Background

Estimates suggest that 60%-80% of the seeds on which smallholder farmers in developing countries depend, is saved on-farm or obtained through so-called informal distribution channels (as opposed to formal channels regulated, monitored and sanctioned by government and the private seed sector). These include seed exchanges between farmers in the same or neighboring communities, traditional community exchange systems (e.g. labor for seed), seed donation and return practices of community seed banks, and local fresh food markets where often both grains and seeds are sold. This is seed that is largely farmer-managed, through activities such as sowing/planting, selecting (in the field before harvest or after harvest), storing, and regenerating. Women farmers play key roles in farmer-managed seed systems, as seed custodians and crop production managers (Photo 1).

This high level of seed autonomy among farmers masks the fact that, almost everywhere, local seed systems are under some form of stress (Subedi and Vernooy 2019). Many farming households have become more individualized in terms of decision-making and deployment of knowledge, labor, capital and seeds. Traditional seed exchange relationships have become weaker in many areas. Farming practices are becoming more market oriented, which has benefits and costs depending on local context. Large-scale rural-to-urban migration is contributing to a decline in farming in many countries or transforming small-scale family farming into contract farming. It is also leading to the feminization of agriculture, increasing the workload and responsibilities of women in many regions (Chhetri et al., 2020).
These trends are affecting local seed production, selection, storage, distribution, and exchange practices, for example, through substitution of local varieties with hybrids that can be easily purchased at markets or from agro-dealers. Climate change has begun to put additional pressure on farmer-managed seed and food production systems. Future impacts of climate change are expected to become more serious around the world, forcing farmers to change their practices and look for crops and varieties better adapted to new weather conditions.

**Resilient farmer-managed seed systems**

When supportive policy, legal and socioeconomic conditions exist – at local, district and national levels – a diversity of seed production and distribution practices, including farmer-managed practices (e.g. custodian farmers, seed saver groups, community seed banks, local seed businesses, farmer field schools, community-supported agriculture), makes up a resilient seed system. Such a system will contribute to greater food availability throughout the year, production of more nutritious and healthy crops, income generation and a sustainable resource base. A resilient seed system:

- Relies on the ability of seed system actors to absorb disturbances, regroup or reorganize, and adapt to stresses and changes caused by a perturbation in the environment
- Results from multiple seed and knowledge interactions and continuous learning among seed system actors and related institutions
- Is demand driven and responsive to different needs and interests, supporting all users and farming systems
- Recognizes, respects and supports the key roles played by women farmers as seed custodians, managers, networkers and entrepreneurs (Subedi and Vernooy, 2019).

The question is if indeed such supportive policy, legal and socioeconomic conditions exist at various levels.

**Purpose of the review study**

To find an answer to this question, we carried out a review study under the umbrella of the Theme 3 on “Agrobiodiversity, seeds and climate change” of the Integrated Seed Sector Development (ISSD) Africa project (2019-2022) (https://issdafrika.org/). The review compiled and analyzed recent (in the last ten years) changes in policies, laws and regulations directly related to seed systems that contribute to the (further) development of resilient farmer seed systems – at local, district or national levels – (approved or in the process of being approved by national, district or local authorities), in 14 selected African countries in central, east, west and southern Africa: Benin, Burkina Faso, Burundi, Ghana, Kenya, Malawi, Mali, Namibia, Nigeria, South Africa, Tanzania, Uganda, Zambia and Zimbabwe (for the full-length review report, see Vernooy et al. 2023).

