## The Arusha Protocol and Regulations: Institutionalising UPOV 1991 in African seed systems and laws



SUMMARY



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## Contents

Introduction	3
Critique of ARIPO's Arusha Protocol and Regulations	4
An inflexible and inappropriate PVP System for the region	4
Expanding breeders' rights while reducing farmers' rights	4
Narrow and limited exceptions for farmers	6
Lack of transparency	8
Revisions to the Protocol and Regulations – Gains made by CSOs and farmers	8
Highlighting remaining concerns and cautions	9
Concluding remarks and looking forward	10
References	13
Annex 1: draft list of agricultural and vegetable crops	14
Annex 2: Comparison between the SADC PVP Protocol and	
ARIPO's Arusha Protocol	20



On 7 April 2015 the African Centre for Biosafety officially changed its name to the African Centre for Biodiversity (ACB). This name change was agreed by consultation within the ACB to reflect the expanded scope of our work over the past few years. All ACB publications prior to this date will remain under our old name of African Centre for Biosafety and should continue to be referenced as such.

We remain committed to dismantling inequalities in the food and agriculture systems in Africa and our belief in people's right to healthy and culturally appropriate food, produced through ecologically sound and sustainable methods, and their right to define their own food and agricultural systems.

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## Introduction

In a fully referenced discussion document: The Arusha Protocol and Regulations: Institutionalising UPOV 1991 in African seed systems & laws written by Linzi Lewis and Mariam Mayet of the African Centre for Biodiversity (ACB), the authors attempt to provide a holistic and updated critique of the Arusha Protocol for the Protection of New Varieties of Plants read together with its operationalising Regulations: Regulations for Implementing the Arusha Protocol for the Protection of New Varieties of Plants Within the Framework of the African Regional Intellectual Property Organisation. The paper draws heavily on the wealth of written and oral critiques and submissions made by African civil society organisations, the Third World Network and international intellectual property rights experts, in collaboration with the ACB over the past seven years as well as on ACB's own advocacy work.

In this summary, we outline the central concerns relating to the Protocol and Regulations, in the context of changing legal and institutional architecture, aimed to facilitate the transformation of African agriculture, to the benefit of corporate interests, while undermining farmermanaged seed systems, the base of African agricultural and food systems.

The Arusha Protocol for the Protection of New Varieties of Plants (referred to in this paper as the "Arusha Protocol" or the "Protocol") was developed under the auspices of the African Regional Intellectual Property Organisation (ARIPO). According to its website, ARIPO is an inter-governmental organisation that facilitates cooperation among member states in intellectual property matters, with the objective of pooling financial and human resources, and seeking technological advancement for economic, social, technological, scientific and industrial development.<sup>1</sup> There are currently nineteen States who are party to the Lusaka Agreement and therefore members of ARIPO. These are: Botswana, The Gambia, Ghana, Kenya, Lesotho, Malawi, Mozambique, Namibia, Sierra Leone, Liberia, Rwanda, São Tomé and Príncipe, Somalia, Sudan, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe.

The Arusha Protocol was adopted by a Diplomatic Conference of ARIPO at Arusha, Tanzania, in July 2015. Regulations to operationalise the Arusha Protocol were adopted by ARIPO's Administrative Council in Malawi, in November 2017. To date, five countries have signed onto the Protocol: Ghana, The Gambia, Mozambique, São Tomé and Príncipe, and Tanzania. The Protocol will enter into force one year after four member states of ARIPO ratify it. At the time of writing, no member state of ARIPO had yet ratified the Protocol. Once a member state ratifies the Protocol, it becomes a contracting party to the Protocol.

The Protocol and its Regulations constitute a harmonised regional legal framework for the protection of plant breeders' rights for ARIPO member states who become party to the Protocol. This regional framework is part of on-going efforts in Africa to harmonise seed laws across regional economic communities to ensure seamless and expedited trade and seed production of commercially-bred seed varieties for the benefit of multinational seed companies.<sup>2</sup> It is also part of the legal and institutional architecture designed to facilitate the transformation of African agriculture from peasant-based to an inherently inequitable, and ecologically unsustainable agricultural model, based on an out-dated Green Revolution/industrial agricultural model. It is a mechanism designed to coerce African countries into joining UPOV 1991 (see below for more details), a restrictive and inflexible international legal regime that grants extremely strong intellectual property rights to commercial breeders and undermines farmers' rights (AFSA, 2015a).

1. http://www.aripo.org/about-aripo (accessed 16 June 2018)

2. Article 11 of the Protocol allows PBRs to be granted to foreign companies.

PVP regimes such as the ARIPO Protocol are promoted by its supporters as essential to developing a mature seed and agricultural sector. Yet in many developed countries, the seed industry developed without any intellectual property (IP) protection.<sup>3</sup> Now with seeds being exported to the countries in the global South and between countries in the global South, developed countries and their seed industries are motivating developing countries to adopt strict IP rules based on UPOV 1991. Most commercial seed breeding, production and exporting is undertaken by a handful of multinational agrochemical/seed companies,<sup>4</sup> and with the current mergers taking place,<sup>5</sup> the market will be further consolidated, with greater horizontal and vertical integration in the formal seed and agricultural sector (Eaton, 2013, Louwaars et al., 2009, ACB, 2017)

## Critique of ARIPO's Arusha Protocol and Regulations

#### An inflexible and inappropriate PVP System for the region

The Arusha Protocol and Regulations create a regional intellectual property legal framework, based on the International Union for the Protection of New Varieties of Plants (UPOV) 1991 (and in some cases going further than UPOV 1991). UPOV 1991 is a restrictive and inflexible international legal regime, created by industrialised countries to respond to the dawn of large-scale commercial farming and commercial plant breeding. It focuses on promoting and protecting commercial seed breeders who develop genetically uniform seeds/plant varieties suited to mechanised, large-scale agriculture. It is astonishing that such a harmonised and restrictive framework has been crafted for ARIPO member states where thirteen out of nineteen are least developed countries (LDCs), i.e. some of the poorest and most vulnerable countries in the world. Three of these LDCs are not even members of the World Trade Organization (WTO), namely São Tome and Principé, Somalia and Sudan. Article 27.3(b) of the Agreement on Traderelated Aspects of Intellectual Property Rights (TRIPS) requires WTO members to put in place an effective *sui generis*<sup>6</sup> system to protect new plant varieties. However, LDC WTO members have been accorded a transition period until July 2021 (which may be extended), during which period LDCs do not have to put in place any plant variety protection system. These LDCs include The Gambia, Lesotho, Malawi, Mozambique, Sierre Leone, Liberia, Rwanda, São Tomé and Principe, Somalia, Sudan, Tanzania, Uganda, Zambia, who are ARIPO member states.

