on the draft law; and**



5. Urgently make available publicly all information with regard to the process and timelines involved in developing the Draft regional policy and legal framework. This information should also be updated on a regular basis. Currently, absolutely no information on process or timelines is publicly available.

Key concerns with ARIPO'S draft regional PVP policy and legal framework

1. The draft legal framework will not resolve but will exacerbate the many challenges raised in the draft regional policy (e.g. hunger, food security, climate change, biopiracy).
2. The draft legal framework is aimed at replacing traditional varieties with uniform commercial varieties and increasing dependency of smallholders on commercial seed varieties. This vision itself is problematic as it will lead to the erosion of crop diversity and thus reduce resilience to threats such as pests, disease or climate change. It also increases the risk of farmer indebtedness in the face of unstable incomes (as revenue would vary depending on seasons). Additionally, the high-yielding commercial varieties are likely to be less suited to the specific agro-ecological environments in which farmers work and for which traditional farmer varieties may be more appropriate.
3. The draft policy champions farmers' rights in terms of the customary rights of farmers to save, use, exchange and sell farm saved seed and acknowledges that their rights and efforts should be recognised, rewarded and supported for their contribution to the global pool of genetic resources and the development of commercial varieties, as addressed in the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). However, the draft legal framework not only fails to operationalise these commitments, it veers in the opposite direction by totally failing to acknowledge farmers' contribution as breeders and instead severely limits the rights of farmers.

Although the agricultural landscape in ARIPO member states is dominated by small-scale farmers, the legal framework does not allow farmers to continue their customary practises of freely saving, exchanging and selling farm saved seeds or develop new varieties from the protected varieties. Thus it is clear that the winners of the legal framework are the commercial breeders (usually foreign commercial breeders) while the losers are small-scale farmers as the legal framework effectively puts farmer systems in jeopardy.

4. The draft legal framework contains provisions that diverge from positions taken by African nations regionally and internationally around issues concerning community and farmers' rights and PBRs (e.g. in the context of ITPGRFA as well as the African Model Law).
5. The provisions contained in the draft legal framework are based on UPOV 1991 and in some areas goes beyond UPOV 1991. As such, the draft legal framework adopts standards found in UPOV 1991 that strengthen breeders' rights and prejudice farmers' rights. This includes the coverage of all plant genera and species, an extensive duration of protection (i.e. of 20 - 25 years); an extensive scope of breeders rights, limited exemptions to breeders' rights and severely limited farmers' rights.

Consequently, ARIPO member states are being asked to give up the very important flexibility that they currently have, to develop a *sui generis* system that is relevant to their individual conditions and needs.

6. The draft legal framework proposes a regional PVP system whereby ARIPO has the authority to grant and administer breeders' rights on behalf of all contracting states, thereby denying member states the right to take any decision related to PVP, despite such issues being critical for national socio-economic development and food security.



7. It is clear that the ARIPO Secretariat has not conducted any independent impact assessment of the potential impacts of the proposed policy and legal framework on farming systems in ARIPO member states. The Secretariat has drafted the legal framework entirely in response to demands made by the UPOV Secretariat (which has an interest in promoting UPOV 1991), industry and foreign entities. In short, there is no independent empirical evidence to support the underlying premise of the proposed legal framework (i.e. the benefits of the UPOV 1991 & the regional model for African nations).
8. The process of developing the legal framework and policy has been closed to farmers, farmer organisations and other members of civil society, while industry associations (e.g. CIOFORA, the African Seed Trade Association (AFSTA), the French National Seed and Seedling Association (GNIS) and foreign organisations such as the United States Patent and Trademark Office (USPTO), the UPOV Secretariat, the European Community Plant Variety Office (CPVO) have been extensively consulted.

Players involved in pushing UPOV 1991-style PVP policies and laws

The international seed lobby has rapidly created a vast network of well-funded initiatives, institutions and agreements rushing African governments into adopting PVP laws that go beyond what TRIPs requires from them and based on UPOV 1991.⁶⁴ The central actors include the following:

The World Bank

‘They (the World Bank) have arguably done more harm to the poor than any other pair of non-military institutions in history.’⁶⁵

The World Bank has spent hundreds of millions of dollars to develop biotechnology and, in particular, to influence biotechnology and seed policies and laws in Africa.⁶⁶ Together with the United States Agency for International Development (USAID) and the American Seed Trade Association (ASTA), the World Bank has, since 1997, been working towards implementing its Sub-Saharan Africa Seed Initiative (SSASI). SSASI’s focus was on developing a private seed industry in Africa with the harmonisation of seed laws being a key objective. During the course of this project, the World Bank used its influence to persuade African governments to enact legislation that will be consistent with UPOV 1991 and to allow for the patenting of genes.⁶⁷ Part of the SSASI’s Action Plan was also to form regional seed bodies and in this regard, the African Seed Trade Association (AFSTA) was formed with World Bank funding.

In order to make their interference palatable, the World Bank, USAID, Rockefeller and Monsanto all seem to sing from the same hymn sheet: that they are helping Africa out of its poverty. However, at a World Bank meeting with industry in 2000, it was conceded that the private sector is now doing most of the agricultural research, and since their priority is to provide optimal returns for their investors, they are not likely to meet the research needs of developing countries.⁶⁸

The World Bank, in line with many investors, believes that ‘Africa could be on the brink of an economic take-off, much like China was 30 years ago, and India 20 years ago.’⁶⁹ Of course the policies



and laws need to be in place to facilitate foreign investment in Africa, with agribusiness being a key investor.

USAID

USAID funds a myriad of initiatives, forums and institutions, coercing African governments to implement UPOV 1991 and to harmonise seed laws. USAID has funded seed policy harmonisation activities in Southern and East Africa, including those spearheaded by inter alia, ASARECA, COMESA, Eastern Africa Seed Committee (EASCOM), Alliance for the Seed Industry in Eastern and Southern Africa (ASIESA), Food, Agriculture and Natural Resources Policy Analysis Network (FARNPAN), ARIPO and AFSTA. In West and Central Africa, USAID funds the same processes through the West and Central African Council for Agricultural Research and Development (CORAD/WECARD), West African Economic and Monetary Union (WAEMU) and also funded AFSTA to set up a regional office in Mali to support the West African harmonisation process.⁷⁰

USAID has always worked closely with the World Bank and recently forged a synergistic relationship with AGRA, setting up project and donor-coordination between the World Bank, the UK's the Department for International Development (DFID), the Swedish Development Corporation Agency (SIDA), the European Union (EU), the **Australian Agency for International Development (AusAID)**, the World Food Programme (WFP) and the Bill and Melinda Gates Foundation in the furtherance of African seed policy harmonisation.⁷¹

