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FARMERS' SEED SOVEREIGNTY IS UNDER THREAT

THE EXAMPLE OF TANZANIA: NO RELIABLE ACCESS FOR THE FARMER-MANAGED AGRICULTURAL SECTOR TO QUALITY SEED

Seed is the foundation of agriculture: without seed there can be no agriculture and hence no food for human survival. There are two types of seed systems in Tanzania: (formal) commercial systems, and (informal) farmer-managed systems. The commercial system consists of certified seed, standard seed and quality declared seed. The farmer-managed system consists of community seed management, farmer saved- and farmer-to-farmer seed. The two systems are faced with challenges that compromise the ability of smallholder farmers to gain reliable and adequate access to quality seed. There are concerns with regards to the government's proposals to revise seed legislation. Moreover, seed sovereignty in Tanzania can only be achieved if smallholder farmers, who provide over 80 per cent of the country's seed requirements, are placed at the centre of decisions on seed systems and policies.

Agriculture is the principal source of livelihood for the Tanzanian population.[1] It provides livelihoods to over 70 per cent of Tanzania's population, accounts for about 24 per cent of national GDP and 30 per cent of total exports.[2] Agriculture is dominated by smallholder farmers cultivating average sizes of between 0.9 and 3.0 hectares. Food crop production dominates the agricultural economy, occupying 85 per cent of cultivated area annually.[3] In addition smallholder farmers make up over 99 per cent of the five million farms in Tanzania.

Seed is the foundation of agriculture: without seed there can be no agriculture, and hence no food for human beings or for the survival of other creatures. The most cost-effective ways of achieving advances in crop production and productivity involve the use of good quality seed. This seed needs to come from adapted and improved varieties that have been bred by agricultural research institutions and selected by farmers. It also needs to be supported by other environmentally friendly inputs and appropriate cultural practices. Therefore, it is essential that sufficient quantities of seed are available at the right time of year and that they are of adequate genetic and physical quality. Tanzania has a wide diversity of crops ranging from vegetables and spices to industrial and food crops, and this also places specific requirements on seed. Unfortunately, Tanzania's seed industry is still developing and has a long way to go before it will be able to meet the country's seed requirements. There are two types of seed systems in Tanzania that farmers depend on for their seed supply.

The commercial (or formal) seed system is the one recognized and supported by the government. It mainly consists of public agricultural variety development and early generation seed production, certified seed multiplication by public and private seed companies, marketing by registered agro-dealers and agricultural offices and standard seeds, which are 'emergency seeds' authorized for use by the Ministry of Agriculture. The private sector concentrates on local hybrid and open pollinated variety (OPV) maize and limited amounts of a few commercial crops such as sunflowers, sesame, sorghum, beans and vegetables. The public sector concentrates on less profitable crops such as millet, rice and cowpeas. Production by the private sector is primarily through contract farmers. Out of the 120,000 tons of seeds required annually, the formal seed system makes available between 10,000 and 15,000 tons of which only about 4,000 tons are produced locally; the balance is imported by multinational companies.[4]

The formal seed system also consists of a quality declared seed (QDS) system which permits the local production and sale of seed – mainly of non-commercial crops – with relatively little regulation. QDS is produced by registered and trained small-scale farmers or groups of such farmers producing seed for their own use or for sale to neighbouring farmers. Therefore, any farmer who wishes to become a QDS dealer must submit an application to the Tanzanian Official Seed Certification Institute (TOSCI). In Tanzania only open pollinated varieties that are on the official national

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variety list can be produced under QDS. After a QDS producer has been trained in QDS production of a specific crop, he/she can decide to produce seed from additional crops or varieties at his/her own risk, if the market exists.

Authorized District Seed Inspectors carry out seed inspections and the literature shows that a minimum of 10 per cent of a district's registered QDS production is inspected by TOSCI.[5] The 2013/14 data show that only 354 metric tons of QDS were produced by smallholder farmers countrywide. QDS aims to address the key gap area between the formal seed sector and small-scale farmers, with quality declared seed sold at affordable prices that are generally much lower than certified seed. There are a number of advantages of promoting the QDS system: it enables smallholder farmers to choose crops for their markets and target areas where certified seed is not available. Farmers are introduced to new varieties and/or new market opportunities through demonstrations. Furthermore, they choose their varietal preferences and are introduced to new technologies when they use quality seed needed for stable crop production and food security. All farmers in the QDS production area are in good contact with other stakeholders in the seed chain including wholesalers and grain buyers. The QDS system is important for the seed trade because it facilitates the development of farmers' wider knowledge and demand for different varieties and good seed quality. QDS production also offers female farmers good possibilities to start up small businesses.