The main question addressed is how do (seed) related policies and laws impact on farmer seed systems, in particular on these dimensions: access, availability, quality, price, diversity, safety, adaptability, longevity, nutrition and health, and social and spiritual values. Additional questions are:

- Is there any form of practical support for farmers’ seed systems, i.e., recognition, appreciation (valuation), political/technical/organizational/financial support or incentives? (Photo 2)
- If not, are there any recent examples of revisions of policies and laws underway that put farmers’ seed systems central to national seed sector development?
- What are the most important farmers’ seed systems issues addressed in these revisions?
Overall assessment: lack of recognition of and support for farmer-managed seed systems

Table 1 presents the overall assessment of seed-related policies and laws, based on eight dimensions: acknowledgement of the existence of diverse farming/seed systems; recognition of farmer-managed seed systems’ roles; support for farmer-managed seed systems; recognition of and support for community seed banks; recognition of and support for local seed businesses; alternative variety registration system; referral to farmers’ rights regarding seeds; and recognition of and support for roles of women in agriculture/seed systems.

Although most of the seed-related policies and laws reviewed acknowledge that farmer-managed seed systems exist, the 14 country reviews together do not offer many positive results related to recognition of and concrete support for farmer-managed seed systems (policy, legal, technical, operational, and financial support). For the most part, the seed-related policies and laws that have been or are being developed across the 14 countries in western, eastern, and southern Africa do not describe the roles and contributions nor express the value of farmer-managed seed systems as part of the national seed sector. Minor exceptions are Mali, Uganda, Zimbabwe, and to a lesser extent Nigeria and Zambia. In Mali, there is some recognition of the roles of farmer-managed seed systems, including the functions of conservation, improvement, and provision of plant genetic resources. In recent years a more supportive environment has emerged in Uganda, with attention paid to the importance of farmer varieties. In Zimbabwe, a more supportive environment has been in place for some time, with acknowledgement of the role and value of indigenous seeds. Nigeria has recently embraced the notion of a pluralistic seed sector and Zambia has some recognition of farmer-managed seed systems. These findings do not substantially differ from those of an earlier review of African seed laws, which was narrower in scope but broader in geographic coverage (all African countries were included; Herpers et al., 2017), indicating little improvement.
<table>
<thead>
<tr>
<th>Country</th>
<th>Acknowledgement of existence of diverse farming/seed systems</th>
<th>Recognition of farmer-managed seed systems’ roles</th>
<th>Support for farmer-managed seed systems</th>
<th>Recognition of and support for community seed banks</th>
<th>Recognition of and support for local seed businesses</th>
<th>Alternative variety registration system</th>
<th>Referral to farmers’ rights regarding seeds</th>
<th>Recognition of and support for roles of women in agriculture/seed systems</th>
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</table>

QDS: Quality declared seed
Detailed assessment

The predominant narrative does not seriously address the roles of farmer-managed seed systems (Box 1); consideration is fleeting or negative, and directs these systems to “modernize” and become commercial. Although farmers across Africa continue to rely heavily on seed of farmers’ varieties and farmers in many countries have successfully improved these varieties, seed-related policies and laws continue to ignore this. The development potential of improved farmer varieties is hindered by this lack of recognition and support.

There has been some improvement in recognition of and support for community seed banks in recent years. Community seed banks have gained recognition from the government in South Africa, Uganda, Zambia and, to some degree, in Zimbabwe. Through the operations of national plant genetic resource units—PGRC in Uganda and South Africa, and the National Gene Bank under the Zambia Agricultural Research Institute in Zambia—community seed banking is receiving institutional (organizational, technical, and financial) support. In Zimbabwe, community seed banking receives technical support from the National Gene Bank and governmental crop research units as part of a collaborative agreement with the Community Technology Development Organisation (CTDO), the champion NGO of national community seed banking. CTDO currently supports 14 community seed banks. However, community seed banks have not obtained legal status in any of these countries. This seriously hinders further development, e.g., being able to open a bank account, prepare and present proposals, and apply for government or international support (Box 2). In Kenya, formal collaboration between the National Gene Bank and community seed banks and seed savers (led by the Seed Savers Network of Kenya) is incipient, with first meetings held and joint activities organized in 2021 and 2022.