Under the leadership of Dr. Rajiv Shah, USAID's Administrator, the EAT (Enabling Agricultural Trade), was launched in 2010 to renew USAID's focus on reforming legal and regulatory obstacles to agribusiness.⁷² Indeed, US foreign policy is geared towards the creation of a favourable legislative environment for US agribusiness, and in so doing, establishes a foothold in an emerging African market. Indeed, 80 per cent of USAID grants and contracts go directly to American firms.⁷³ USAID is also implementing the US government programme, Feed the Future, which is setting the agenda for the seed trade law harmonisation processes, especially in West Africa.ⁱ

The Seed Science Centre at Iowa State University

Several US universities have been playing a huge role in advancing US interests by providing 'expert' influence both in biosafety and seed policy in Africa. The Seed Science Centre at Iowa State University is one such example. Situated in the centre of the US Corn Belt, it has over the past 12 years facilitated seed and biosafety policies in more than 70 countries worldwide. USAID, AGRA, Monsanto, Cargill and Pioneer Hi-Bred fund it.⁷⁴

Joe Cortes, Global Seed Program Leader at the Seed Science Centre, shifted his focus to Africa after his success in facilitating the harmonisation of PVP legislation in Central America. He is the technical advisor to a number of regional bodies and national governments in Africa. He has greatly influenced the harmonisation of seed policies for SADC and COMESA and has established the West Africa Seed Alliance (WASA). Cortes has been facilitating the adoption of PVP laws in Zambia, Mozambique, Ghana and Malawi. With the help of AGRA funding, Cortes is implementing the Seed

i. CORAF/WECAD vacancy announcement for Seed Production Specialist, West Africa Seed Program (WASP) . coraf.org/documents/14_2012_VACANCY_ANNOUNCEMENT_SEED



Enterprise Management Institute (SEMIS) in Nairobi.⁷⁵ USAID acts on behalf of, and in synergy with, the American Seed Trade Association (ASTA), with both ASTA and USAID enlisting Joe Cortes as their technical advisor in Africa.⁷⁶ With an additional grant from the Bill and Melinda Gates Foundation, the Seed Science Centre is implementing the Seed Policy Enhancement in African Regions (SPEAR) project. It claims to host the biggest public seed laboratory in the world. A 2011 press release arrogantly announced: 'Iowa State University's Seed Science Center to steer eastern and southern Africa seed policy.'⁷⁷

Citizens Network for Foreign Affairs (CNFA)

The Citizens Network for Foreign Affairs (CNFA) plays a significant role in establishing agribusiness in Africa. It has also actively been involved in what they term 'capacity building on implementing plant variety protection in-country and regionally'. CNFA is funded by USAID, the Rockefeller Foundation, and recently also by AGRA. Since CNFA has been involved in Africa since the 60s, it seamlessly took on the role of implementing AGRA's programmes in its continued partnership with USAID and US agribusiness.

The Citizen's Network for Foreign Affairs (CNFA) presents itself as a network of volunteers dedicated to help develop world markets by forging public-private partnerships. But the name is misleading, as it is an alliance of around 250 US organisations concerned with agribusiness and banking, with Monsanto and Pioneer being among its members and sponsors. The CNFA is one of the most active actors in implementing the US agenda of harmonising seed laws in Africa.

The CNFA's programmes are 'designed to modernise seed distribution systems, access to improved seed varieties and inputs, markets transformation of West Africa agriculture from mostly subsistence farming to profitable, self-sustaining and competitive commercial agriculture.' The CNFA led the implementation of Ghana's seed law in line with their aim to 'streamline and standardise national seed laws and regulations in all project countries, create seed export and import manuals, develop and support four regional seed trade associations and 25 local seed enterprises, 2000 agro-dealers and seed companies, access to seeds, inputs.'⁷⁸

The CNFA is supporting the West Africa Seed Alliance (WASA), representing Mali, Nigeria, Niger, Senegal, Burkina Faso, Togo and Benin, with the object of creating a sustainable commercial seed industry. This is a public-private partnership between CNFA, USAID, AGRA, private sector companies like Monsanto, DuPont and Pioneer, ICRISAT, and Iowa State's Seed Science Center.

The Food and Agriculture Organisation of the United Nations (FAO)

The FAO assists a number of countries in the development of seed strategies and legislation through technical expertise, capacity building and facilitation of the policy formulation and negotiation process. The harmonisation of seed laws and legislations is presently one of the major FAO actions related to seed. With the support of FAO, SADC, the Economic and Monetary Union of West Africa (UEMOA) and the Economic Community of West African States (ECOWAS) have undertaken the harmonisation of national seed regulatory frameworks in their respective Member States.⁷⁹

The above quote is quite a revelation, coming as it does from the FAO, whose FAO mandate it is to promote the interests of farmers and genetic resources. For it to jump on the UPOV 1991 bandwagon



and play such an active role in advocating for its adoption and implementation in African governments is unforgivable. The FAO has organised and supported many regional workshops focused on the fast-tracking of seed policies,⁸⁰ and has funded Kenya's revision of its PVP Act, which implements UPOV 1991.

The FAO is also involved in the World Seed Project, in respect of which Tanzania is one of the pilot countries. Very little information about this project is in the public domain. The lack of transparency is an additional cause of major concern.

The **Food and Agricultural Organisation** (FAO) pays lip-service to the importance of the informal seed sector and the role of agricultural biodiversity. There is very little evidence that the FAO is advocating for the implementation of the Seed Treaty and its objectives, to nearly the same extent.

Public sector agricultural research centres

International and national agricultural research centres have also, one by one, caved in to funding and political pressures and developed their own IP policies and agreements protecting plant breeder rights.

These centres, such as the **Consultative Group on International Agricultural Research** (CGIAR), hold vast repositories of genetic resources. The CGIAR consists of 11 research centres, together maintaining over 700 000 samples of crop, forage and agroforestry genetic resources in the public domain. Of these, 533 000 are designated as being 'in-trust' for the world community under agreements with the FAO.⁸¹ But instead of leveraging this responsibility and taking a stand on IP, they are increasingly becoming the silent partner in public-private partnerships with the seed industry.

USAID is, for example, funding ICRISAT, one of the CGIAR centres and Iowa Seed Science Center to implement a programme for the Sustainable Commercialisation of Seeds in Africa (SCOSA), which aims to bring about coordination between the various regional harmonisation programmes.

African Research Institutions advocating for the Agrochemical Industries

To create a more enabling environment for private sector participation in seed trade, many African countries are investing in the creation of an enabling policy environment to transform farming from the common quasi-subsistence nature to market oriented commercial entities. This is being done in collaboration with development partners including the Common Market for Eastern and Southern Africa (COMESA), African Union (AU), the East African Community (EAC), Intergovernmental Authority on Development (IGAD) as well as donors. One of the avenues being pursued is the establishment of common regulatory structures to reduce transactions costs and promote increased trade and hence use of improved seeds.⁸²

The above extract from a 2006 ASARECA report more or less sums up the work of this African-staffed, but foreign funded research and policy institution. Africa's dependency on donors, has directed its development and science and knowledge systems to serving its colonial masters. By insisting on privatising research and breeding, Africa's international donors, have ensured that the



continent continues to serve the interests of the North. Below, we discuss ASARECA and FANRPAN as examples of African research institutions doing the bidding for the seed industry.