The ARIPO Protocol and Regulations establish a one-size-fits-all model for Plant Variety Protection (PVP) in ARIPO member states. The Protocol and Regulations offer extremely strong intellectual property protection to plant breeders while threatening farmers' rights and sustainable agricultural development in the ARIPO region. The framework will exacerbate corporate concentration and monopolisation of the African seed industry by multinational agrochemical/seed companies, and deepen inequalities in the seed sectors.

## Expanding breeders' rights while reducing farmers' rights

The Arusha Protocol and Regulations undermine Farmers' Rights enshrined in the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) (Article 9, FAO, 2001).

4. BASF, Bayer, Dow, DuPont, Monsanto and Syngenta already control 63% of the global commercial seed market in 2015.

6. Of its own kind., unique

<sup>3.</sup> Gaberell, L., 2017. Capacity building workshop on Plant Variety Protection, exploring policy options- discussion on the Arusha Protocol on the Protection on New Plant Varieties and the Draft Regulations. 28 September 2017. APREBES, African Centre for Biodiversity, Third World Network, South Centre. Geneva, Switzerland.

<sup>5.</sup> The three mega-mergers of seed and agrochemical companies ChemChina-Syngenta; Dow-DuPont; and Bayer-Monsanto.

### Genera and Species protected: going beyond UPOV 1991

Article 3 of the ARIPO Protocol provides that once the legal framework enters into force it "shall be applied to all plant genera and species". This article goes beyond UPOV 1991 and grants no flexibility or transition period to contracting parties to define what genera or species should be included and what should be excluded from applying in their territory (unless contracting parties continuously object in terms of Article 4(1) of the Protocol read together with Rule 12 of the Regulations, see below.)

#### Scope of Breeders' rights

The scope of breeder's rights provided in Article 21 of the Protocol is based on Article 14 of UPOV 1991, which vastly extends the rights of the breeders and severely restricts the scope for small-scale farmer breeders to innovate using protected varieties. Breeders' rights extend to:

- reproductive or vegetative propagating material, and further to the harvested material obtained through the illegitimate use of propagating material (Article 21(3) (a));
- harvested products obtained through the illegitimate use of harvested material (Article 21(3)(b)); and
- so-called "essentially derived" varieties (Article 21(4)) of protected varieties. If a breeding outcome is an essentially derived variety (EDV) breeders would need authorisation for use, and therefore could restrict others from using protected varieties for research and breeding purposes. The restrictions potentially limit the development of new varieties from the protected varieties.

An illegitimate use would be use in contravention of the provisions of both the Protocol and Regulations.

Severe restrictions are placed not only on the use of farm-saved seed (propagating material): if seed has been used without the consent of the breeder (and therefore if royalties for use of the seed have not been paid to the breeder), breeders' rights will extend to **harvested material** (e.g. grain) (Article 21(3)(a)), and even further extend to **harvested products** (e.g. milled maize) obtained through the use of harvested material (Article 21(3)(b)). The restrictions impact on the entire life-cycle of the product. In the ARIPO region, farmers access seed from various sources, including purchasing from formal and informal traders, exchanges with family and neighbours, or by developing emergency seed programmes. Farmers do not differentiate between the formal and other systems and/or between protected and unprotected improved varieties (Louwaars & De Boef, 2012, ACB, 2018). Therefore, the restrictions could have dire consequences for resource-poor, smallholder farmers in the ARIPO region if farmers reuse propagating material of protected varieties and breeders decide to enforce their rights to the harvest and harvested products.

Breeding outcomes of essentially derived **varieties** (EDVs) of a protected variety require authorisation for use, and therefore could restrict others from using protected varieties for research and breeding, potentially limiting the development of new varieties from the protected varieties. The provision on EDVs was introduced by UPOV 199. Due to the complexity of determining when a variety is an EDV, the provision is one of UPOV's most problematic provisions for interpreting and applying administrative and juridical authority. Article 21(6) of the Arusha Protocol (similar to Article 14(5)(c) in UPOV 1991), provides that an EDV may be obtained, for example, by selecting "a natural or induced mutant. or of a somaclonal variant. the selection of a variant individual from plants of the initial variety, backcrossing, or transformation by genetic engineering". An EDV cannot be commercialised without the authorisation from the rights holder of the initial variety (from which the EDV was derived). Applying this concept may reduce competition between breeders and limit the development of new varieties, as they might not be able to commercialise a new variety if it is an EDV. As breeding is an incremental process, the restriction prevents the development of new varieties. Even the industry has questioned the restriction, for example, the International Association of Horticultural Producers argues that the restriction will make it more difficult for new varieties to enter the market, and will give existing breeders a market monopoly (Buma, 2013). The restriction introduces a

double standard, since it only applies to protected varieties used as an initial source of derivation. Farmers' varieties are not protected when a new variety is essentially derived from a farmers' variety (Correa et al., 2015).

#### Duration of protection of breeders' rights

Article 26 of the Arusha Protocol gives 20 years of plant variety protection from the date of the grant of the breeder's right, except for trees and vines, whose PBR extends to 25 years. The extended scope and longer protection makes little sense for the agricultural landscape in ARIPO member states dominated by farmer-managed seed systems. It only benefits commercial seed breeders, and does little to stimulate agricultural innovation. Even more disturbing is that, in conjunction with Article 15 (2) of the Protocol, the right holder may withhold confidential information that may therefore never become publically available for the purposes of further plant breeding by research institutions and farmers, even after the duration of protection has expired. What is the benefit to research and innovation in contracting states of this long duration of protection? Surely these inhibit rather than expedite access to new varieties on the part of farmers?

#### Narrow and limited exceptions for farmers

Article 22 (1) of the Protocol allows famers to save and reuse propagating material for private and non-commercial purposes. However, the Regulations fail to define the scope of this concept. UPOV 1991 narrowly interprets "private and non-commercial use" to use on one's own holdings for one's use only. According to UPOV's explanatory notes non-private acts, even where for noncommercial purposes such as exchanges, may be outside the scope of the exception" (UPOV, 2009, page 5). Yet on the Frequently Asked Questions (FAQs) on UPOV's website (http:// www.upov.int/about/en/faq.html#Q30), they state that, "UPOV Contracting Parties have the flexibility to consider, where the legitimate interests of the breeders are not significantly affected, in the occasional case of propagating material of protected varieties, allowing subsistence farmers to

exchange this against other vital goods within the local community". De Jonge et al (2015) argue that this indicates UPOV's willingness to accept a broader definition of private and non-commercial than previously, and that countries can decide for themselves what farmer activities should fall into this exemption.