Box 1: Resilient food systems require resilient seed systems

Well-functioning farmer-managed seed systems can be resilient and contribute to resilient food systems (Subedi and Vernooy 2019) by:

- Ensuring access to seeds in terms of preference, affordability, and temporal availability;
- Ensuring availability in terms of production and distribution;
- Guaranteeing seed quality in terms of adaptability, safety, and longevity;
- Guaranteeing seed choice and diversity;
- Producing crops which underpin a healthy diet; and
- Recognizing and respecting seed as social and spiritual capital.

Box 2: Empowering community seed banks

Community seed banks could be empowered to serve as coordinating or nodal platforms bringing together farmers, plant breeders, gene bank managers, and others, thereby becoming integral parts of national conservation systems (Vernooy et al., 2015). This would require:

- Legitimization of community seed banks as local organizations for the conservation of agricultural biodiversity, organization of seed fairs, participatory seed exchanges, and community seed production and distribution;
- Support for the conservation and revival of existing varieties by providing access to and improving availability of rare and unique local varieties;
- Support for participatory varietal selection to generate added value for cultivation and use of existing varieties; and
- Support for participatory plant breeding to develop new varieties and provide options for access to new diversity to cope with adversity and strengthen farmers’ skills in selection.
Support for local seed business development is more common—including for the last decade in Uganda, through the Integrated Seed Sector Development program funded by the government of the Netherlands (Photo 4). Local seed business development support includes the use of Quality Declared Seed (QDS) in Tanzania, Uganda, and Zambia. However, QDS in these countries does not include unregistered farmers’ varieties of either local or improved types (e.g., developed through participatory variety selection or participatory plant breeding). This represents a huge development gap and a missed opportunity to recognize and reward the value of local varieties and the contributions of farmers and their organizations (e.g., community seed banks) to seed conservation, sustainable use, and improvement (Box 3; see also De Jonge et al., 2021; Vernooy et al., 2022).

Seed-related policies and laws in all the countries assessed do not explicitly refer to farmers’ rights as described in Article 9 of the International Treaty on Plant Genetic Resources for Food and Agriculture, to which 12 of the 14 countries are members. National implementation of farmers’ rights remains a major task. In Zimbabwe, CTDO has led a process to “domesticate” (their own term) farmers’ rights. Some progress has been made in recent years through active engagement with government agencies, e.g., in drafting access and benefit sharing regulations, a review of legislation concerning the conservation and sustainable use of biodiversity, and, most promisingly, work on a Farmers’ Rights policy and law. Zimbabwe is the only country among the 14 where this is happening. Concerning gender and women’s empowerment, there is some attention paid to the roles of women in agriculture at large and several women-centered initiatives have been designed in 11 of the 14 countries (Photo 5). However, the

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**Box 3: Supporting farmer-led seed production and marketing**

Viable seed enterprising requires (Vernooy et al., 2022):

- Sustained demand for quality seed, fueled by high demand for farmer produce, and/or support for farmer- and community-based seed development;
- Availability of improved varieties from public sector breeding programs;
- Technical skills (seed production, conditioning, quality control, and certification), entrepreneurship (planning, management, monitoring, networking, accounting) and institutional capacities (design, review, implementation, and monitoring of policies and laws);
- Ownership and recognition of the roles of women and profitability;
- Connections with the formal seed, seed conservation, and plant breeding sectors;
- Access to affordable support services, e.g., extension, credit;
- Effective communications, appealing branding, and agile marketing; and
- Conducive agricultural and seed policy environment that is supportive of the nature and scale of the seed enterprise envisaged. This includes recognition of farmers’ privilege (the right to save, exchange, and sell seed, including commercial varieties) for farmer-based seed enterprises, support for privatization and commercialization of agricultural services, and the recognition of plant breeders’ rights. It will require novel seed quality control criteria and procedures, and novel variety registration criteria and procedures that recognize and reward responsible seed stewardship.