ASARECA

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) is a regional umbrella organisation represented by national agricultural research centres. It plays a strategic role in the harmonisation of seed laws in East and Central Africa through its Policy Analysis and Advocacy Programme (PAAP). Seen by USAID, its biggest donor, as an 'African-owned and staffed institution has comparative regional advantage in helping countries to address critical but emotive issues,'⁸³ it is a strategic institution for the seed industry. In 2011 USAID commended ASARECA for its achievements regarding seed policy harmonisation and proposed that it intensifies its efforts at the highest levels.⁸⁴

Between 2002 and 2011, USAID funded ASARECA to the tune of \$US20 million, making up 25 per cent of the organisation's budget with the Bill and Melinda Gates Foundation being another significant funder. The World Bank is managing a multi-donor fund for ASARECA.

ASARECA's Eastern and Central Africa Programme for Agricultural Policy Analysis (ECAPAPA) was put in place in 1997, as part of the World Bank Sub-Saharan Seed Initiative, focusing on seed trade and dairy industry policies. ECAPAPA initially focused on Kenya, Uganda and Tanzania, but then expanded to include Burundi, Eritrea, Ethiopia, Sudan and Rwanda. ASARECA's *modus operandi* has included the conducting of national studies to back up its policy proposals. It then organises and funds a series of regional meetings, after which, regional bodies like the East Africa Seed Committee (EASCOM) is formed to lead harmonisation efforts.

ASARECA covers the economic regions of COMESA and the EAC and has worked with these two regional bodies to set up regional projects on harmonising seed laws. The EU funded a €20 million programme by COMESA called the COMESA Regional Agro-Inputs Programme (COMRAP), which focused on seed law harmonisation and establishing agro-dealers. The implementing partners were AFSTA and the International Fertilizer Development Centre (IFDC). AFSTA and COMESA teamed up in 2010 to create the **Alliance for the Seed Industry in Eastern and Southern Africa (ASIESA)**.⁸⁵ This USAID-funded programme will also focus on seed policy harmonisation and will be piloting projects in Kenya, Ethiopia, Uganda, Tanzania, Malawi, Zimbabwe, Zambia and Madagascar through their National Seed Trade Associations (NSTAs).⁸⁶

Under ASARECA, the East African Plant Genetic Resources Network (EAPGREN) was formed, but this has been swallowed up by a new programme, AGROBIO (Agrobiodiversity and Biotechnology Programme). Its strategy document makes it clear that the aim of AGROBIO is the application of biotechnology (Genetic Modification: GM) to extract the most from agrobiodiversity.⁸⁷

ASARECA's sister organisations, the Central and West African Centre for Agricultural Research and Development (CORAF/WECARD) works with ECOWAS, on the West Africa Seed Programme (WASP) with the aim of building and the Alliance for Seed Industry in West Africa (ASIWA), its agenda to implement CAADP and USAID's Feed the Future (FtF) programme. FtF aim to ensure that 25% of seed in the region is certified seed, i.e. replacing farmers' varieties.ⁱⁱ

ii. CORAF/WECARD vacancy announcement for Seed Production Specialist, West Africa Seed Program (WASP) . coraf.org/documents/14_2012_VACANCY_ANNOUNCEMENT_SEED



FANRPAN

Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN) is funded by USAID to implement the Harmonized Seed Security Project (HaSSP) and it is targeting regionalised variety testing and registration. Joe Cortes of Iowa State University has been contracted to assist SADC in this process and drafted a model law for SADC countries. In 2006, SADC approved a harmonised seed regulatory system and agreed to develop a PVP Protocol, which was adopted in 2011. In the SADC protocol, the 'farmers privilege' is extended only to 'subsistence' farmers.⁸⁸

Even Wynand van der Walt, from the pro GM lobby group AfricaBio, questions the practicalities of implementing UPOV 1991, and acknowledges that the pitfall for SADC is the 'inability to regulate farmers' privilege in most countries where 50 to 90 per cent of seed comes from informal systems and where farm saved seed is rampant.' He also acknowledges that with PVP in place, it is a concern and possibility that seed companies might be focusing on hybrids and holding back improved open-pollinated varieties.⁸⁹

All the countries in the SADC region have a growing commercial seed sector, with South Africa having by far the biggest commercial seed market in Africa. The rest of Africa's hybrid seed trade is financed through donor grants for aid or development programmes. Whether big or small, seed companies concentrate on a few high value commercial crops and not on self- and open-pollinated crops. These are of lower commercial value, but critical for food security in SADC areas with low rainfall.⁹⁰

Alliance for a Green Revolution in Africa (AGRA)

AGRA's Programme for Africa's Seed Systems (PASS) is at the heart of an initiative to replace existing seed systems with high-input, hybrid seeds. Its Agro-dealer programme is a distribution system for these new seeds and the Policy and Partnerships Programme lobbies governments directly and through regional bodies to fast-track legislation that will rapidly protect and reward seed companies for being 'partners' in this venture.

AGRA's policy interventions on seed policy resemble a seed-industry wish-list and include:

- Supporting the strengthening of internal seed laws and regulations;
- Advocating for minimal delays in the release of new varieties;
- Advocating for the easy access to public germplasm;
- Supporting the implementation of regionally harmonised seed laws and regulations; and
- Working to eliminate trade restrictions.⁹¹

In April 2009, AGRA launched the African Seed Investment Fund (ASIF), which provides risk capital to seed companies operating in eight countries in eastern and southern Africa (Ethiopia, Kenya, Malawi, Mozambique, Rwanda, Tanzania, Uganda and Zambia) to improve the delivery of certified seed to smallholder farmers.

During 2012, the ACB (Africa Centre for Biosafety) published its paper on AGRA,⁹² which looked in detail at its seed initiatives. We conclude that AGRA is undoubtedly laying the groundwork for the commercialisation of African agriculture and its selective integration into global circuits of accumulation. The shadow of Monsanto, DuPont, Syngenta and other seed and agrichemical multinationals and equity funds lies just behind the scenes of AGRA's show. Building new markets and market infrastructure for commercial seed in Africa opens the door for future occupation by



multinationals. The focus on private company development (seed companies, agro-dealers) for the production and dissemination of proprietary (and even public sector) seed is a precursor to potential acquisition at a later stage. The creation of small enterprises under the AGRA project provides a breeding ground for the potential extension of circuits of accumulation. Capitalism is known for its ongoing absorption of 'organically' developed innovation, initiative and profitability by larger entities. AGRA and other capitalist interests have identified a profitable ('bankable') investment opportunity in smallholder agriculture in Africa, linked to Green Revolution technologies and are now acting on that.