Beyond the exemption provided in Article 22(1), Article 22(2), allows small scale farmers to reuse farm saved seeds of crops with the historical practices of saving, reusing and exchanging. These provisions are extremely confusing and drafted in a convoluted way. The provisions are captured below:

"(2) Notwithstanding Article 21, for the list of agricultural crops and vegetables with a historical common practice of saving seed in the contracting states specified by the Administrative Council which shall not include fruits, ornamentals, other vegetables or forest trees, the breeder's right shall not extend to a farmer who, within reasonable limits and subject to the safeguarding of the legitimate interests of the holder of the breeder's right, uses for propagating purposes, on the farmer's own holdings, the product of the harvest which the farmer has obtained by planting on the farmer's own holdings, the protected variety or a variety covered by Article 21(4) (a) or (b).

(3) The conditions for the implementation of the provisions under paragraph (2), such as the different level of remuneration to be paid by small scale commercial farmers and large scale commercial farmers and the information to be provided by the farmer to the breeder, shall be stipulated in the regulations."

The Administrative Council has to create a list of farmers' historical practices for saving of agricultural crops and vegetables (see Annex 1 for the most recent draft). However, the list cannot include fruits, ornamentals, other vegetables or forest trees. Other vegetables are also not defined.

In summary, then, the exclusion of historical practices is dependent on the Administrative Council making a restrictive list and clear definitions of "agricultural crops" and "other vegetables". But even then, saving and reuse can only take place on that farmer's own holding, within reasonable limits, which safeguard the legitimate interests of the breeder, in other words, payment of royalties.

The confusing formulations are further confounded by Rule 15(2) of the Regulations, which states: "the Administrative Council shall specify from time-to-time a list of agricultural crops and vegetables with historical practice of saving, using, sowing, re-sowing or exchanging seeds and acreage/ tonnage that defines a small-scale farmer in each Member State based on the criteria established at the national level". It therefore seems that the exemptions to the breeders' rights (the list to be compiled) are narrowed down even more, to apply only to smallscale farmers, which are not defined in the Regulations. The limited exception provision is thus subject to safeguarding the legitimate interests of the breeder, i.e. royalty payments to the breeder by small- and large-scale commercial farmers.

In regard to making the list, the process should be open and transparent, ensuring that farmers participate at all levels in developing this list of crops with historical practice of seed saving. Surely the process cannot be left up to the Administrative Council, or member-states, to develop and finalise without input from farmers. Further, excluding fruits, ornamentals, other crops, or forest trees from exemption, makes little sense to the overall objective of the clause as the exceptions are so narrow as to be of little consequence. ARIPO member states may therefore be at a disadvantage compared to countries that do not limit the use of seed saving to specific crops. The definition of small-scale farmer varies from countryto-country (see annex 1 - the current list of agricultural crops with the tradition of seed saving, which indicates the definition of small-scale farmer in each country). As mentioned above, the exception is only "for propagating purposes on their own holdings, the product of their harvest which they have obtained by planting on their own holdings", subject to the "safeguarding of the legitimate interests of the breeder".

No explicit provision in the Protocol allows smallholder farmers to freely exchange and sell farm-saved seed of protected varieties or undertake local rural trade, which underpins agricultural systems in ARIPO countries. Furthermore, in most countries, increasingly restrictive seed laws do not allow the commercial sale of farmers' varieties. Seed laws instead create extremely onerous and expensive registration procedures, compounding the assault on farmer seed systems

The definition of small-scale farmer varies from country to country, and is specified in Annex 1. Small-scale commercial farmers (beyond the acreage mentioned in the list) however will have to pay remuneration when reusing farm saved seed even for crops on the list, which may put these farmers at an economic disadvantage to farmers such as those in Europe, which has broader definitions related to exemptions. There are no definitions for small- and largescale commercial farmers, and any uniform definition of size and income would in any case, not be feasible across the ARIPO countries, as significant economic differences exist between ARIPO countries (Munyi et al, 2016).

It is essential that smallholder farmers' needs are provided for, particularly relating to the way smallholder farmers access seed. In fact, a central objective of the Arusha Protocol is to facilitate farmers' access and of new varieties of new varieties. Farmers primarily access seed through farmer-managed seed systems including the saving, exchange and purchase from local markets. Thus, failing to clarify and clearly define exemptions will undermine and criminalise the traditional practices of smallholder farmers to freely reuse, save, exchange and sell seed locally.

In summary, the Arusha Protocol does not recognise farmers' contributions or rights without forcing them to pay royalties. The Protocol also does not enable farmers to develop new varieties on the basis of the protected varieties, nor to exchange and sell the products of their harvest. The legal framework is premised only on strengthening breeders' rights and marginalising and exploiting small-scale farmers in ARIPO member states.

#### Lack of transparency

African civil society has been deliberately excluded from taking part in most meetings for developing both the ARIPO Protocol and its Regulations. Coupled with the ARIPO Secretariat's poor provision of information to public interest groups, including the ACB, exclusion of civil society means the legal regime is sorely lacking in credibility.<sup>7</sup> African CSOs have argued that the process of developing the Protocol and Regulations are not consistent with the tenets of international law, particularly with respect to public consultation, including the International Covenant on Civil and Political Rights, the Convention on the Elimination of All Forms of Discrimination against Women and Article 9(2c) of the ITPGRFA (AFSA, 2014). Further, ARIPO members states dismissed Dr Olivier de Schutter, the former UN Special Rapporteur on the Right to Food admonishment to African governments to create "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" (de Schutter, 2009).

Despite not consulting with civil society, industry associations (e.g. CIOPORA, African Seed Trade Association (AFSTA), 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 consulted extensively throughout the process (AFSA, 2015a). ARIPO and the CPVO have signed an Administrative Arrangement in terms of which CPVO will provide capacity building and technical support to ARIPO and embark on joint awareness and sensitisation programs to develop a legal and administrative and enforcement system.<sup>8</sup> It is thus anticipated that the CPVO will continue to exert enormous influence over a capacityconstrained ARIPO Secretariat and assist ARIPO member states to draft national laws to implement the Protocol based on UPOV 1991. ARIPO has tried also to accede to UPOV itself, as the African Intellectual Property Organisation<sup>9</sup> (OAPI) did in 2014.