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**Photo 4:** One of the fields of the Quality Declared Seed producer group (common beans) Imutinta Owa Ruhira Farmers Cooperative Society Ltd., Uganda. **Credit:** Bioversity International/R. Vernooy
overall assessment is that effective implementation is largely absent. Only Mali pays specific attention to the roles of women in seed systems.

**Country review: Snapshots**

Notable elements of some of the 14 national reviews are described below.

**From the Ghana review:** Ghana’s seed policy recognizes the informal seed sector and the community-based seed system. However, all improvement efforts have focused on the formal seed sector. Project 9 in the National Seed Plan aims to support the informal seed sector to become more useful as a source of quality seeds to the majority of farmers who depend on it, to systematically strengthen linkages with the formal sector, and contribute to national seed industry growth. This intervention led to the hybrid seed system, where farmers are supported with foundation seeds and other inputs to multiply and distribute to other farmers in their communities. However, the passing of the Plant Variety Protection Bill has constrained farmer-based systems as it bans local farmers from multiplying and distributing improved seeds. The Plants and Fertilizer Act also criminalized the sale of seeds without appropriate labels and packaging, thereby rendering the farmer-based seed exchange and sale system illegal.

**From the Mali review:** Mali’s current seed policy focuses more on the formal than the informal seed system. However, Article 51 of the Agricultural Orientation Law provides for food sovereignty as part of national agricultural development policy. Thus, the State recognizes past, present, and future contributions of Malian peasants to the conservation, improvement, and provision of the agricultural and food plant genetic resources necessary to achieve food sovereignty. Farmer-managed seed systems will be recognized and supported to enable farmers to maintain, improve, and sustainably use plant genetic resources, knowledge, and innovations. In 2011, the government passed its National Gender Policy to address issues faced by women when accessing the seed system. The policy states that all women must have access to seed resources for agricultural commodity production nationwide, but implementation has been slow and is poorly monitored.

**From the Nigeria review:** The National Seed Policy contains a provision giving farmers the right to use, exchange, and share or sell their farm-saved seeds among themselves without restrictions. Local seed producers help to supply seeds for crops that are not in mainstream seed production programs. Farmers’ rights are protected under the National Seed Policy (2014), which has given local farmer groups the impetus to improve community-based seed production.

**From the South Africa review:** The government of South Africa, through the Department of Agriculture, Land Reform, and Rural Development (formerly the Department of Agriculture, Forestry, and Fisheries, DAFF), in collaboration with the Alliance of Bioversity International and CIAT, established three community seed banks in South Africa, which resulted in:

- Training staff of the National Plant Genetic Resources Centre (NPGRC) under DAFF—who were responsible for the initiative’s implementation—in effective and efficient technical and organizational aspects of community seed bank management;
- Increased access to and availability of diverse, good quality seed, and exchanges of knowledge and seed among community seed banks and between the NPGRC and community seed banks. The overall aim is to scale these community seed banks in the coming years and set up several more, eventually forming a network across the country.

**From the Tanzania review:** Tanzania’s legal and policy landscape for the agricultural sector has progressively incorporated a gender dimension, although with varying levels of responsiveness. There has been inadequate implementation of laws and policies that uphold and protect women’s rights and gender equality. Sex- and gender-disaggregated data that would facilitate a better
understanding of women’s issues and processes of gender inequality in Tanzania and would provide a foundation for the development of evidence-based policies, programs, and projects are lacking. Appropriate disaggregated data could underpin a rigorous monitoring and evaluation framework capable of demonstrating results that are necessary to argue for the inclusion of gender-responsive planning, budgeting, and implementation.

From the Uganda review: The National Seed Policy recognizes the informal seed sector as a source of seed and planting materials. Cognizant of this fact, the Government of Uganda has put in place strategies to enhance the informal seed system and transform it into a viable commercial sector through farmer-led seed entrepreneurs. The policy provides for seed-producing groups to transition to the formal system through registration of their businesses or associations and formal listing of varieties with which they deal. This provision has enabled some community seed banks to produce seed for commercial purposes under the QDS system, after registration as local seed businesses. For QDS production, the varieties must be on the National Varieties Register; landraces or improved landraces held by community seed banks are currently not on this registry.