Impact of UPOV-style PVP policies and laws on Africa's agricultural biodiversity

IP rights over life convey an asymmetric system of conserving, using transforming managing and controlling biodiversity. This asymmetry is detrimental to many indigenous and peasant people, who are precisely amongst those most in need of biological innovation and who can best carry it out. Joseph Gari, FAO (2001), p.23.

Seed companies defend PVP laws by arguing that they have to recuperate their investment in research and development. They also argue that farmers in developing countries prefer these proprietary seeds. These arguments, however, do not acknowledge farmers' contribution to plant breeding over millennia and also ignore the fact that protected seeds are often linked to credit, access to fertilisers, and other forms of government or donor support. In many developed countries, it is already a challenge for farmers to find seed that is not PVP protected.⁹³ It is in the public interest that farmers should continue to have a wide scope of rights, as they produce our food and, most importantly, they have bred the varieties that have created the genetic pool from which all new varieties derive and have never asked for any payment there for. Now laws and policies are being drafted and redrafted to stop them from doing this. In addition, the whole idea that an ancient practise as life-giving as the exercise of farmers of their rights to save and exchange seed can be an optional privilege, goes against the basic principles of human rights.

Africa's innovative breeders and communities

Farmers still undertake the overwhelming majority of the world's seed conservation and plant breeding. UPOV figures show that 10 000 or so titles have been granted annually in recent years by UPOV members, resulting in no fewer than 90 000 PVP titles in force at the end of 2009. In contrast, farmers breed and adapt more than a million varieties every year. ETC Group, press release, 2009.⁹⁴

There are more than 7,000 edible plant species in the world, but as few as 12 species provide 90 per cent of the world's food, with rice, wheat, maize and potatoes providing more than 50 per cent of the world's food energy intake.⁹⁵ Dependence on a narrow genetic base within these few species creates a vulnerable food system. It is therefore imperative that we protect and increase the use of agricultural biodiversity. In the context of a rapidly depleting global gene pool, the protection of Africa's genetic resources should be a global priority – for both cultivated and wild relatives of key food crops.⁹⁶



More than 65 per cent of the population of Africa depend on agriculture for labour and livelihoods. This agriculture is almost completely rain-fed, with only about 4 per cent of arable land under irrigation. Most farmers struggle mightily with the high variability in rainfall and soils low in nutrients. As a result of the market and production risks of small scale farming, farmers keep a diversity of seeds that, individually, do not meet all their needs, but together ensure food security.⁹⁷ Most African farmers farm on less than two hectares of arable land. In order to feed their families, they need to maximise productivity, which entails much more than yield. It requires them to grow a diversity of crops for different growing seasons, using intercropping systems and adapting planting to climatic conditions. This is only possible if they have easy access to locally adapted seed at the right time and suitable to particular cropping systems. This system of growing a diversity of locally adapted farmers' varieties is still very much dominant in most parts of Africa, but with the introduction of hybrid crops, often maize, these can rapidly and easily be supplanted.

The informal sector contributes as high as 90 - 98 per cent of the overall seed supply in West Africa and in South and East Africa it is between 70 - 95 per cent. Small farmers save 60 - 70 per cent of seed used on-farm, acquire 30 - 40 per cent from relatives and neighbours and less than 10 per cent is obtained from the formal sector. These figures vary considerably over the region, between crops and over time.⁹⁸ With self-pollinating crops like wheat and millet, the percentage of farm saved seed is much higher than with maize. It is estimated that around 30 per cent of the cereal crop planted in sub-Saharan Africa consists of modern varieties, while the formal seed network provides less than 20 per cent of the overall seed requirements of African farmers. This clearly indicates that informal seed networks are important sources of both modern and traditional varieties.⁹⁹

The reality is that small farmers are by far the largest and most prolific group of seed breeders in Africa and they have successfully cultivated an abundant diversity of crops for centuries. As the private seed sector grows and the public sector shrinks, research and investment in the crops that farmers need for food security, are abandoned.¹⁰⁰

Legitimising the implementation of UPOV 1991-style PVP legislation may be a coup for industry, but for farmers and indigenous people it is an unjust and preposterous application of intellectual property. The impact of an IP system that bestows exclusive ownership over genetic resources to individuals and companies must be interrogated. We have to ask the questions: Is it just and relevant to African farmers? Does it benefit farmers, the people of Africa?

Innovation?

The methods that breeders use are hardly ever non-obvious and their products are merely slight improvements of earlier work – they all stand on the shoulders of earlier breeders, and, they in turn, on the generations of farmers that turned weeds into crop species. Moreover, breeders cannot describe their products in such a way that someone skilled in the art can reproduce it, and finally, breeders operate in an agri-'culture' with its own unwritten rules – some of which have been codified as Farmers' Rights by the FAO. Niels Louwaars.¹⁰¹

Solid evidence to back up the view that IPR protection stimulates innovation is lacking. What is clear is that patents have made critical medicines inaccessible to the poor and have not encouraged the development of drugs aimed at the diseases of the poor. IP legislation often slows down innovation and access precisely because of the monopoly and power it entrenches. It prevents new innovators from entering the market and accessing important research products and technologies.¹⁰²



Industry's claims that PVP is necessary for the establishment of a private seed sector and that it will encourage the development of new varieties, are also not based on solid evidence.¹⁰³

Africa has a quarter of the world's biodiversity, worth hundreds of billions of dollars to the global seed and pharmaceutical industries. With PVP, companies are taking farmers' seed, making minor changes and then farmers have to pay royalties to access them. Sub-Saharan Africa is the centre of diversity for a number of globally important crops, including coffee, sorghum, lentils, wheat, barley, African rice, oil palm, yams and cowpeas.¹⁰⁴ The wild relatives of many plant species are vital for crop improvement as they contain genes needed to prevent disease and deal with pest resistance, provide nutrition and deal with environmental stresses.¹⁰⁵

Research priorities are shifted by the lure of money

The biggest advances in plant variety improvement happened before IP protection was available and most of this development was done by the public sector.¹⁰⁶ Funding of public research based on farmers' needs has all but stopped because of funding constraints and the emergence of public-private partnerships. The public breeding sector is in a dilemma: on the one hand, obtaining PVP may bring in much needed income, but this cannot be reconciled with their mandate to enhance food security. Certainly, PVP on the so-called 'orphan' crops such as sweet potatoes, cassava, millet and pigeonpeas are not attractive, so seed companies will not invest in these.¹⁰⁷

Most recently, under the cloak of philanthropy, an array of MNCs such as Monsanto, Syngenta, BASF, etc., have combined forces with AGRA and other large donors and investors, to set a new agenda for research in Africa. The influence of money means that AGRA now sets the R&D agenda in Africa, which is largely focused on new technologies and commercial crops, especially maize.¹⁰⁸

Farmers need to save and exchange seed to enable them to continue farming

For African communities, it is not modern agriculture, but their own systems of agriculture and knowledge that have helped them cope with extreme environmental conditions and political disasters. In Africa, typically, 80 - 90 per cent of plant materials of great diversity are produced by farmers and even the pivotal role of women to maintain this system is now recognised. Traditional crop varieties are accessible and affordable to farmers and in today's economic climate, this is a critical advantage. But, it is not only traditional farmers that need to save and replant seed, commercial farmers all over the world also replant saved seed when they can, to minimise their input costs.