## Revisions to the Protocol and Regulations – Gains made by CSOs and farmers

African CSOs have achieved some significant successes due only to dogged and unfailing advocacy work outside of the ARIPO process. Resulting from African CSO participation in the process, Rule 7 is a significant addition to the Regulations; it requires the applicant to provide, among other information, the source of genetic material used. However, the rule does not go far enough to protect against misappropriation of local plant genetic resources and associated traditional knowledge, because it does not clearly state the need to ensure the material was legally acquired and aligns with the provisions set out by the Nagoya Protocol on Access and Benefit Sharing (ABS). Failure to include such information as a prerequisite to the grant of a breeder's right blatantly disregards farmers' contributions to the extensive genetic resources developed and maintained by them, which serve as the germplasm pool for modern breeding. The ARIPO Protocol should at least have followed the SADC PVP Protocol,<sup>10</sup> which Article 13 (5) on the application process includes a clause that applicants must provide *a declaration that* the genetic material or parental material acquired for breeding the variety has been

- 7. See for example https://www.acbio.org.za/sites/default/files/2016/11/PR\_ARIPO\_regs\_2016.pdf; http://afsafrica.org/open-letter-to-members-of-the-international-union-for-the-protection-of-new-varieties-of-plants-upov-2/
- 8. http://cpvo.europa.eu/en/news-and-events/news/administrative-arrangement-signed-aripo
- 9. OAPI is an intellectual property organisation, with headquarters in Yaoundé, Cameroon, created by the Bangui Agreement of 2 March 1977. OAPI has seventeen, mostly French-speaking, member countries in West Africa.
- 10. Protocol for the Protection of New Varieties of Plants (Plant Breeders' Rights) In the Southern African Development Community.

*lawfully acquired and the source of such material.* See Annex 2 for a comparison between the SADC PVP Protocol, and the Arusha Protocol.

Another significant change to the Regulations, brought about by CSOs relates to earlier versions of the Regulations, which intended to introduce a draconian rural surveillance system. The surveillance system aimed to intimidate and force seed processors, seed suppliers, government certification officers and even farmers' organisations to police and spy on farmers who use farm-saved protected seed. This surveillance system was removed and the Regulations now state that the personal information of the *commercial* farmer, the details of the protected variety, and the quantity or saved seed must be provided where a breeder has prior evidence that the farmer used, or is using, the farm saved seed of the breeder's protected variety (Rule 15(5)). Although the regulation has been substantially improved from previous versions, it is still hugely problematic.

During the Arusha deliberations, several government delegations raised serious concerns that the Draft ARIPO PVP Protocol eroded national sovereignty by vesting extensive decision-making powers in the regional ARIPO Plant Breeders Rights Office (PBRO). In particular, the government of Malawi said vesting decision-making in the PBRO would "have a demeaning and nullifying effect" (AFSA., 2015b). After long hours of negotiation, changes were made giving contracting states explicit rights to object to any Plant Breeders' Right (PBR) granted by the regional ARIPO PBRO — in which event the PBR will not be awarded national protection. Furthermore, a previous version of the draft Regulations failed to provide appropriate mechanisms to operationalise the right of member states to object to the grant as contemplated in Article 4(1) of the Protocol. After further advocacy work by CSOs, Rule 12(1) of the Regulations now provide mechanisms to enable a contracting party to object to a PBR granted by the ARIPO PRB Office from

applying in its territory. Although this is a crucial amendment, it would be preferred for countries to opt in, rather than opt out, because, due to limited capacity, countries seldom make such objections.

Also among the small gains made by CSOs, contracting states and not the ARIPO PBRO now have the right to issue compulsory licenses in the public interest.

# Highlighting remaining concerns and cautions

Notwithstanding the above changes, a centralised regional PVP approval system has been established and the ARIPO PBRO will have substantial authority to grant and administer breeders' rights on behalf of all contracting states (e.g. to decide whether or not to grant protection, nullify or cancel PBRs, etc.). Regionally granted PBRs will have a uniform effect in all contracting states, which may result in contracting states having to put scarce public resources at the disposal of breeders to enforce breeders' rights at the national level while running the risk of weakening their national PRB institutions and crippling existing national capacity. Nowhere in the Regulations is there a process for a member state to nullify or cancel a breeder's right. Articles 28 and 29 in the Protocol only outline the right of the ARIPO Office to nullify or cancel a PBR granted. It is a major oversight that no rules speak to the right of contracting states to nullify or cancel a breeder's right, and accordingly inform the ARIPO Office of its decision.<sup>11</sup>

It is extremely worrying that the legal framework for PVP across Southern and Eastern Africa is based entirely on UPOV 1991. The plant variety protection standards of UPOV 1991 are well known to have emerged largely by developed countries, whose agricultural system vary considerably from the agricultural systems across the ARIPO

11. Shashikant, S., 2017. Capacity building workshop on Plant Variety Protection, exploring policy options – discussion on the Arusha Protocol on the Protection on New Plant Varieties and the Draft Regulations. 28 September 2017. APREBES, African Centre for Biodiversity, Third World Network, South Centre. Geneva, Switzerland.

region (Munyi et al, 2016). Since ARIPO member states have the option of developing their own unique PVP system that meets the specificities of the ARIPO region, it would have been prudent to thoroughly investigate how other countries have developed sui generis PVP systems (that are not entirely based on UPOV 1991) and to identify elements that would be useful to the ARIPO region.

The language used in the legal framework does not reflect the unified position taken by African countries at international fora such as the WTO and the CBD, around issues on genetic resources, access and benefit sharing, indigenous knowledge, community and farmers' rights. These unified positions espoused that non-commercial use of plant varieties, seed saving systems, and exchange and selling among farmers should be ensured as matters of important public policy to, among other things, ensure food security and preserve the integrity of rural or local communities.<sup>12</sup> Following from the unified position, any sui generis system for the plant variety protection should enable member states to retain their right to adopt and develop measures that encourage and promote the farming community and indigenous people's traditions in innovating and developing new plant varieties, and enhancing biological diversity.

Restrictive and draconian PVP systems will impact negatively on crop diversity and ultimately reduce resilience to pests, disease and climate change. Varieties that have undergone Distinctiveness, Uniformity, and Stability (DUS) examinations across the vast agro-ecological conditions that represent ARIPO countries will unlikely be suitable in all regions. These varieties may have negative implications for resource-poor farmers, who have no recourse or avenue for redress, while they confront the loss of locally-adapted traditional varieties, due to harmonised PVP laws and seed trade legislation. A report by the UN Secretary-General on agriculture development, food security and nutrition acknowledges and stresses the deep concerns of international pressures to adopt UPOV-based PVP regimes, with

severe restrictions on seed systems, reducing biodiversity, harming the livelihood of smallscale farmers, and weakening the genetic base that supports the future supply of food (UN, 2015).

