

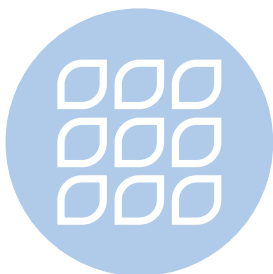


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# SeedCLIR TANZANIA PILOT REPORT



**OCTOBER 2013**

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## ABOUT THE ENABLING AGRICULTURAL TRADE (EAT) PROJECT

The Enabling Agricultural Trade (EAT) project, funded by the United States Agency for International Development (USAID), and implemented by Fintrac Inc., supports the US government's global efforts to create conditions for agricultural growth. USAID established EAT based on substantial academic and field experience suggesting that a sound legal, regulatory, and institutional environment is a prerequisite to economic growth in the agricultural sector. EAT offers a suite of targeted and customizable analytical tools to support the startup and growth of businesses across the agricultural sector.

### **DISCLAIMER**

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## ACRONYMS

<b>ABSAC</b>	Agricultural Biotechnology Advisory Committee
<b>ACT</b>	Agricultural Council of Tanzania
<b>AGRA</b>	Alliance for a Green Revolution in Africa
<b>ARI</b>	Agriculture Research Institute
<b>AVRDC</b>	The World Vegetable Center
<b>ASA</b>	Agriculture Seed Agency
<b>ASDS</b>	Agricultural Sector Development Strategy
<b>ASDP</b>	Agricultural Sector Development Programme
<b>ABSAC</b>	Agricultural Biotechnology Advisory Committee
<b>CGIAR</b>	Consultative Group on International Agricultural Research
<b>CIMMYT</b>	International Maize and Wheat Improvement Center
<b>CNFA</b>	Citizens Network for Foreign Affairs
<b>COMESA</b>	Common Market for Eastern and Southern Africa
<b>COSTECH</b>	Tanzania Commission for Science and Technology
<b>DUS</b>	Distinctness, Uniformity, and Stability
<b>EAC</b>	East African Community
<b>EASCOM</b>	Eastern African Seed Committee
<b>ECOWAS</b>	Economic Community of West African States
<b>GMO</b>	Genetically Modified Organism
<b>GoT</b>	Government of Tanzania
<b>IBC</b>	Institutional Biosafety Committee
<b>ICRISAT</b>	International Crops Research Institute for the Semi-Arid Tropics
<b>IFDC</b>	International Fertilizer Development Center
<b>IPPC</b>	International Plant Protection Convention
<b>ISTA</b>	International Seed Testing Association
<b>IT</b>	Information Technology
<b>LMOs</b>	Living Modified Organisms

<b>MARI</b>	Mikocheni Agricultural Research Institute
<b>MAFC</b>	Ministry of Agricultural, Food Security and Cooperatives
<b>MT</b>	Metric tons
<b>NAIVS</b>	National Input Voucher Scheme
<b>NARO</b>	National Agricultural Research Organization
<b>NBC</b>	National Biosafety Committee
<b>NBFP</b>	National Biosafety Focal Point
<b>NPT</b>	National Performance Trials
<b>NPPAC</b>	National Plant Protection Administration Committee
<b>NVRC</b>	National Variety Registration Committee
<b>NSC</b>	National Seed Committee
<b>OECD</b>	Organization for Economic Co-operation and Development
<b>PBR</b>	Plant Breeders Right
<b>PBRAC</b>	Plant Breeders Right Advisory Committee
<b>PHS</b>	Plant Health Service
<b>QDS</b>	Quality Declared Seed
<b>SADC</b>	Southern African Development Community
<b>TASTA</b>	Tanzania Seed Trade Association
<b>TOSCI</b>	Tanzania Official Seed Certification Institute
<b>TPRI</b>	Tropical Pest Research Institute
<b>TZS</b>	Tanzanian Shillings
<b>UPOV</b>	International Union for the Protection of New Varieties of Plants
<b>VCU</b>	Value for Cultivation or Use
<b>VRC</b>	Variety Release Committee
<b>WEMA</b>	Water-Efficient Maize for Africa