In interviews with South African commercial farmers, the *Farmers' Weekly* reported that wheat, soya and groundnut farmers save seed because it makes economic sense and some of them plant only farm saved seed.¹⁰⁹ In a survey of 18 developed countries by the International Seed Federation, it was found that between 20 - 40 per cent of farmers were saving seed but for some crops and countries it was as high as 95 per cent. The **International Seed Federation** (ISF) concluded from this survey that to the seed industry it means a 'loss' of US\$7 billion annually, a market they are looking to capture.¹¹⁰

UPOV 1991-style PVP laws undermine farmers' rights to share, and use seed from their harvests, by extending the breeders' monopoly to the farmers' crop. As GRAIN puts it, 'This means an enormous value transfer from farmers to corporations. This is about outlawing an important part of a farmer's



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livelihood and culture, not only in Europe and the USA but also in places like Bolivia, Moldova, Uzbekistan and Vietnam, for no better reason.

Loss of genetic diversity

Because of the commercial value of hybrids and IP protected seed, these are promoted at the expense of local crop diversity, resulting in mono-cropping of a narrow range of crops. This has resulted in a huge loss of important genetic material and indigenous knowledge systems. It is estimated that, globally, we have lost 90 - 95 per cent of farmers' varieties over the last 100 years and that the rate of loss is 2 per cent per year.¹¹¹ This biodiversity loss has had a big impact on farmers' resilience, because hybrid seed programmes are seldom sustainable and then farmers have little to fall back on.

Genetic diversity can only evolve and adapt in situ

Seed is a living organism and responds to its environment. Farmers have, for centuries, used these adaptive responses of seed, to select and breed the best varieties. Furthermore, it is because of farmers growing seed in environments where wider genetic diversity still exists in the form of wild relatives and other plants, that plants can acquire the genetic diversity needed for adaptation. In Southwest China, a comparative analysis has shown that in situ varieties have shown much higher genetic diversity than those same lines held ex situ for 30 years.¹¹²

Agrobiodiversity is critical for climate change adaptation

Despite the claims for a successful Green Revolution in China, more than half the households in an International Institute for Environment and Development (IIED) survey still use local landraces of rice and maize because they prefer the taste and these seeds are better adapted to their environment.¹¹³ During the 2010 drought in the Guangxi province, farmer-improved varieties survived while most of the new hybrid varieties were lost.¹¹⁴

The loss of culture and meaning

Indigenous people and traditional farming communities put a high value on their seeds, because they understand the connection it brings to their ancestors and the key role it plays in their culture, health and nutrition. 'Our seeds; our maize, is the basis of the food sovereignty of our communities. It's much more than a food, it's part of what we consider sacred, our present and future.'¹¹⁵

Embedded in the cycle of the seed, are the community cycles, cultural celebrations, sacred rituals and identity of thousands of communities around the globe. The cycles of planting, harvesting, exchanging, sharing and celebrating have many benefits beyond providing food: they play a vital role in identity and community cohesion. Indigenous people and traditional farming communities consider themselves as stewards of the future and grow their own varieties in harmony with nature, as these need no chemicals. In this way they say 'we are guardians of the indigenous knowledge passed down from our ancestors from generation to generation and we reaffirm our responsibility to protect and perpetuate this knowledge for the benefit of our peoples and our future generations.'¹¹⁶

Therefore, the ownership of seed is a foreign concept to them: a theft, because seed is sacred and meant to be shared, impossible to own, as it belongs to all people.



Conclusion

A key business strategy of multinational seed companies to consolidate their economic power is to acquire ownership at all levels – from product to source. To this end, expanding the range of genetic material over which they can acquire intellectual property has been a major priority. Over decades, they have also tried to tighten and expand the reach of IP on seeds into the developing world, which saw little need for it. With the expansion of global trade rules to include IP, these countries began to concede valuable political spaces that safeguard their agriculture and seed security for short-term economic gain. Both the US and EU, and organisations such as the FAO and the World Bank, have, over the years, set in place systems and programmes that have paved the way for the privatisation of Africa's seed systems. US philanthropists, from the Rockefeller Foundation to Bill Gates have consistently given vast financial support to the US government's Green Revolution agenda for Africa, which has as its main aim, the replacement of Africa's seed systems with a private corporate controlled seed system.

The seed industry has also been really strategic and effective in mainstreaming IPRs on seed through PVP and patents, organising themselves into associations and creating the UPOV 1991 Convention and international patent regimes. Two key strategies have been employed to speed up changes in Africa's seed trade and PVP laws. First, the US and EU have used their respective economic powers to negotiate bilateral free trade agreements that enforce strict PVP laws. Second, strong support of the harmonisation of seed laws through African regional trade blocs.

Most countries in Africa have recently revised their seed laws or are in the process of doing so, with all the key regional trade blocs, including ECOWAS, WAEMU, COMESA, SADC and the CILS being in different stages of drafting and adopting harmonised seed policies and regulations. These seed law harmonisation processes are also being coordinated with biosafety regulations all over the continent.

The policy space for the protection of farmers' rights is rapidly shrinking. Kenya, Tanzania, Uganda and South Africa all have draft UPOV 1991-compliant laws currently in parliamentary processes. It is therefore critical for farmers' organisations, civil society and even policy makers from other sectors to engage with these processes. ARIPO is currently considering a draft policy and regulations for PVP laws, which need active engagement by all sectors. The same can be said for COMESA's draft seed trade regulations. These processes cannot be allowed to continue to take place behind closed doors and within an elite club of 'technical' people. It is not only critical to monitor and engage with these policy processes, but also to defend customary, farmers' and environmental rights.

It is very important to support, strengthen and validate farmers' seed systems on the ground within a framework of food sovereignty, where the key principle is autonomy. Support for farmers in their efforts to adapt to pressures in their environment and to maintain diversity while enhancing productivity is indispensable.

A public debate should be re-opened on IP of living organisms, considering the ethics but also the impact on innovation, development and the environment. The basic starting point for all policy should be that seed is a common human heritage and all policies that restrict and diminish this principle must be re-evaluated.



ANNEX 1 Glossary of selected terms

Landraces, traditional varieties and farmers' varieties.

These terms are used interchangeably and refer to local varieties of domesticated plant species, which were bred and selected by farmers over time. They are genetically diverse, dynamic, have specific characteristics, and are highly adapted to the environment in which they have evolved. They have a high capacity to tolerate environmental stress and therefore produce very stable yields. Farmers' varieties are always open-pollinated (can be cross- or self-pollinated).