The limited exemptions will impact on agricultural biodiversity and access to seed. Smallholder farmers source seed from a variety of avenues, where improved and protected seed enter farms through the saving, exchanging and sale of farm-saved seed (McGuire and Sperling, 2016., Berne Declaration, 2015). These activities are an important part of how farmers adopt new crops and varieties, and maintain future adaptability and resilience.

The skewed nature of the Protocol and its Regulations provides legal tools to expedite capture of seed markets and protect breeders while failing to protect farmers. The Protocol and Regulations aim to transform the seed, agricultural and food landscape across the ARIPO region.

# Concluding remarks and looking forward

In light of the restrictive, inflexible and centralised PVP system, we urge national governments not to ratify the Arusha Protocol. Since so many important concepts and definitions are yet to be made, the Protocol and Regulations are in any event, not ripe for signature and ratification. Many of these concepts outlined above form an integral part of applications, interpretation and implementation of the Protocol and Regulations and point to the very heart of the legal framework. As it stands, the Arusha Protocol and Regulations will lock African countries into a UPOV 1991 system, to the detriment of their seed, agricultural and food systems, with no perceived or foreseeable benefit. Most ARIPO Member States are LDCs, many of which fought for leniency in the WTO-TRIPS, and should use the time and

12. http://www.apbrebes.org/news/draft-aripo-protocol-plant-varieties-whose-interest-does-it-serve

flexibility provided by the WTO to develop a PVP system that balances breeder and farmer rights.

The TRIPS Agreement provides flexibility for a sui generis system tailored to meet national interests and agricultural systems, and thereby meet WTO obligations while ensuring an equitable seed regime. The WTO does not prescribe a UPOV-like, one-sizefits-all model, developed to suit an already established European seed and agribusiness context. Instead ARIPO member states can follow the examples of India, Malaysia and Thailand, who have developed PVP systems that respond to their local agricultural context.<sup>13</sup>

When developing PVP laws, member states need to comply with the CBD, the Nagoya Protocol, the Cartagena Protocol, the ITPGRFA, and other international instruments to protect human rights. There are serious concerns that UPOV 1991 threatens the realisation and enjoyment of human rights. By restricting the use, exchange and sale of protected seeds, increasing seed prices, and reducing household income, the Protocol and Regulations may affect access to food, healthcare and education (Berne Declaration, 2015. It is strongly advised that governments conduct their own human rights impact assessment to understand the potential impacts and outcomes, prior to deciding to join a regional PVP system, or drafting national PVP laws. Before adopting the Protocol and throughout the process of developing laws to implement international obligations, it is essential to consult small-scale farmers, local and indigenous communities in making national PVP law.

It is recommended that all stakeholders deepen discussions on exemptions that may be incorporated into a PVP law to enable the development of an equitable seed system that caters for farmer managed seed systems. It is important that broad definitions are applied to "private and non-commercial" in order to provide full exemption to small holder farmers, the seed systems that are intricately connected to smallholder production, as well as to include the sale of surplus harvest in local markets, and thereby exclude these from the scope of the breeders' right. (De Jonge et al, 2015). Further to this, a differentiated approach across the formal and farmer managed systems may be considered, for different users and crops, based on a commercial threshold to prevent smallscale commercial farmers from being negatively affected by the Protocol . A differentiated approach could allow farmers the full right to operate, and the flexibility required to sustain farmer managed seed systems, while restrictive commercial regulations could be applicable to large-scale, commercial production (ACB., 2018., and Munyi et al, 2016).

Uncertainties remain as to the inherent contradictions and tensions that exist with the overlapping Arusha Protocol and SADC PVP Protocol, as well as national PVP systems. This may create disparities, and incongruent interpretations and implementations between countries, affecting the exercise of breeders' rights across borders (Munyi et al, 2016). The two instruments, which together make up 26 countries, do not even refer to each other. It would be useful for countries to refer to the African Model Legislation for the Protection of the Rights of Local Communities, Farmer and Breeders, and for the Regulation of Access to Biological Resources, endorsed by the Heads of the then Organisation of African Unity in 1998. Although this document has been somewhat overlooked and ignored, it still serves as a useful guiding document to ensure breeders' rights do not undermine farmers' rights, amongst others. As the majority of ARIPO member states are also members of the ITPGRFA, the ARIPO secretariat, should provide the full range of farmers' rights by ensuring transparent, and inclusive decision-making processes and promoting the participation of farmers and farmer organisations.

Strict and draconian PVP legislation is being indiscriminately thrust on African countries, most of whom are LDCs, whose seed and agricultural systems are based almost

13. See Correa, M., Shashikant, S., and Meienberg, F., 2015. Plant variety protection in developing countries: A tool for designing a sui generis plant variety system: An alternative to UPOV 1991. APREBES.

exclusively on farmer-managed seed systems, and many of whom have mega-biodiversity hotspots. With the significant impacts PVP laws may have on agricultural biodiversity, farmers' livelihoods, and food production, it is criminal and short-sighted that harmonised seed policies in Africa are taking the UPOV 1991 route.

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## Annex 1: draft list of agricultural and vegetable crops<sup>1</sup> I. Agricultural crops

Country	Agricultural crops (farmer-saved seed)	Acreage/ tonnage that defines a smallholder farmer in their territory (ha)	National Agricultural Centres that have capacities to undertake the examination of new varieties (DUS)
Botswana	Sorghum bicolor (Grain/ sweet sorghum) Vigna spp (Cowpeas, bambabra groundnut, etc.) Langeria spp Eleusine coracana (Finger millet) Pennisetum glacum (Pearl millet) Zea mays (Maize) Arachis hypogaea (Groundnut)	ffi16 (ploughed land)	Department of Agricultural Research
The Gambia		<3	The Seed Technology Unit (STU), National Agricultural Research Institute (NARI)
Ghana	Sesamum spp & Zea mays (Maize) Oryza sativa (Rice) Manihot esculenta (Cassava) Vigna unguiculata (Cowpea) Arachis hypogaea (Groundnut) Vigna subterranea (Bambara groundnut) Glycine max (Soyabean) Dioscorea spp. (Yam) Colocasia esculenta/Xanthosoma sagittifolium (Cocoyam) Ipomoea batatas (Sweet potato)	0.25 <0.80 <0.80 <0.80	CSIR-Crops Institute, Kumasi Savannah Agricultural Research Institute, Nyankpala Plant Genetic Resources Institute, Bunso
Kenya	Cereals Eleusine coracana (Finger millet) Pennisetum glacum (Pearl millet) Oryza sativa L. (Rice) Sorghum bicolor (L.) Moench. (Sorghum) Triticum spp. (Wheat) Pulses Phaseolus vulgaris L. (Beans) Vigna unguiculata (L.) Waip. (Cowpea) Dolichos lablab L. (Dolichos bean) Cajanus cajan (Pigeon pea) Oil crops Arachis hypogaea L. (Groundnut) Glycine max (L.) Merr. (Soyabean) Root and tuber Crops Solanum tuberosum (Irish potato) Manihot esculenta (Cassava)	3.0	Kenya Plant Health Inspectorate Service (KEPHIS)

1. These tables have been edited for consistency so that botanical names have been included throughout, and the botanical name also appears before the common or local name.