The second form of seed system is the farmer-managed (or informal) seed system. This type of seed system is complex and has rich connections and linkages with food security, ecology, poverty reduction, resilience and food sovereignty. It includes community seed management, a process by which seed is produced and exchanged or otherwise distributed, not for profit, but to provide farmers with access to new or lost varieties that have been saved by the community. Community-based seed multiplication exists for many important crops including sesame, groundnuts, sorghum, cowpeas, pigeon pea, maize, green gram, rice and cassava. Another related informal seed system is the farmer-saved seed system. This is the most basic system and a major source of seed for producers in Tanzania. Traditionally, smallholder farmers have freely produced, shared, saved and replanted seeds. This practice has ensured the conservation and propagation of indigenous seed, while at the same time strengthening the cultural and social fabric of the community. Over the millennia, farmers have developed a wealth of distinctive varieties of crops by selecting and replanting seeds and cuttings from uniquely favourable individual plants – perhaps plants that matured slightly sooner than others were unusually resistant to pests, or possessed a distinctive colour or taste. Subsistence farmers have always been acutely attentive to such varietal diversity because it helped them cope with variability in their environment, and farmers have developed many varieties, or "landraces", for most major crops.

Closely related to the farmer-saved system is the farmer-to-farmer system, in which individual farmers exchange or sell farm-saved seed to each other. This system is based on transactions between individual farmers in the vicinity, with no or limited focus on profit by the seed provider. However, in practice, this seed is not necessarily given out for free but often bartered against other products; in some cases it is sold. The farmer-to-farmer seed system is important for all crops, but plays a dominant role in food crops that are predominantly cultivated by women, who are then also responsible for seed supply.

The farmer-saved and farmer-to-farmer seed systems have strong advantages. These systems ensure the availability of affordable seed at the right time, and respond to local demands for new or farmer-preferred varieties. In the farmer-saved system, the producers know exactly what they get. To some extent, this is also an advantage of the farmer-to-farmer seed system, since farmers can observe the performance of neighbouring crops before engaging in farmer-to-farmer transactions. These transactions are often triggered by a farmer's introduction of a new variety or his/her cultivation of a variety that is not otherwise readily available in the community. However, because farmer-to-farmer seed transactions are triggered by an immediate and urgent need for seed resulting from crop or seed-stock loss, the seed's quality and landrace are often unknown to the buyer. However, the strengths of these systems – affordability, availability and timeliness – are so important that it would be erroneous to conclude that they only exist because of the lack of an effective formal commercial seed sector.

CURRENT CHALLENGES TO THE SEED SECTOR

The two seed systems are faced with challenges that need to be addressed to secure the country has a sustainable supply of seed. The formal seed system faces a number of difficulties, including breeders lacking the funds to adequately carry out breeding and maintenance of germplasm, variety maintenance and breeder seed production. Charges by TOSCI for certification, regulation and variety registration are costly for breeders and hence increase the costs of seeds to smallholder farmers. TOSCI also faces financial, human and infrastructural constraints that compromise the efficiency and effective delivery of its services. The contract farmers who supply seed companies with certified seeds do not have reliable access to finance and credit in the form of loans or grants to purchase irrigation equipment and other inputs. The coverage of agro-dealers in seed distribution in some rural areas is poor, resulting in the limited use of certified seeds by a large proportion of the population. As with other countries, there are also problems with adulterated inputs, which in turn undermine farmers' trust in agro-dealers and the use of agro-inputs. Seed adulteration ("fake seed") with grain by some agro-dealers is a serious problem and the regulatory system has not adequately addressed the issue. In some instances, original packaging has even been copied for the production of fake seed.

Although QDS is legally recognized, regulation restricts its marketing within the ward where it was produced. In addition, it also has to be multiplied from formally registered varieties. These requirements hinder seed multipliers who aim to respond to an increasing local demand for quality seed and develop viable local seed businesses.

The informal seed system has tied communities together helping them to preserve their culture and ensure food security and sovereignty. Today, this system continues to supply seed, yet the rich knowledge associated with the informal seed system is increasingly coming under threat, not just in Tanzania but globally. In the first instance, factors such as droughts, crop failure, difficult storage conditions and poverty have eroded both the quantity of seed and number of plant varieties available to farmers. Second, as a result of agricultural modernization, farmers are increasingly purchasing a bigger part of their seed requirements. This does not only

mean that local seed storage could become less important, but as this bought-in seed replaces older, local varieties, these varieties become increasingly unavailable. This is confounded by a loss of traditional seed varieties, low quality seed caused by poor handling, a lack of seed technological knowledge and inadequate enforcement of seed-related legislation.