Open-Pollinated Varieties (OPV)

Open-pollinated plants are those that require pollination by the wind, insects, or the farmer to set fruit and produce seeds. In some cases, the plant will produce both male and female flowers on the same plant, which means self-pollination can take place. In other cases, cross-pollination is needed. The key issue with OPVs is that farmers can save seed and the offspring will continue to be viable.

Self-Pollinated plants

Self-pollinated plants are plants where the pollen and stigma are present in the same flower. Often, all that's required for pollination is the act of the flower opening, which will transfer pollen to the stigma. Self-pollinated plants produce true from seed.

Cross-pollinated plants

Cross-pollination is where the pollen and stigma are produced by different flowers and the pollen has to travel over a distance to fertilise the plant.

Farmers' rights

Farmers' rights are those rights arising from the past, present and future contributions of farmers in conserving, improving and making available genetic resources, particularly those in the centres of origin/diversity. Additionally, the term refers to farmers' rights to use, exchange and sell farm saved seed and other propagating material, and to participate in decision-making.

Hybrids

Hybrids can only be produced by cross-pollinating plant varieties. An F1 hybrid is produced by crossing and backcrossing the pure lines of different varieties over a number of seasons. When you plant an F1 hybrid seed, you get a plant that has the attributes the breeder has bred into the seed, but if you save the seed, the next generation will not breed true: i.e. its characteristics will revert back to one of the original parent lines, which can vary a great deal. It is not viable to save hybrid seeds.



ANNEX 2 TRIPs and Patents on Life

For many years, commercial breeders and the big seed companies have tried to acquire exclusive ownership over plant varieties, but most developing countries were slow to come to the table, for good reason. The TRIPs Agreement of the World Trade Organisation radically changed this dynamic as all countries wanting to trade in the global market were obliged to implement some form of plant variety protection legislation. Article 27(3) of TRIPs requires member countries to put in place legislation that will protect new plant varieties. This can take the form of patents or a *sui generis* system of plant variety protection. TRIPs also requires the mandatory patent protection for micro-organisms, non-biological and microbiological processes. However, it does allow member countries to exempt from patentability, plants and animals, and 'essentially biological processes for the production of plants and animals'. Where a country exempts plant varieties from patentability, TRIPs requires that it must provide some other effective *sui generis* system of IP protection or a combination of a *sui generis* and patent system.

Article 27(1) of TRIPs states: *patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application.*

Article 28 gives exclusive rights to the patent holder to make, use, offer for sale, sell or import the product or process or the product obtained directly by that process. In practise, this article is very widely interpreted and there seems to be no limit now to what can be patented – from individual genes, gene sequences, gene fragments, microorganisms – to human beings. From viruses to whole plants and transgenic animals have been granted patents and also to a range of life processes that produce organisms. New developments in genetic engineering of cell organelles, such as chloroplasts and mitochondria, and also the development of artificial mini-chromosomes, now extends the range of patentable 'inventions' beyond genes and traits to chromosomes and complete physiological processes. The combination of nanotechnology and synthetic biology are creating yet unimaginable new threats to society and the environment. What makes these new technologies so attractive to industry is the fact that its products and processes can be patented, and therefore profited from, even if the benefit, as with GM crops, is highly debatable. In terms of plant varieties, patents are now also being extended to the products of plants.

References

- 1 **Seed systems and seed sovereignty in Africa: Key Issues and Challenges (African Centre for Biosafety) in The Global Citizens' Report for Seed Freedom.**
http://www.navdanya.org/attachments/Seed%20Freedom_Revised_8-10-2012.pdf
- 2 Alliance for a Green Revolution in Africa (AGRA): Laying the groundwork for the commercialisation of African agriculture (African Centre for Biosafety). http://www.acbio.org.za/images/stories/dmdocuments/AGRA_critique.pdf
- 3 Tripp, R., Eaton, D. & Louwaars, N. 2006. **Intellectual Property Rights. Designing Regimes to Support Plant Breeding in Developing Countries.** World Bank Report No. 35517-GLB.
- 4 CIAT (International Centre for Tropical Agriculture). 2010. "Understanding seed systems used by small farmers in Africa: Focus on markets", *CIAT Practice Brief #6*, www.ciat.cgiar.org
- 5 Smale, M., Byerlee, D. & Jayne, T. 2011. "Maize revolutions in sub-Saharan Africa". *Policy Research Working Paper 5659*. Washington DC, World Bank, Development Research Group.
- 6 Phillips MacDougall. 2008. "The Global Agrochemical and Seed Markets: Industry Prospects". Presentation to CPDA Annual Conference.
- 7 CIAT, *ibid.*
- 8 La Via Campesina. 2011. Bali Seed Declaratoin. La Via Campesina.
- 9 Schenkelaars, P., de Vriend, H. & Kalaitzandonakes, N. 2011. Drivers of Consolidation in the Seed Industry and its Consequences for Innovation. http://www.sbcbiotech.nl/page/downloads/CGM_2011-01_drivers_of_consolidation_in_the_seed_industry_and_its_consequences_for_innovation1.pdf
- 10 *Ibid.*
- 11 <http://www.i-sis.org.uk/hybridSeed.php> – accessed 19 September 2011.
- 12 http://en.wikipedia.org/wiki/F1_hybrid – accessed 20 June 2011.
- 13 Setimela, P. S., Mhike, X., MacRobert, J. F. & Muungani, D. 2006. Maize Hybrids and Open-Pollinated Varieties: Seed Production Strategies. In Setimela, P. S. & Kosina, P. (eds.) *Strategies for Strengthening and Scaling up Community-based Seed Production*. Mexico, D.F., CIMMYT.
- 14 MacRobert, J. F. 2009. *Seed business management in Africa, Harare*, CIMMYT.
Mulle, E. D. & Ruppanner, V. (2010) Exploring the Global Food Supply Chain: Markets, Companies, Systems. *THREAD Backgrounder No. 2*. Geneva, 3D.
- 15 Setimela. 2006, *ibid.*
- 16 http://en.wikipedia.org/wiki/Plant_breeding – accessed 20 June 2011.
- 17 CIAT (International Centre for Tropical Agriculture). 2010. "Understanding seed systems used by small farmers in Africa: Focus on markets", *CIAT Practice Brief #6*, www.ciat.cgiar.org
- 18 Langyintuo, A. 2005. "An analysis of the maize seed sector in southern Africa", a presentation to the Rockefeller Foundation workshop on Biotechnology, Breeding and Seed Systems for African Crops (no venue provided).
- 19 Langyintuo, A. S., Mwangi, W., Diallo, A. O., MacRobert, J., Dixon, J. & Bänziger, M. 2008. "An analysis of the bottlenecks affecting the production and deployment of maize seed in eastern and southern Africa". CIMMYT, Harare.
- 20 See further, Alliance for a Green Revolution in Africa (AGRA): Laying the groundwork for the commercialisation of African agriculture (African Centre for Biosafety). http://www.acbio.org.za/images/stories/dmdocuments/AGRA_critique.pdf
- 21 Musungu, S. 2005. **Rethinking innovation, development and intellectual property in the UN, WIPO and beyond.** TRIPS Issues Paper 5, Quaker International Affairs Programme (QIAP) Ottawa. <http://www.quono.org/economicissues/intellectual-property/intellectuallinks.htm>.
- 22 Schenkelaars *et al.*, 2011, *ibid.*
- 23 Schenkelaars *et al.*, 2011, *ibid.*
- 24 Goldman Sachs. 2012. "Africa's turn", Equity Research, Fortnightly Thoughts #27, March 1 2012.
- 25 African Centre for Biosafety. The Pioneer/Panaar seed merger: deepending structural inequalities in South Africa. September 2012.
<http://www.acbio.org.za/index.php/publications/seedfood-sovereignty>
- 26 Tansey, *ibid.*
- 27 GRAIN. 2004. "The End of Farm Saved Seeds" for an analysis of what can next be expected from UPOV in the future.
<http://www.grain.org/article/entries/58-the-end-of-farm-saved-seed-industry-s-wish-list-for-the-next-revision-of-upov>
- 28 While SA has long since been UPOV 1991 compliant, it has during 2011, released draft amendments to its Plant Breeders' Rights Act, which further erodes farmers' rights.
- 29 The Bangui Agreement is a regional agreement administered by OAPI, to harmonise IP laws in Francophone countries.
- 30 See for example, the UN General Assembly Document A/64/170 titled "Seed Policies and the right to food: enhancing agrobiodiversity and encouraging innovation". See also "Technical Issues on Protecting Plant Varieties by Effective Sui Generis Systems". South Centre. 2000; "Sui Generis Systems for Plant Variety Protection". Biswajit Dhar, QUNO. 2002.

