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PROMOTING OPEN SOURCE SEED SYSTEMS FOR ENHANCED ACCESS AND AVAILABILITY OF SEED AND GERMPLASM





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Key message

The Open Source Seed (OSS) model is increasingly getting recognized and adopted in efforts aimed at enhancing availability and access to seed and plant genetic resources. In order to promote open source seed systems, the following recommendations have been made: (i) recognition and registration of farmers' varieties, (ii) enhancing the portfolio of varieties that can be shared under OSS, (iii) development of a policy framework that legally supports Farmers' Right to save, sell and exchange farm saved seeds, (iv) development of alternative funding mechanisms for plant breeding and (v) review of institutional mandates. Operationalization of OSS depends largely on national laws and it is therefore imperative that policy makers and other stakeholders recognize its importance and therefore develop favorable policy, legal and other supporting frameworks.

1. Introduction

The open source seed initiative was started in the USA in 2012 by a multidisciplinary team of breeders, farmers, policy makers and seed advocates. It is intended to ensure fair and open access to seeds and genetic resources by treating them as "common goods" thus enhancing their access and availability to different users. This initiative can be based on a moral call where seed and germplasm providers voluntarily pledge to make their seed and genetic resources openly and freely available, or it could involve entering into legally binding open source contracts (Louwaars, 2019). The OSS model is being advocated for mainly due to the impediments to seed access occasioned by the increased patenting of varieties including traits as well as other forms of intellectual property rights (IPRs).

2. Current policy and legal framework relevant to Open Source Seed Systems (OSSS)

The key policy and legal framework that is relevant to OSSS is the Constitution of Kenya 2010 (GOK, 2010) and the Seeds and Plant Variety Act (2012) (GOK, 2012). Article 11.3(b) of the Kenyan constitution provides that "the state shall recognize and protect the ownership of indigenous seeds and plant varieties, their genetic and diverse characteristics and their use by communities of Kenya". In line with this constitutional provision, an amendment was proposed in the Seeds and Plant Variety Act in 2016 to recognize indigenous seeds and their ownership by Kenyan

communities. If this amendment is enacted, together with the gazettment of its Regulations it will play a great role in facilitating access and use of genetic diversity which is important in supporting OSSS. It will ensure that Farmer' Rights to use and exchange indigenous seeds for their socio-economic development is well protected as envisaged in the Kenya Constitution 2010 (GOK, 2010) and International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).

3. Challenges on the implementation of Open Source Seed Model

3.1. Lack of framework on registration and protection of farmers' varieties

Farmer varieties have been developed through selection by farmers over the years. Due to this selection, combined with the natural evolutionary and adaptation processes that they are subjected to, majority of them have developed unique attributes. Although these varieties may be new and distinct, they are in most cases not stable and uniform, hence do not meet the distinctness, uniformity and stability (DUS) criteria set for the formal registration and release of varieties. The lack of representation of farmers in variety release committees denies farmers a voice in the variety registration process. Failure to provide a framework for registering farmer varieties greatly exposes them to the risk of misappropriation where they are illegally registered and protected. This is done without any regard to the immense contribution made by farmers in their development over the years. This contribution is also not recognized by UPOV

3.2. Lack of framework for access and secure exchange of plant genetic resources for food and agriculture

Although Kenya has an access and benefit sharing framework for plant genetic resources (PGR), it is yet to develop a legal framework for the domestication of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). The country therefore lacks a framework for the exchange of PGRFA covered under the Treaty. Of great relevance to OSSS is the domestication of Farmers' Rights to save, sell and exchange farm saved seed as enshrined in Article 9 of the Treaty. Although OSSS, whether implemented by pledge or a contract, should operate based on trust, cases of infringement will inevitably rise and should be addressed appropriately. Currently, Kenya lacks adequate capacity to identify, track and prosecute cases involving misappropriation of genetic resources.

3.3. Limited portfolio of seeds and varieties that can be legally shared under OSSS

While farmer varieties can readily be exchanged under OSSS, majority of the improved varieties are protected through intellectual property rights (IPRs) thus legally restricting their exchange by farmers. In order to enhance the effectiveness of OSSS, it is important that the varietal diversity available for exchange under this system is expanded. Kenya's plant variety protection system is

based on the UPOV convention which severely restricts the freedom of farmers to save, sell and exchange seeds of protected varieties. By criminalizing sale and exchange of farm saved seed, the Seeds and Plant Varieties Act acts as a great impediment to the operationalization of OSSS. The lack of an inventory on farmers' varieties presents a significant information gap on available varieties that can be exchanged under OSSS. The increased monopoly over seed particularly by large multinational seed companies denies common farmers the freedom to access and use seed which is their genetic heritage.