The lack of recognition for informally produced seed means that the informal seed system, which accounts for over 80 percent of the seed used in the country, is neither officially recognized nor supported through policy and regulatory frameworks. Instead, the focus is on the commercialization of agriculture, and the provision of a conducive policy environment for foreign direct investment in seed breeding and distribution. Failure to recognize and support the informal seed system compromises rich agricultural biodiversity. Agrobiodiversity results from interactions between the environment, genetic resources and the management systems used by culturally diverse people, and these interactions are reflected in the different ways in which land and water resources are used for production.[6] Agrobiodiversity therefore encompasses the variety and variability that is needed to sustain key functions of food production and food security.

The onset of corporate interests in the seed sector, the diminishing role of government in safeguarding or strengthening local farmers' seed security systems and the loss of indigenous seeds is putting farmers' livelihoods at stake. Local agricultural researchers have become trapped in formal seed systems to the detriment of informal seed systems which constitute the major source of their research material. Local researchers, probably due to the influence of multinational seed companies, have begun pushing for a conducive environment for the introduction and distribution of genetically engineered crops. A number of studies undertaken by independent scientists have shown that these crops are linked to environmental, health and marketing concerns. In addition, there is an assumption that external seed is healthier, despite the fact that external seed requires high external inputs to perform well. This increases production costs and puts this seed out of the reach of small-scale farmers. Likewise, indigenous knowledge and the farming systems used by smallholder farmers have played a critical role in the protection of biodiversity in Tanzania. These are all at risk now.

CHANGES DRIVEN BY POLITICAL AND ECONOMIC FORCES

Farmers' seed sovereignty is under threat from changes to national legislation. In 2012, Tanzania adopted the Plant Breeders Rights Act (PBR), which complies with the International Union for the Protection of New Varieties of Plants (UPOV). The PBR is designed to protect the interests and intellectual property rights of large-scale commercial seed companies, which are keen to penetrate the African market with hybrid and genetically-modified seeds. These companies are also supported by leading governments under the G8 New Alliance for Food Security and Nutrition. In the case of PBR protected varieties, the changes criminalize traditional farmers' practice of breeding, saving and exchanging seeds. The government has also produced a draft PBR document that has been discussed by stakeholders. Like the PBR regulations, the draft guidelines criminalize farmers who use protected varieties. It should be remembered that the breeders obtained the seed for their research from the farming communities, and that these selected the seed over a period of many years. It is shocking to find that farmers are now being prohibited from using protected varieties unless they have permission from the breeders. Tanzania is a member of the G8 New Alliance for Food Security and Nutrition and it is interpreted as a showcase for public-private partnerships in agricultural growth, a point exemplified by the development of the Southern Agricultural Growth Corridor (SAGCOT). This strategic investment blueprint is viewed as a model of inclusive and strategic collaboration between government, donors and the private sector. Together, the government of Tanzania and the G8 members have committed themselves to the New Alliance and are working together to generate greater private investment in agricultural development, scale innovation, achieve sustainable food security outcomes, reduce poverty and end hunger. In so doing, Tanzania has also committed itself to developing and implementing domestic and regional seed and other input policies that encourage greater private sector participation in the production, marketing and trade in seeds and other inputs. Consequently, Tanzania is in the process of revising its 2003 Seed Act in accordance with the system devised by the International Union for the Protection of New Varieties of Plants (UPOV). By creating laws to provide incentives to companies to develop high-yielding varieties of seeds, these laws hand over the control of seeds and by proxy the country's seed system to seed corporations that are then free to exploit farmers by gradually replacing traditional seed with a uniform and limited number of commercial products that cannot be saved or traded. This control of the seed system by a handful of companies will be disastrous for small-scale farmers and the biological diversity that traditional seed varieties uphold in Tanzania.

The draft Seed Act disadvantages the informal farmer-saved seed system. Section 14 (6) of the Seed Act, which prohibits the sale of uncertified seeds, could have implications for smallholder farmers as they engage at the local level in selling and exchanging their own varieties that are not certified. Farmers who sell uncertified seed are to be fined between 100 and 500 million Tanzanian Shillings (50,000 to 250,000 EUR) or imprisoned for a period of between 5 and 12 years. Although Tanzania is not a member of COMESA, the harmonization of seed legislation in this regional economic bloc is influencing the revision of the respective legislation in Tanzania. This is because some COMESA members such as Kenya and Uganda have strong economic ties with Tanzania. COMESA has recently harmonized its seed legislation leading to laws on seed certification and cross border trade, seed phytosanitary regulations, seed testing and varietal release. The newly passed COMESA laws have a provision that once a variety has been released in two of the 19 member states, then that variety automatically becomes listed across the region. It is significant that there is another process behind this one that seeks to harmonize biosafety laws across the region, beginning in the East African community. The parallel process of enacting harmonized seed and biosafety laws across the region and across different trading blocs such as the SADC, the East African Community and COMESA, is a clever attempt to ensure that no countries in Eastern and Southern Africa escape from becoming UPOV 1991 compliant.