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## EXECUTIVE SUMMARY

The Seed Commercial, Legal, and Institutional Reform (SeedCLIR) diagnostic is a data-driven tool designed to enable countries to assess seed sector weaknesses, undertake targeted seed sector reforms, and effectively gauge performance of reform activities over time. SeedCLIR assesses the relative strengths and weaknesses of the legal framework and institutions governing the seed system from the time a new variety is bred until it has been multiplied and distributed and arrives in the farmers' hands. Through a close examination of the policies, laws, and institutions that govern the seed industry, this report aims to inform the strategies and investments of government institutions, donors, nongovernmental organizations, the private sector, and others in how to build a better enabling environment for seed in Tanzania.<sup>1</sup>

### THE TANZANIAN SEED SYSTEM

The Tanzanian seed system has grown over the years as observed from the increase in seed enterprises, the number of agrodealers, improved public seed services and overall increased volumes of certified seed. However, use of quality seed remains lower than expectations. Reasons are varied, including a limited growth of the private seed sector in the central, southern, and western parts of the country, combined with a direct competition with the government's Agricultural Seed Agency, a prevalence of fake seed, and a lack of follow-through on key policies that could have a major impact.

A seed and fertilizer voucher program was initiated in 2009 with the assistance of the World Bank with the purpose of providing inputs to smallholder farmers and thereby increasing national production and productivity. The success of the program is measurable: there are more registered seed enterprises (65) and a significant increase of agrodealers (over 4000). This has led also to an overall increase in the supply of seed from roughly 16,000 to 28,000 metric tons in the period 2008-2012.<sup>2</sup> At the same time, the Seed Unit of the Ministry of Agriculture, Food Security, and Cooperatives (MAFC) estimates that only 27 seed companies and less than 2,000 agrodealers are actually active today. Furthermore, certified seed production is estimated to cover only 15-25% of the national seed requirements.

#### Government Participation in Seed Supply

The scaling-up of private sector seed production is hampered by a business environment that exudes a preference for heavy-handed government control of the market over building the conditions for open competition and private sector growth. Originally a state-run system, the Government of Tanzania (GoT) liberalized the seed market in the early 2000s only to reintroduce a parastatal seed company, the Agricultural Seed Agency (ASA), in 2006, which now acts as an intermediary between the national agricultural research institutes (ARIs) and the private sector. Although nominally operating with a core objective of promoting private sector growth, in practice the ASA serves as a bottleneck in the supply chain and maintains its own commercial activities in direct competition with the private sector. A recent Ministerial Circular designed to alleviate these problems through direct licensing agreements between the ARIs and private seed companies has had limited effectiveness due to stringent conditions and restrictions placed on the licenses. These conditions should be removed, and ASA should establish clear and transparent criteria for withdrawing from seed production activities in favor of expanded services to support private sector development in under-served regions of Tanzania.

#### Prevalence of Fake Seed

Public and private sector stakeholders interviewed for purposes of this assessment routinely cited "fake seed" as a core problem in Tanzania. Fake seed was defined in a number of different ways, including seed of varieties that are: 1) of poor quality with low germination; 2) of poor quality with mixtures of other varieties; 3) have been altered with grain; 4) repackaged in fake containers; 5) sold with expired labels; and/or 6) not registered in the national variety catalog. The public and private seed sector interviewees all estimated that 25-30% of the certified seed used is "fake seed." The causes of fake seed are numerous and include a lack of adequate quality control of the market due to constraints in human and financial resources at the Tanzanian Official Seed Certification Institute (TOSCI), insufficient awareness and education for farmers about the risks and ways to avoid fake seed, and

<sup>1</sup> This report applies predominantly to the system of seed for staple crops. Seed for horticultural crops is highly dynamic and is often subject to fewer regulatory requirements.