Country	Agricultural crops (farmer-saved seed)	Acreage/ tonnage that defines a smallholder farmer in their territory (ha)	National Agricultural Centres that have capacities to undertake the examination of new varieties (DUS)
Mozambique	Zea mays (Maize) Oryza sativa (Rice) Arachis hypogaea (Groundnut) Manihot esculenta (Cassava) Sorghum bicolor (L.) Moench. (Sorghum) Phaseolus vulgaris L. (Beans) Ipomoea batatas (Sweet potato)	10	None Specified
Namibia	Pennisetum glaucum (Pearl millet) Sorghum bicor (Sorghum) Zea Mays (Maize) Vigna unguiculata (Cowpea) Vigna subterranean (Bambara groundnuts) Arachis hypogaea (Groundnuts) Ipomea batatas (Sweet potato) Manihot esculenta (Cassava)	ffi5	None
Rwanda	<i>Glycine max</i> (Soyabean) <i>Arachis hypogaea</i> (Groundnuts) <i>Pisum sativum</i> (Peas)	<0.5	Rwanda Agriculture Board (RAB)
Sierra Leone	Sesamum indicum (Sesame) Oryza sativa (Rice) Ipomea batatas (Sweet potato) Phaseolus vulgaris L. (Beans) Zea Mays (Maize) Arachis hypogaea (Groundnut) Sorghum bicor (Sorghum) Manihot (Manioc) Vigna unguiculata (Cowpea) Pennisetum glacum (Pearl millet)	5	Sierra Leone Agricultural Research Institute (SLARI)
Swaziland	Zea Mays (Maize) Sorghum bicor (Sorghum) Oryza sativa (Rice) Phaseolus vulgaris L. (Beans) Arachis hypogaea (Groundnut) Vigna unguiculata (Cowpea) Vigna subterranea (Jugo beans) Cajanus cajan (Pigeon pea) Glycine max (Soyabean) Vigna mungo (Mung bean) Gossypium (Cotton) Ipomea batatas (Sweet potato) Manihot esculenta (Cassava) Cucurbita moschata (Pumpkin) Solanum tuberosum (Irish potato)	0.5 to 2 (Highveld regions) 5 to 10 (Lowveld region)	None Specified

Country	Agricultural crops (farmer-saved seed)	Acreage/ tonnage that defines a smallholder farmer in their territory (ha)	National Agricultural Centres that have capacities to undertake the examination of new varieties (DUS)
Zambia	Vigna unguiculata (Cowpea) Manihot esculenta (Cassava) Ipomea batatas (Sweet potato) Phaseolus vulgaris L. (Beans) Vigna subterranea (Bambara groundnut) Arachis hypogaea (Groundnut) Arachis hypogaea (Groundnut) Oryza sativa (Rice) Sorghum bicor (Sorghum) Pennisetum glacum (Pearl millet) Spathoglottis plicata (Ground orchid) Sesamum indicum (Sesame) Psophocarpus tetragonolobus (Winged bean) Vigna radiata (Green gram) Vigna mungo (Mung bean)	ffi5	Seed Control and Certification Institute, Zambia Agriculture Research Institute Cotton Development Trust (Cotton) University of Zambia
Zimbabwe	Vigna unguiculata (Cowpea) Manihot esculenta (Cassava) Ipomea batatas (Sweet potato) Phaseolus vulgaris L. (Beans) Cajanus cajan (Pigeon pea) Vigna subterranea (Bambara groundnut) Arachis hypogaea (Groundnut) Zea Mays (Maize) Sorghum bicor (Sorghum) Oryza sativa (Rice) Pennisetum glacum (Pearl millet) Spathoglottis plicata (Ground orchid) Sesamum indicum (Sesame) Psophocarpus tetragonolobus (Winged bean) Vigna radiata (Green gram) Vigna mungo (Mung bean)	ffiio	Department of Research and Specialist Services, Seed Services Institute The National Gene Bank Under the Ministry of Agriculture, Mechanisation and Irrigation Development: Crop Breeding Institute (CBI) - potatoes and legume crops Tobacco Research Board (TRB) - tobacco Cotton Research Institute - cotton Coffee Research Institute - coffee Zimbabwe Sugar Association Experimental Station (ZSAES) - sugarcane ArtFarm - vegetables and other crops except for tobacco, cotton and sugarcane Ratray Anorld Research Station - maize, wheat and soyabean

## II. Vegetables (Indigenous and Naturalised)

Country	Vegetable crops (farmer-saved seed)	Acreage/tonnage that defines a small holder farmer in their territory (ha)	National Agricultural Centres that have capacities to undertake the examination of new varieties (DUS)
Botswana	Amaranthus spp (Amaranth) Cleome spp (Spider plant) Corchorus spp (Jute mallow) Solanum panduriforme (E. Mey) (Poison apple) Solanum susymbriifolium (Lam) (Sticky nightshade) Acanthosicyos naudinianus (Sond.) (Gemsbok cucumber) Cucumis spp (C. Jeffrey) (Wild cucumber) Cucumis myriocarpus (Naudin) subsp. Myriocarpus (Striped cucumber) Citrullus lanatus (Melon)	ffi16 ha (of ploughed land)	Department of Agricultural Research
The Gambia	Solanum lycopersicum (Tomato) Capsicum frutescens (Hot pepper) Abelmoschus esculentus (Okra) Allium cepa (Onion) Lactuca sativa (Lettuce) Solanum melongena (Eggplant) Solanum aethiopicum (Bitter tomato) Allium cepa var. aggregatum (Shallot onion)	<3	The Seed Technology Unit (STU) of the National Agricultural Research Institute (NARI)
Ghana	Amaranthus spp – A. blitum (Purple amaranth) A. cruentus (Red amaranth) Celocia argentea (Cockscomb) Cleome gynandra (Spider plant) Crassocephalum spp; c. rubens (Yoruban bologi) C. crepidioides (Ebolo) Solanecio biafrae (Worowo) Cucumeropsos mannii (Egusi-itoo melon) Lagenaria siceraria (Egusi) Momordica charantia (Bitter melon) Solenostemon rotundifolius (Frafra potato) Abelmoschus caillei (Okra) Abelmoschus esculentus (Okra) Hibiscus spp. (Hibiscus) Sesamum spp & Cerathotheca spp (Sesame) Talinum fruticosum (Waterleaf) Solanum aethiopicum (Bitter tomato); S. macrocarpa (Cypress); S. Melongena (Eggplant); S. anguivi (Scarlet eggplant); S. torvum (Turkey berry) Corchorus olitorius (Jute mallow); C. tridens (Ayoyo) Asystasia spp (Violet) Vigna unguiculata (Cowpea) Arachis hypogaea (Cocoyam)	0.25 0.25 2.00 0.25 0.25 0.25 0.25 0.20 0.25 1.00 0.20 0.25 0.10 0.60 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.20 0.25 0.25	CSIR-Crops Institute, Kumasi Savannah Agricultural Research Institute, Nyankpala Plant Genetic Resources Institute, Bunso