3.4. Inadequate Awareness on OSSS

Although the OSSS concept is increasingly being tested and adopted around the world, it is still new to Kenya. Currently, there is inadequate awareness among farmers, breeders, researchers, Civil Society Organizations (CSOs), NGOs and policy makers on its importance and how it works. It is still not clear on its legality particularly in the face of the existing legal and policy framework governing seed exchange in the country. In addition, issues of benefit sharing for example in the case where shared germplasm is commercialized are not well understood by various germplasm providers.

3.5. Overlapping and unclear institutional mandates

The key institutions with mandate on the conservation of plant genetic resources include Kenya Agricultural and Livestock Research Organization (KALRO), Kenya Wildlife Service (KWS), National Environment Management Authority (NEMA) and Kenya Forest Service (KFS). There is overlapping and unclear institutional mandates between some of these agencies. This is particularly regarding access to plant genetic resources which is critical in the implementation of OSSS. For example, there is lack of clarity on the role of NEMA and GeRRI in providing access to ex situ collections conserved at Genetic Resource Research Institute (GeRRI). In addition, GeRRI is established by two different legislations – Kenya Agricultural and Livestock Research Act, 2013 and Seed and Plant Variety Act, 2016 - thus creating some confusion on its legal existence. The institutional mandate concerning in situ conservation and regulating access to Plant Genetic Resources for Food and Agriculture (PGRFA) remains unclear and conflicting.

4. Policy recommendations

4.1. Recognition and registration of farmers' varieties

It is important to develop a favourable framework for the registration of farmer varieties involving a less stringent regime. There has been calls globally for governments to allow some flexibility in variety protection laws (Braunschweig et al., 2014). A differentiated system with

different registration requirements for landraces and released varieties has been proposed (De Jonge, B. 2013). This should provide an alternative and equivalent variety protection mechanism for farmers' varieties. Variety registration in Kenya is important as only released varieties can be legally traded in Kenya. Registration of farmer varieties will therefore open opportunities for their commercialization.

4.2. Enhancing the portfolio of varieties that can be shared under OSSS

The success of the OSSS model depends on the capacity to have unhindered access to a wide diversity of adapted and productive breeding and planting material. In order to address the information gap on available farmer varieties, there is need to undertake mapping and development of a comprehensive inventory of farmers' indigenous diversity and the communities who own it. It may be necessary to delink the variety registration process from the application and granting of plant breeders rights. In some cases, some breeders may wish to release and register new varieties but may have no interest in applying for variety protection. This may be motivated by the desire by breeders to ensure access by farmers to a wide variety of productive genotypes. In order to promote OSSS, breeders should be provided with incentives that encourage them to place their varieties under OSSS.

4.3. Development of a policy framework that legally supports Farmers' Rights

The OSSS initiative envisages a system where farmers have the freedom to save, sell and exchange seeds of varieties available under OSSS. The enforceability of OSSS licenses to a great extent depends on national laws (Louwaars, 2019) and it is therefore critically important that countries establish a favourable policy and legal framework. While some of the international policy frameworks such as the Nagoya protocol are consistent with the OSSS license (Kotschi and Horneburg, 2018), some national legal frameworks may not. In Kenya, exchange and sale of farm saved seeds of both protected and non-protected varieties is illegal. An attempt was made to amend the Seed and Plant Variety Act, Cap 326 to provide a framework for the domestication of the Plant Treaty. This process however stalled and the current review of the Seed policy provides an impetus to restart this process.

4.4. Development of alternative funding mechanisms for plant breeding

The purpose of IPRs is to support innovation. Plant breeding is a costly undertaking and even when it is publicly funded, public institutions still require the income obtained from royalties to support some of the breeding activities. In order to encourage placing of released varieties under OSSS without stifling breeding and other related innovations, there is need to develop alternative funding mechanisms that don't rely on royalties. Mobilization of funds from development partners to support public breeding programmes represents one such option.

4.5. Sensitization on the Open Source Seed Model

There is need for awareness creation among farmers, CSOs, NGOs policy makers and other stakeholders on the importance of OSSS and how it operates. In the case of policy makers, it is important to sensitize them on whether it can operate within the current policy and legal framework and how a more supportive framework can be developed. Breeders should be sensitized on the importance of placing their varieties under OSSS and the associated benefits.

4.6. Review of institutional mandates

There is need for a comprehensive and encompassing review and harmonization of policy and legal frameworks of the relevant Institutions. One of the recommendations that has been made in this regard is to separate the mandate for the management of PGR that are relevant to food and agriculture from that of general PGR. The mandate for management of PGRFA was to be bestowed to KALRO-GeRRI while that of the latter was to be retained at NEMA.

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