The government criticizes smallholder farmers for their continual use of so-called 'unimproved' seed in agriculture which it claims leads to low productivity. This criticism leads farmers to feel responsible for the poverty that afflicts them. Poverty is viewed as resulting from traditional and subsist-

ence agriculture, with local seeds being their major inputs. The government insists that a key ingredient to increased agricultural productivity and production is farmer access to inputs, and high-quality seed from superior varieties in particular. The importance of enhancing smallholder farmers' access to high-quality seed and the role that this can play in raising productivity of Tanzanian agriculture is highlighted in policy and strategy documents such as the National Agricultural Policy (NAP 2013), the Agricultural Sector Development Programme (ASDP) and the 2009 Kilimo Kwanza national declaration. Civil society organizations (CSOs) in Tanzania are concerned about the wide-ranging and far-reaching implications of acceding to UPOV 1991 for the farmers of Tanzania, who are largely smallholders and women. Farmers are dependent on informal seed systems and the customary practices of freely saving, using, exchanging and selling farm-saved seeds and other propagating material. These systems enable farmers to limit the cost of production by preserving independence from the commercial seed sector while the unfettered exchange of seeds/propagating materials contributes to the development of crop diversity and locally appropriate seeds that are more resilient to climate change, pests and disease. Acceding to UPOV 1991, which is tilted heavily in favour of the commercial breeders to the detriment of small-scale farmers, is not a suitable option for Tanzania and the country's agricultural situation.

PROPOSALS FOR SEED SOVEREIGNTY

Seed sovereignty is about people's right to define their own seed systems, which includes the rights of farmers to replant their seeds, and breed, save and exchange them. In advocating seed sovereignty in Tanzania, there is a need to put the smallholder farmers, who provide over 80 per cent of the country's seed requirement, at the centre of decisions on seed systems and policies, rather than the corporations that have come to dominate the industrial seed system.

1) Advocate for seed laws that recognize the use of farm-saved seeds. Tanzania can draw upon the example of Ethiopian seed laws that recognize the use of farm-saved seeds. The law in Ethiopia also allows the exchange or sale of farm-saved seeds among smallholder farmers or agro-pastoralists.

2) Promote and strengthen community seed banks. Seed banks have emerged in different parts of the world as a response to the loss of diversity of seeds, increasing corporate control over seeds, and the impact of natural disasters and climate change on crop production. Seed banks perform a number of important functions. They help to conserve local plant varieties, restore "lost varieties", make seeds more accessible (usually at a lower price than commercial seeds) and increase seed sovereignty. Seed banks also create a community space where farmers can swap seeds and talk about seed varieties. Finally, seed banks can also help to create new livelihoods and income for farmers by breeding and selling seeds. As the main seed selectors and savers, women are often responsible for managing community seed banks.

3) Fast track the incorporation of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) into the country's legislation. This treaty recognizes farmers rights to save, use, exchange and sell farm-saved seed and other propagating material, and to participate nationally and internationally in decision-making regarding, and in the fair and equitable sharing of the benefits arising from, the use of genetic resources from plants for food and agriculture.

4) Advocate community seed bank policy. For Community Seed Banks (CSBs) to have a wider impact, they need to be scaled up to reach as many farmers and farming communities as possible. In the long run, CSBs would benefit from being integrated into government agricultural development policies, such as using CSBs to store new seed varieties that have been developed through participatory plant breeding, and making sure that intellectual property rights include safeguards on farmers' rights to save, use, exchange and sell farm-saved seeds.

5) Promote Participatory Plant Breeding (PPB). PPB is a decentralized and participatory approach to breeding and creating different types of plants. Researchers and farmers work together to create varieties of plants that are better adapted to local soils and weather patterns. This collaboration between researchers and farmers can help to speed up the development of new varieties from 10 to 15 years to between 5 and 7 years. In PPB, farmers take the lead in selecting varieties of plants that are worth breeding and improving. They also take the lead in growing and distributing new types of seed to other farmers. PPB helps to empower farmers and gives them more control over the development of plant varieties and, therefore, control over their livelihood. Since women play such an important part in preserving and planting seeds, they stand to gain the most from PPB approaches.

6) Encourage farmer-led innovation. This prioritizes the knowledge farmers have about seed in their local environment, and can have a significant impact on seed sovereignty. For example, farmers are often best suited to identifying and developing plant varieties adapted to deal with the impacts of climate change and plant diseases.

7) Advocate increasing the coverage in which QDS can be marketed. Smallholder farmers who engage in QDS multiplication need to be allowed to market their seeds at least up to district level. This would enable smallholder farmers to have better access to a diverse range of good quality, reliable, affordable and locally adapted seeds.

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