<sup>2</sup> World Bank, Agribusiness Indicators: Tanzania (Nov. 2012).

the need for a stiffer system of penalties and fines sufficient to deter fraudulent individuals from cheating farmers of their livelihoods. Fake seed is also a symptom of a shortage of good seed, a failure in the system of production and marketing of high quality certified seed that is the subject of this report.

### Lack of Policy Implementation

These issues in the seed industry are well known to both the public and private sectors. Workshops and other forums for discussion are frequently held at which key issues are repeatedly presented by the Tanzanian Seed Trade Association (TASTA), such as unfair competition by the Agriculture Seed Agency (ASA), lack of access to basic seed or affordable credit, high local taxes on seed production, the need to obtain International Seed Testing Association (ISTA) accreditation and Organization for Economic Co-operation and Development (OECD) membership, and lack of implementation of the regional Southern African Development Community (SADC) agreement that was technically approved by a Tanzanian delegation more than seven years ago. Yet despite all of this discussion, there is little evidence of follow-through in policy implementation to address these issues. The failure to implement specific changes to the seed system structure and regulations that address these issues results in an enabling environment that fails to motivate private investment in the seed industry.

Improving these issues will require long-term adjustments to the legal and institutional environment as well as a fundamental shift in the Government of Tanzania's (GoT's) attitude towards and trust in the private seed sector. Tanzania is in the midst of several ongoing policy initiatives related to seed sector reform that raise cautious optimism that true reform could be on the horizon, including a commitment to the G8 for the implementation of specific reforms under the Cooperation Framework of the New Alliance for Food Security and Nutrition. This report aims to provide guidance to donors and policymakers to effectively engage in these reforms to generate sustainable long-term growth within the seed industry.

## KEY RECOMMENDATIONS

<b>Urgent</b>	<ul style="list-style-type: none"> <li>• <b>Modify the role of Agricultural Seed Agency (ASA) to ease bottlenecks in the supply of basic seed and reduce competition with the private sector.</b></li> <li>• <b>Develop a national program for quality control in the seed market.</b></li> <li>• <b>Finalize revisions to the Seed Act and Finance Act in line with the Government of Tanzania's (GoT) G8 commitments.</b></li> <li>• <b>Revise the institutional structure (technical and budgetary) for the Tanzania Official Seed Certification Institute (TOSCI) to strengthen seed certification and variety release procedures.</b></li> </ul>
<b>Critical</b>	<ul style="list-style-type: none"> <li>• <b>Revise Ministerial Circular governing the licensing of public genetics to provide for a licensing agreement between two parties without conditions.</b></li> <li>• <b>Authorize third parties to conduct seed certification.</b></li> <li>• <b>Allow breeders to supply their own data when applying for variety release.</b></li> <li>• <b>Revise the committee process for variety release to reduce the number of levels of review before a final decision is made.</b></li> <li>• <b>Improve data management to form the basis for sound policymaking for the seed sector and effective information sharing.</b></li> </ul>
<b>Important</b>	<ul style="list-style-type: none"> <li>• <b>Convene stakeholders to agree on national biosafety regulations.</b></li> <li>• <b>Obtain International Seed Testing Organization (ISTA) accreditation of the official national seed laboratory.</b></li> <li>• <b>Prepare seed certification system for joining OECD.</b></li> <li>• <b>Establish a variety maintenance program at ARIs. The genetic quality of the breeder seed coming out of the ARIs must be improved to avoid multiplying problems rather than seed.</b></li> </ul>

## INTRODUCTION

The productivity and growth of an agricultural sector relies on a dynamic seed industry. Farmers require access to affordable high quality seed to achieve the income and production gains necessary to improve food security and reduce poverty around the world. Despite the commitment by governments to increase access to

improved seeds, the vast majority of farmers in developing countries still do not use improved varieties. All too frequently, the policy environment does not enable the private sector to generate and meet market demand for seed in the agricultural sector, hindering industry start-up and expansion and putting improved seed beyond the reach of smallholders and even some larger agribusinesses. Few other industries encounter such barriers and yet are so critical for a country's food security.<sup>3</sup>