- 31 See UN General Assembly Document A/64/170 titled “Seed Policies and the right to food: enhancing agrobiodiversity and encouraging innovation”.
- 32 Edgar Krieger, secretary general of an international association of plant breeders of reproduced ornamental and fruit varieties (CIOPORA). <http://www.ip-watch.org/2011/10/20/upov-celebrates-50-years-breeders-look-more-enforcement-civil-society-wants-in/>
- 33 Guidance for the preparation of Laws based on the 1991 Act of the UPOV Convention. UPOV/INF/6/2
- 34 Dutfield, *ibid.*
- 35 Dutfield, *ibid.*
- 36 In Africa this excludes South Africa, Botswana, Gambia, Somalia, Mozambique, Equatorial Guinea, with Nigeria signing, but taking no further steps to become a Party.
- 37 See UN General Assembly Document A/64/170 titled “Seed Policies and the right to food: enhancing agrobiodiversity and encouraging innovation.”
- 38 GRAIN. (2001) **IPR Agents try to derail OAU process**. June 2001. <http://www.grain.org/article/entries/89-ipr-agents-try-to-derail-oau-process>
- 39 http://www.farmersrights.org/state/countries_ethiopia.html
- 40 <http://www.icrisat.cgiar.org/icrisat-rrp2-wasa-wca.htm>,
Also see USAID strategy plan for East Africa. www.feedthefuture.gov/.../FTF_2010_Implementation_Plan_East_Africa
- 41 See further, http://www.powerbase.info/index.php/African_Agricultural_Technology_Foundation
- 42 See <http://www.plantauthority.gov.in/pdf/PPV&FRAct2001.pdf>
- 43 See sections 14, 23 and 29 of the Indian Protection of Plant Varieties and Farmers’ rights (PPVFR) 2001.
- 44 See Section 14 of the Indian Protection of Plant Varieties and Farmers’ rights (PPVFR) 2001.
- 45 See Section 18 of the Indian Protection of Plant Varieties and Farmers’ rights (PPVFR) 2001.
- 46 See Section 39 of the Indian Protection of Plant Varieties and Farmers’ rights (PPVFR) 2001.
- 47 www.bilaterals.org and GRAIN. 2008. <http://www.grain.org/article/entries/3645-bilateral-agreements-imposing-trips-plus-intellectual-property-rights-on-biodiversity-in-developing-countries>
- 48 FANRPAN. Seed Without Borders. Policy Briefs Series. Issue no. 1: Volume XI March 2011.
- 49 Cortes, *ibid.*
- 50 Cortes, *ibid.*
- 51 Tripp, R. 2006. Intellectual Property Rights. Designing Regimes to Support Plant Breeding in Developing Countries. World Bank Report No.35517-GLB.
- 52 Cortes, *ibid.*
- 53 Waithaka, M., *et.al.* 2011. **Impacts of an improved seed policy environment in Eastern and Central Africa**. ASARECA. April 2011.
- 54 Waithaka, *ibid.*
- 55 Email communication with John Mukuka, ACTESA, 25 September 2012.
- 56 African Centre for Biosafety. **Comments on: COMESA’s Draft Policy on Commercial Planting, Trade and Emergency Food Aid Involving Genetically Modified Organisms (GMOs)**, 28 June 2012. http://www.acbio.org.za/images/stories/dmdocuments/ACB_comments_endorsed.pdf
- 57 African Centre for Biosafety. Condemnation for Comesa’s draconian free trade policy on GMOs. <http://www.acbio.org.za/index.php/media/64-media-releases/322-acb-condemnation-for-comesas-draconian-free-trade-policy-on-gmos>
- 58 <http://africaseed.net/?s=comesa>
- 59 Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, Gabon, Guinea, Guinea Bissau, Ivory Coast, Mali, Mauritania, Niger, Senegal, and Togo.
- 60 GRAIN. 2005. **Africa’s seed laws: a red carpet for the corporations**. Seedling July 2005. www.grain.org
- 61 ARIPO Draft Regional Policy and Legal Framework for Plant Variety Protection contained in documents ARIPO/CM/XIII/8 and ARIPO/AC/XXXVI/9.
- 62 Botswana, Gambia, Ghana, Kenya, Lesotho, Liberia, Malawi, Mozambique, Namibia, Rwanda, Sierra Leone, Somalia, Sudan, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe.
- 63 See for instance, STATEMENT OF ARIPO AT THE OPENING OF THE FORTY-SIXTH ORDINARY SESSION OF UPOV, GENEVA, NOVEMBER 1, 2012.
- 64 GRAIN, In cooperation with SANFEC. 2001. **“TRIPS-plus” through the back door**. www.grain.org
- 65 Ex-USAID economist, David Korten, in Paul H., *et.al.* 2003. **Hungry Corporations: Transnational Biotech Companies colonise the food chain**. Chapter 5. Zed Books. www.econexus.info.
- 66 World Bank, 2012. World Bank Grant of \$1.2 million Will Foster Technical Cooperation on Biosafety. Press release. 28 September 2012. <http://www.worldbank.org/en/news/2012/09/28/world-bank-grant-1-pt-2-million-will-foster-technical-cooperation-biosafety>
- 67 Kuyek, D. 2002. **Intellectual Property Rights in African Agriculture: Implications for Small Farmers**. GRAIN. August 2002.
- 68 Paul H. *et.al.* 2003. **Hungry Corporations: Transnational Biotech Companies colonise the food chain**. Chapter 5. Zed Books. www.econexus.info.