Country	Vegetable crops (farmer-saved seed)	Acreage/tonnage that defines a small holder farmer in their territory (ha)	National Agricultural Centres that have capacities to undertake the examination of new varieties (DUS)
Kenya	Cleome gynandra (spider plant) Solanum nigrum (black night shade) Solanum villosum (African nightshade) Cucurbita maxima (Winter squash) Cucurbita moschata (Pumpkin leaves) Cucurbita pepo (Zucchini) Corchorus olitorius (Jute mallow) Vigna unguiculata (Cowpea) Crotalaria breviden/ ochroleuca s (Slenderleaf) Amaranthus hydridus (Pigweed) Solanum scabrum (Huckleberry) Basella alba (Malabar spinach) Commelina Africana (Wandering Jew) Ipomea batatas (Sweet potato) Manihot esculentum (Cassava) <b>Vegetables</b> Solanum nigrum (African nightshade) Cleome gynandra (Spider plant) Brassica oleracea (African kale)	2.5 0.1	Kenya Plant Health Inspectorate Service (KHEPHIS)
Mozambique	Allium cepa (Onion) Manihot esculenta (Cassava) Phaseolus vulgaris L. (Beans) Ipomoea batatas (Sweet potato)	10	
Namibia	Vigna unguiculata (Cowpea) Solanum lycopersicum var. cerasiforme (Cherry tomato) Citrullus lanatus (Watermelon) Cucumis melo (Melon) Cucurbita moschata (Pumpkin) Hibiscus spps (Hibiscus) Cleome spps (Spider plant) Amaranthus spps (Amaranth)	ffi5	None
Rwanda	Pisum sativum (Peas)	<0.5	Rwanda Agriculture Board (RAB)
Sierra Leone	Sesamum indicum (Sesame) Amaranthus spps (Amaranth) Solanum melongena (Eggplant) Ipomoea batatas (Sweet potato) Capsicum (Chilli; bell pepper) Phaseolus vulgaris L. (Beans) Citrullus lanatus (Watermelon) Solanum lycopersicum (Tomato) Vigna unguiculata (Cowpea)	5	Sierra Leone Agricultural Research Institute (SLARI)
Swaziland	<i>Cucurbita moschata</i> (Pumpkin) <i>Solanum tuberosum</i> (Irish potato) Other vegetables (e.g. Spinach, tomatoes)	0.5 to 2 (Highveld regions) 5 to 10 (Lowveld region)	

ZambiaAnorombus spps (Amaranth) Abelmoschus esculentus (Uka) Carchona othoriu (uke malow) Curubia moschus (Excupinis) (Curubia moschus (Excupinis) (Curubia moschus (Excupinis)) (Discus (Exist)) Bossias cannals (Ethorpian mustard) Moningo deligned (Homed metor) Solanum injerum (African ingitistade) Moningo deligned (Moningo) Solanum injerum (African ingitistade) Moningo deligned (Lowing a) Solanum injerum (African ingitistade) Moningo deligned (Curud orthid) Setamum induc (Sweet potato) Solanum injerum (African ingitistade) Moningo deligned (Lowing a) Solanum injerum (African ingitistade) Moningo deligned (Lowing a) Solanum induces (Lowing a) Carnotabia spirate (Lowing a) Solanum induces (Lowing a) Solanum induc	Country	Vegetable crops (farmer-saved seed)	Acreage/tonnage that defines a small holder farmer in their territory (ha)	National Agricultural Centres that have capacities to undertake the examination of new varieties (DUS)	
ZimbabweCorchorus tridens -derere Cleome spps (Spider plant) Amaranthus spinosa and hybridus (Pigweed) Bidens pilosa (Black mustard) Abelmoschus esculentus (Okra) Curcubita maxima (Muboora) Vigna unquculata (Munyemba) Amarathus hybridus (Mova guru) Amarathus hybridus (Mova guru) Amarathus hybridus (Mova) Bidens pilosa (Nhungunira) Corchorus olitorius (Nyenje/gusha)ffitoDepartment of Research and Specialist Services, Seed Services Institute The National Gene Bank Under the Ministry of Agriculture, Mechanisation and Irrigation Development: • Crop Breeding Institute (CBI) - potatoes and legume crops 	Zambia	Amaranthus spps (Amaranth) Abelmoschus esculentus (Okra) Corchorus olitorius (Jute mallow) Cucurbita moschata (Pumpkin) Hibiscus subdariffa (Roselle) Cleome spps (Spider plant) Vigna unguiculata (Cowpea) Bidens pilosa (Black jack) Brassica carinata (Ethiopian mustard) Manihot esculenta (Cassava) Ipomoea batatas (Sweet potato) Solanum nigrum (African nightshade) Moringa oleifera (Moringa) Solanum melongena (Eggplant) Phaseolus vulgaris L. (Beans) Cucumis metuliferns (Horned melon) Solanum lycopersicum (Tomato) Spathoglottis plicata (Ground orchid) Sesamum indicum (Sesame) Gynandropsis gynandca (Cat whiskers) Dioscorea hirtflora (Kanuka) Ceratohoca resamoides (Tindigoma) Psophocarpus tetragonolobus (Winged bean) Lablab purpureus (Lablab) Phaseolus lunatus (Lima bean) Canavalia spp (Jack- and sword-bean) Vigna mungo (Mung bean)	ffio.25	Seed Control and Certification Institute Zambia Agriculture Research Institute	
and soyabean	Zimbabwe	Corchorus tridens –derere Cleome spps (Spider plant) Amaranthus spinosa and hybridus (Pigweed) Bidens pilosa (Black jack) Brassica juncea (Black mustard) Abelmoschus esculentus (Okra) Curcubita maxima (Muboora) Vigna unquculata (Munyemba) Amarathus hybridus (Mova guru) Amarathus thumbergii (Mova) Bidens pilosa (Nhungunira) Corchorus olitorius (Nyenje/gusha)	ffiio	Department of Research and Specialist Services, Seed Services Institute The National Gene Bank Under the Ministry of Agriculture, Mechanisation and Irrigation Development: • Crop Breeding Institute (CBI) - potatoes and legume crops • Tobacco Research Board (TRB) - tobacco • Cotton Research Institute - cotton • Coffee Research Institute - coffee • Zimbabwe Sugar Association Experimental Station (ZSAES) - sugarcane • ArtFarm - vegetables and other crops except for tobacco, cotton and sugar cane • Ratray Anorld Research Station - maize, wheat and soyabean	