The Seed Commercial, Legal, and Institutional Reform (SeedCLIR) diagnostic was developed through a collaboration of USAID's Enabling Agricultural Trade (EAT) project and Iowa State University's Seed Science Center. SeedCLIR is a data-driven tool designed to enable countries to assess seed sector weaknesses, undertake targeted seed sector reforms, and effectively gauge performance of reform activities over time. SeedCLIR assesses the relative strengths and weaknesses of the legal framework and institutions governing the seed system from the time a new variety is bred until it has been multiplied and distributed and arrives in the farmers' hands.

From April 29 to May 10, 2013, a SeedCLIR diagnostic team convened in Tanzania and met with more than 50 public and private sector stakeholders from throughout the seed system, including seed companies, agrodealers, government officials from the Ministry of Agricultural, Food Security, and Cooperatives (MAFC) to the Ministry of Finance, and supporting institutions such as the Tanzanian Seed Trade Association, farmers' associations, lenders, and relevant donor projects. Interviews were conducted in Dar es Salaam, Morogoro, and Arusha.

Through a close examination of the policies, laws, and institutions that govern the seed industry, this report aims to inform the strategies and investments of government institutions, donors, nongovernmental organizations, the private sector, and others in how to build a better enabling environment for seed in Tanzania.

## THE SEEDCLIR METHODOLOGY

The body of academic literature that explores seed system development contains a long, rich history of defining standard stages through which each system must evolve on the road to maturity.<sup>4</sup> These stages of development uniformly describe the gradual formalization of the seed sector through a process that begins with heavy government investment in seed infrastructure and distribution and gives way to a robust private seed industry that can readily meet the needs of the market.

Government investments in the seed system ebb and flow over the course of this evolution as the focus shifts from funding public investments in research, infrastructure, and extension to supporting incentives for private sector growth. As demonstrated by the graph at right (Figure 1), the Tanzanian seed system can be characterized as Expansive, the middle stage of development that is the most costly in terms of government time and money.

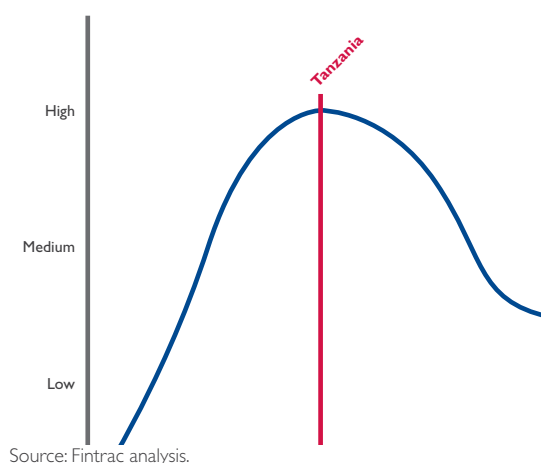
<sup>3</sup> For further information on this topic, see the USAID-EAT policy brief, "Building an Enabling Environment for Seed Sector Growth" (2011), available at <http://eatproject.org/seed-policy.aspx>.

<sup>4</sup> See e.g., Michigan State University, "Increasing Seed System Efficiency in Africa: Concepts, Strategies, and Issues" (Working Paper No. 77) (1999) and Pray, C. & Ramaswami, B., "A Framework for Seed Policy Analysis in Developing Countries" (1991).

### The SeedCLIR Team

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**FIGURE 1: PUBLIC INVESTMENT IN SEED SYSTEM DEVELOPMENT**





The pace of seed system development is dictated, in part, by the strength or weakness of the enabling environment for the seed industry. The policies, laws, regulations, and institutions that govern the seed system must generate the conditions for private sector growth to enable the public sector to reduce its burden and focus its efforts elsewhere, such as support for the poor and research for crops with low commercial potential.