AGRICULTURE, ENERGY AND LIVELIHOOD SERIES

- 69 Furchtgott-Roth, D. 2011. **U.S. Aid Is Holding Africa Back**. Hudson Institute. http://www.hudson.org/index.cfm?fuseaction=publication_details&id=7925
- 70 US Government. Working document. 2010. Feed the Future 2010 Implementation Plan for East Africa. www.feedthefuture.gov.
- 71 US Government, *ibid*.
- 72 <http://eatproject.org/>
- 73 GRAIN. 2005. **USAID: Making the World Hungry for GM Crops**. Briefing, April 2005.
- 74 www.seeds.iastate.edu
- 75 Press release, Iowa State University's Seed Center to steer eastern and southern Africa seed policy. <http://archive.news.iastate.edu/news/2011/mar/SSCComesa>
- 76 Zulu, E. 2000. World Bank Initiative for SSSA, Second progress report.
- 77 <http://archive.news.iastate.edu/news/2011/mar/SSCComesa>
- 78 www.cnfa.org/images/stories/pdfs/WA-WASA.pdf
- 79 http://www.fao.org/agriculture/crops/core-themes/theme/seeds-pgr/seed_sys/rules/en/
- 80 http://www.cgiar.org/cg_archives/www-cgiar-org-newsroom-releases-news-asp-idnews-1154/
- 81 <http://www.sgrp.cgiar.org>
- 82 ASARECA. 2006. **Rationalisation and harmonisation of seed policies and regulations**. ECAPAPA newsletter, Volume 9, Number 23. December 2006.
- 83 Evaluation of USAID/East Africa support to the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA). August 2011. www.usaid.gov/pdf_docs/PDACS540.pdf
- 84 Evaluation of USAID/East Africa support to ASARECA. *ibid*.
- 85 <http://www.fanrpan.org/documents/do0909/>
- 86 <http://afsta.org/projects/asiesa/>
- 87 ASARECA. 2008. **Strategy for the Agrobiodiversity and Biotechnology Programme**. 2008 – 2016. www.asareca.org
- 88 Van der Walt, J. 2007. **Plant Variety Protection for Southern Africa: Progress and Pitfalls**. Seedquest editorial. July 2007. <http://www.seedquest.com/forum/v/VanDerWaltWynand/07jul.htm>
- 89 Van der Walt, *ibid*.
- 90 Mgonja, M. 2011. **Seeds Without Borders**. FANRPAN Policy Brief Series, Issue no 1: Volume XI, March 2011.
- 91 Langyintuo, A. 2010. **AGRA support to seed security in Africa. Presentation at the FANRPAN organised seed security network meeting, South Africa**. 20 May 2010.
- 92 See further, Alliance for a Green Revolution in Africa (AGRA): Laying the groundwork for the commercialisation of African agriculture (African Centre for Biosafety). http://www.acbio.org.za/images/stories/dmdocuments/AGRA_critique.pdf
- 93 Tansey, *ibid*. p.42.
- 94 ETC 2009. Press Release. www.etcgroup.org/en/nod/658
- 95 Coupe, S. & Lewins, R. 2007. Negotiating the Seed Treaty. Practical Action Publishing. www.practicalactionpublishing.org
- 96 FAO 2010. The Second Report on The State of the World's Plant Genetic Resources for Food and Agriculture.
- 97 Lynam, J. 2011. **Plant Breeding in Sub-Saharan Africa in an Era of Donor Dependence**. IDS Bulletin, 42(4): 24 – 34.
- 98 FAO, *ibid*.
- 99 Cromwell, E. 1996. **Governments, farmers and seeds in a changing Africa**. CAB International, Wallingford, UK.
- 100 FAO. 2011. **Strengthening Seed Systems: Gap Analysis of the Seed Sector**. Commission on Genetic Resources for Food and Agriculture. CGRFA/WG-PGR-5/11Inf.5.
- 101 Seedquest, 2011. **Plant Breeder's Rights – A blessing or a curse?** Interview with Niels Louwaars. April 2011. http://www.seedquest.com/news.php?type=news&id_article=16364&id_region=&id_category=&id_crop=http://www.seedquest.com/news.php?type=news&id_article=16364&id_region=&id_category=&id_crop=
- 102 Tansey, G. & Rajotte, T. (Ed). 2009. **The future control of food: a guide to international negotiations and rules on intellectual property, biodiversity and food security**. Earthscan, UK.
- 103 Dutfield, G. 2011. **Food, Biological Diversity and Intellectual Property: The Role of the International Union for the Protection of New Varieties of Plants (UPOV)** Intellectual Property Issue, Paper Number 9. Quaker United National Office. www.quno.org/economicissues/food-sustainability/foodLinks.htm
See also Tansey and Tripp.
- 104 IAASTD Africa report. www.iaastd.org
- 105 GRAIN. 2009. Interview with Dr Melaku Worede. Seedling. April 2009. <http://www.grain.org/fr/article/entries/709-melaku-worede-interview-in-english>
- 106 Kuyek, D. 2002. Intellectual Property Rights in African Agriculture: Implications for Small Scale Farmers. GRAIN. August 2002.
- 107 IPGRI, 2011. Overview of Ethiopian seed system.
- 108 Grow Africa, <http://www.weforum.org/issues/agriculture-and-food-security>
- 109 Claasen, G. 2004. **Saving Seed: Saving money?** *Farmers Weekly*, 20 February 2004.



- 110 GRAIN. 2007. **The End of Farm Saved Seed. Industry's wish list for the next revision of UPOV.** <http://www.grain.org/article/entries/58-the-end-of-farm-saved-seed-industry-s-wish-list-for-the-next-revision-of-upov>
- 111 Coupe, S. & Lewins, R. 2007. **Negotiating the Seed Treaty.** Practical Action Publishing. www.practicalactionpublishing.org
- 112 IIED. 2011. **Adapting agriculture with traditional knowledge.** IIED Briefing, October 2011. <http://pubs.iied.org/17111>
- 113 IIED, *ibid.*
- 114 IIED, *ibid.*
- 115 GRAIN. 2003. **Contamination by GM maize found in nine states of Mexico.** Seedling, April 2003. p.18.
- 116 Declaration on Indigenous Peoples' Rights to Genetic Resources and Indigenous Knowledge, Convened at the Sixth Session of the United Nations Permanent Forum on Indigenous Issues, May 14-25, 2007, New York.