## Annex 2: Comparison between the SADC PVP Protocol and ARIPO's Arusha Protocol

	SADC PVP Protocol	Arusha Protocol
Approval and Adoption	Adopted by the 37th Ordinary Summit of Heads of States and Governments of SADC in Pretoria, South Africa, August 2017.	The Protocol was adopted by a Diplomatic Conference of ARIPO at Arusha, Tanzania, in July 2015.
	No Regulations developed to date.	The Regulations were adopted by ARIPO's Administrative Council in Malawi, November 2017.
Signatories	Angola, Democratic Republic of Congo, Eswatini, Namibia, and Zambia.	Ghana, the Gambia, Mozambique, São Tomé and Príncipe, and Tanzania.
Comes into force	When and while 2/3 ratify/ accede to the Protocol.	When 4 Countries ratify/ accede. So far none have ratified.
Members States	16 Member States: <b>Angola, Botswana,</b> <b>Comoros, DRC, Eswatini, Lesotho,</b> <b>Madagascar, Malawi, Mozambique,</b> Namibia, Seychelles, South Africa, Tanzania, Zambia, Zimbabwe.	19 Member States: <b>Botswana, The</b> Gambia, Ghana, Kenya, Eswatini, Lesotho, Malawi, Mozambique, Namibia, Sierra Leone, Liberia, Rwanda, São Tomé and Príncipe, Somalia, Sudan, Tanzania, Uganda, Zambia and Zimbabwe.
Member States that are LDCs	9	13
Member States that are members of the ITPGRFA	11	14
Objections	No provision or mechanism to enable Member States to object to a PBR from applying in its territory. Pre-grant objections by any person must be submitted within 60 days after an application for PBRs is being made (Article 22(2)).	Article 4(1) of the Protocol and Rule 12 of the Regulations, allows Contracting Parties to object to a PBR being extended to its territory, within 6 months from the date of the application for PBRs being filed. Provides 3 months for a pre-grant objection (Article 16) \$250 fee for objection (Rule 5(2)). The decision to prevent the PBR in a territory needs to be justified to the ARIPO PBR office (Rule 12(1)(a)(iii)).

	SADC PVP Protocol	Arusha Protocol
NDUS: Distinctiveness	<ul> <li>It must be clearly distinguishable from any variety that is a matter of common knowledge anywhere in the world. Further Article 9 (2) outlines factors for a variety to be of common knowledge such as:</li> <li>1. Exploitation of the propagating material or harvested material of the variety has already been marketed for commercial purposes;</li> <li>2. Entry of the variety in an official list or register of varieties in any SADC Member State or outside SADC Region or precisely described in any professional publication; or</li> <li>3. Inclusion of the variety in a publicly accessible plant varieties collection must include events that would not necessarily be known to the public, for instance the addition of a variety to a reference collection. It should also include any form of publication (not just limited to "professional" publication").</li> </ul>	If it is clearly distinguishable from any other variety whose existence is a matter of common knowledge at the time of filing the application. <b>No definitions of</b> <b>what is common knowledge.</b>
Duration of protection	25 years for trees and vines and 20 years for all other genera and species. It further states that the <b>Advisory Council may extend these</b> <b>periods by up to 5 years (optional 5-year</b> <b>extension)</b> (and thereby going beyond UPOV 1991).	25 years for trees and vines and 20 years for all other genera and species (Article 26).
Exceptions	Article 28 d) acts done by a farmer to save, use, sow, re-sow or exchange for non-commercial purposes his or her farm produce including seed of a protected variety, within reasonable limits subject to the safeguarding of the legitimate interests of the holder of the breeder's right.	Article 22(2) The limited farmer exception allowed by the Protocol is only for <b>agricultural crops specified by the</b> <b>Administrative Council on condition</b> <b>royalty is paid by the farmer to the</b> <b>breeder. Fruits, ornamentals, vegetables</b> <b>and forest trees are explicitly excluded</b> from the scope of the exception of the Protocol. Article 22(3) The conditions for the implementation of the provisions under paragraph (2), such as the different level of remuneration to be paid by small- and large-scale commercial farmers and the information to be provided by the farmer to the breeder, shall be stipulated in the regulations.
Disclosure of origin	Requires a declaration that parental, genetic material was obtained lawfully (Article 13(5) (e)), but does not ensure obligations to these other international agreements are met.	Rule 7 of the Regulations, which requires the applicant to provide, among other information, the source of genetic material used.
Protection of existing varieties	Article 40 allows for the granting of a PBR retrospectively to existing varieties, even if do not fulfill novelty criteria.	No provision.

	ARIPO	SADC	ITPGRFA	UPOV member (1978 or 1991)	WTO member	Least developed country designation	National PBRs law place
Angola		•	•		•	•	
Botswana	•	•			•		
Comoros		•		•*		•	
DR Congo		•	•		•	•	
Djibouti			•		•	•	
Eswatini	•	•	•		•		
Gambia	•				•	•	
Ghana	•		•		•		
Kenya	•		•	•***	•		•
Lesotho	•	•	•		•	•	
Liberia	•		•			•	
Madagascar		•	•		•	•	
Malawi	•	•	•		•	•	
Mauritius		•	•		•		
Mozambique	•	•			•	•	•
Namibia	•	•	•		•		
Rwanda	•		•		•	•	•
Sao Tome & Principe	•		•			•	
Sierra Leone		•	•		•	•	
Somalia	•					•	
South Africa		•		•**	•		•
Sudan	•		•			•	
Tanzania	•	•	•	•***	•	•	•
Uganda	•		•		•	•	•
Zambia	•	•	•		•	•	•
Zimbabwe	•	•	•		•		•
Total	18	16	20	4	21	18	8



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