All too often, donors and policymakers focus on policy reform as a linear process, following a clear path from problem identification to policy formulation to subsequent implementation of new rules and regulations. Far too much time may be devoted to policy development and too little to building the institutional strength necessary for effective implementation. Other times, well-conceived policies may fail to reach the stage of implementation due to frequent turnover in high-level government positions, key stakeholder representatives, and donor personnel. Under the shadow of ever-changing policy pronouncements, the mechanical operation of the legal and regulatory system often continues unaffected.

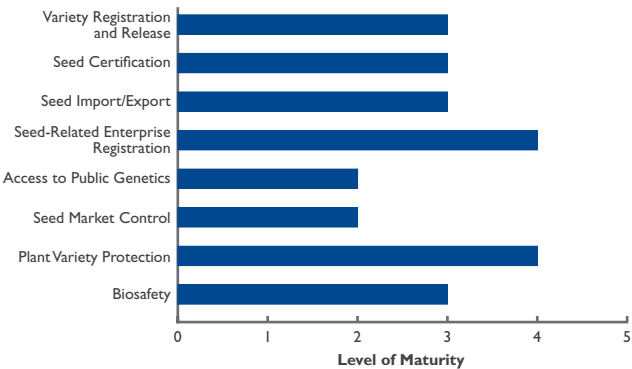
SeedCLIR is based on the theory that to build an efficient enabling environment for seed, the legal and institutional components of that system must be developed in concert. SeedCLIR incorporates a maturity modeling aspect that allows the assessor to determine the relative maturity of the legal framework and implementing institutions that govern the seed industry to determine where the efforts of donors and policymakers can have the greatest impact. This model also allows the reader to ascertain very quickly where progress in one aspect of the seed enabling environment has outpaced or fallen behind the others, visually indicating which components of the seed system are most in need of reform.

In Tanzania, the laws and regulations that govern the seed industry by and large form a clear and comprehensive framework that, if fully implemented, could form the basis for broad-based private sector growth. Some notable exceptions include the multiple stages of review in variety release decisions, lack of an effective procedure for the licensing of public varieties, and the lack of authority for Tanzania Official Seed Certification Institute's (TOSCI's) inspectors to enforce measures for controlling quality in the seed marketplace. Tanzania has also taken substantial steps towards the harmonization of its legal framework with regional and international norms. Regional technical agreement were negotiated (but notably not signed or implemented) with the East African Community (EAC) and Southern African Development Community (SADC) in recent years, and Tanzania is poised to become a full member of International Union for the Protection of New Varieties of Plants (UPOV) later this year.

By contrast, Tanzania's core seed institutions lack the capacity to adequately administer the provisions of this legal framework, which has provided opportunities for corruption and poor quality control and has contributed to the prevalence of fake seed in the marketplace. The institutional weaknesses of TOSCI are particularly acute, but the Seed Unit of the MAFC similarly lacks the resources necessary to maintain the national variety catalog and registration logs for seed companies and agrodealers.

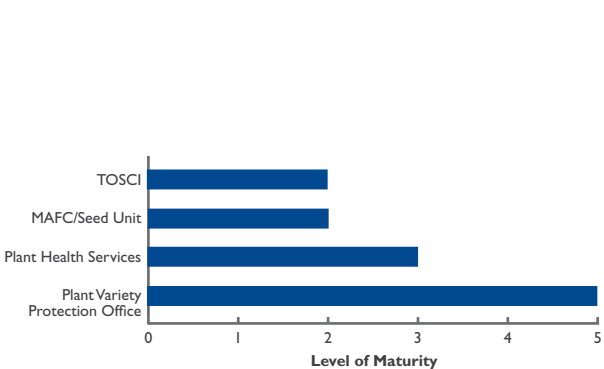
Figures 2 and 3 below show the level of maturity of each component of the legal framework and each of the major seed institutions as assessed by the SeedCLIR team.<sup>5</sup>

**FIGURE 2: LEGAL FRAMEWORK**



Source: Fintrac analysis.