From the Zambia review: Zambia’s Seventh National Development Plan (2017) notes the importance of the informal farmer-managed seed sector in support of its aim of creating a “diversified and resilient economy for sustained growth and socioeconomic transformation.” Quality control is subsidized by the government, allowing small-scale seed producer associations to access testing facilities. The Seed Control and Certification Institute, under the Ministry of Agriculture and Livestock, provides capacity building services to seed companies and seed producer associations. Local seed businesses are promoted and emerge from community-based systems.

From the Zimbabwe review: Indigenous farmer systems are promoted under the National Agriculture Policy Framework (NAPF) that is currently being implemented. This is aided by the Strategic Initiative that recognizes the need to “strengthen seed selection, seed preservation, and storage of farmers’ indigenous seeds.” The Agriculture and Food Systems Transformation Strategy promotes the production, certification, marketing, and trading of farmer-managed seeds. The Seed Services Directorate of the Department of Research and Specialist Services provides inspection services for a minimal fee to farmers producing seed. CTDO engaged the National Gene Bank of Zimbabwe to train project staff, Agritex (extension) officers, and community seed bank committees on germplasm collection, storage, and on how to receive or request materials from the National Gene Bank. In addition to promoting their adoption, the Government includes farmer-produced seed in Government programs, such as the Climate Proofed Presidential Inputs Programme (Pfumvudza). These programs provide small grains seed such as cowpea and sorghum among others. These programs create market for the farmer-managed seeds and hence encourage their production.

Photo 6: Agricultural students learn about Ghana’s crop diversity at a seed fair (Mangoase community). Credit: Bioversity International/R. Vernooy
Positive examples from practice that could inform policy and legal revisions

Despite the negative overall situation concerning seed-related policies and laws, all 14 countries have one or more initiatives in support of farmer-managed seed systems. These feature the active involvement of civil society organizations, sometimes in collaboration with government agencies, universities and training centers, and international organizations (NGOs, CGIAR Research Centers, UN agencies). The initiatives use a variety of methods to advance smallholder farmers’ interests in seed and agriculture more broadly and deserve much more recognition and support (Greenberg et al., 2021). They can inspire revisions of policies and laws toward a more supportive environment for farmer-managed seed systems, as they concern key elements of resiliency in such systems. The initiatives include:

- Policy analysis and advocacy, working with smallholder farmers and their organizations to influence seed-related policies and laws at national or subnational levels (e.g., on alternative farmer variety certification and registration systems/procedures, see De Jonge et al., 2021);
- Policy analysis and advocacy to advance gender inclusion and women’s interests and empowerment in agriculture and rural development, and resilient seed systems in particular;
- Distribution of quality seed (promising varieties, advanced lines) to farmers for evaluation, multiplication, or production (e.g., different forms of participatory variety testing; but also, through emergency seed aid that delivers crops and varieties that respond to farmers’ interests and needs);
- Capacity building for smallholder farmers on quality seed conservation, multiplication, and distribution/marketing (when allowed);
- Empowering smallholder farmers in local seed business development (e.g., training in QDS production and marketing);
- Carrying out research on seed management (e.g., use of new conservation technologies and practices);
- Building linkages between seed-related government institutions and smallholder farmers (e.g., collaboration between national gene banks and community seed banks, Photo 7) and facilitating farmer-to-farmer knowledge and seed sharing (e.g., seed web platform for seed exchanges in Kenya, national platform for community seed banks in Uganda).
The Alliance is part of CGIAR, the world's largest agricultural research and innovation partnership for a food-secure future dedicated to reducing poverty, enhancing food and nutrition security, and improving natural resources.

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References


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