**FIGURE 3: IMPLEMENTING INSTITUTIONS**



Source: Fintrac analysis.

<sup>5</sup> A more detailed explanation of the SeedCLIR methodology and maturity model is available from the USAID-EAT project on request.

## HOW THIS REPORT IS STRUCTURED

This report contains the following sections:

- » **Overview of the Seed Value Chain.** This section describes the key players and key performance data along the various stages of the seed value chain from variety development to seed marketing and distribution and includes a section describing the role and challenges faced by women in the seed industry.
- » **Enabling Environment for Seed in Tanzania.** This section provides an overview of the Tanzanian seed policymaking process and government efforts to encourage the development of the seed industry followed by a detailed examination of the legal framework and implementing institutions that govern seed enterprises.
  - **Legal Framework.** This section examines legal authority and regulatory procedure for the critical aspects of seed regulation, including variety registration and release, seed certification, seed import/export, seed-related enterprise registration, quality control in the seed market, plant variety protection, and biosafety. These laws and regulations form the basic “rules of the game” for the seed industry and strongly influence industry investment.
  - **Implementing Institutions.** This section examines the role, staff, resources, budget, and transparency and governance aspects of each of the major seed regulatory institutions to determine their capacity to carry out their mandates.
- » **Recommendations.** The final section of the report lays out concrete recommendations for seed enabling environment reform.

## A NOTE ON DATA

Reliable, up-to-date data on seed system performance is essential to the development of policies that facilitate seed market growth. In Tanzania, data with respect to the seed system is collected piecemeal by various agencies and institutions and is frequently contradictory. Yet certain statistics have remained constant throughout the literature for the last 10-15 years, namely that seed supply levels hover around 30,000 MT, seed demand at 60,000 MT, and potential seed demand at 120,000 MT.<sup>6</sup> These simple statistics suggest (and many stakeholders reiterated) that certified seed production satisfies only 25% of national requirements. However, the original basis for these numbers and the formulas on which they are calculated are unclear. The draft Seed Industry Development Strategy uses similar statistics for the 2011/2012 season and cites a compilation of sources, including the Seed Unit of the MAFC, the Department of Research and Development of the MAFC, Agriculture Seed Agency (ASA), reports from District Agriculture and Livestock Officers.<sup>7</sup> Other stakeholders suggested that these numbers originated from Tanzania Seed Trade Association (TASTA) back in the early 2000s.

What is clear is these estimates are highly suspect and do not provide a solid basis for seed sector analysis and policy planning. For example, it is unreasonable to believe that the overall estimation of 120,000 MT as the national seed requirements has remained static for more than 10 years. The amount of farmland in use and types and intensity of crops planted varies even annually. In addition, representatives of the MAFC stated that the often-cited national demand level of 60,000 MT is in fact a target demand level, not an estimation of real demand. If the seed sales numbers are to be believed, real demand (even that not satisfied by existing supply) is unlikely to be anywhere close to this amount.

Much information on seed production exists within sub-regional organizations and bodies such as ASARECA, SADC, CCARDESA, COMESA, and FARA. Locally, however, there is a great need to establish a clear and transparent means of collecting, analyzing, and sharing seed sector data. Only then can such data form the basis of genuine public-private dialogue and sound seed sector policymaking. The development of a networking platform to allow farmers, extension providers, and researchers to share information in a comprehensive and streamlined fashion would assist greatly in meeting this goal.

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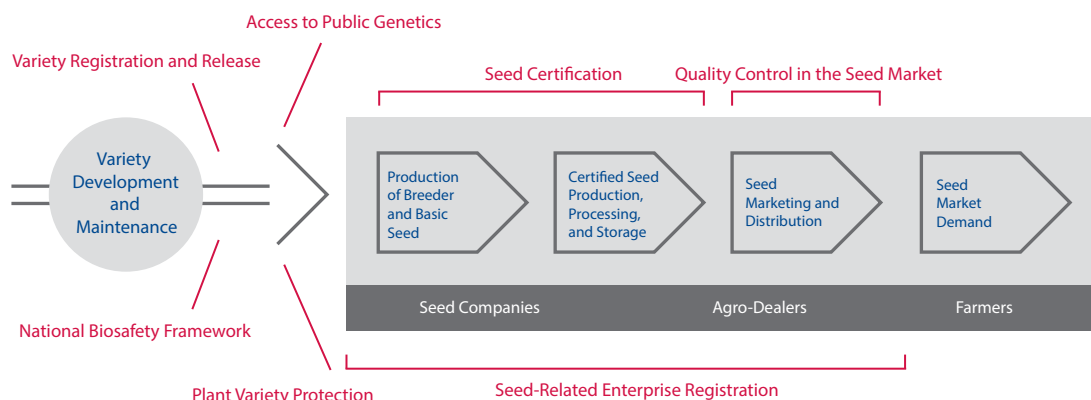
<sup>6</sup> These statistics are used liberally in conversation and in public reports. More in-depth statistics showing detailed production and sales numbers also exist, such as those in the Zero Draft Report for the Seed Industry Development Strategy. Yet even these seemingly formal statistics show current year numbers matching the 30/60/120 split and should be independently verified. These detailed statistics are further discussed in the next section.

<sup>7</sup> Bureau for Industrial Cooperation, Zero Draft Report for Consultancy Services for Preparing Seed Industry Development Strategy, Work Plan, and Budget (2013).

## OVERVIEW OF SEED VALUE CHAIN

Before a package of seeds finds its way into a farmer's hands, it passes through a lengthy chain of research, production, processing, and storage before ultimately being distributed and sold to the farmer. The enabling environment for seed impacts each step in this process in some way, as delineated below. The following pages provide an overview of the value chain for seed in Tanzania and set the stage for the detailed discussion of the Legal Framework and Implementing Institutions that form the bulk of this report.

**FIGURE 4: THE ENABLING ENVIRONMENT FOR SEED**



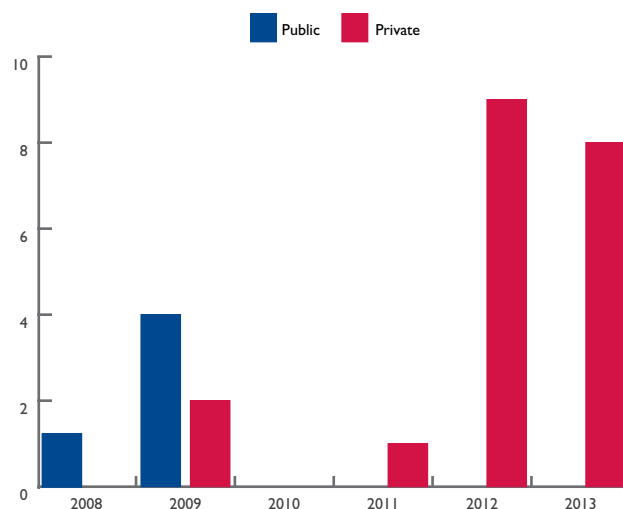
Source: Fintrac analysis.

## VARIETY DEVELOPMENT AND MAINTENANCE

There are both public and private breeding programs in Tanzania. Public sector breeding is conducted via a network of seven zonal Agricultural Research Institutes (ARIs) located throughout the country. A few private companies also conduct breeding activities, predominantly in maize. According to the list of released varieties maintained by TOSCI, hybrid maize research by the private sector has spiked in the past few years. The breeding materials used by the public sector are primarily sourced from the international agricultural research institutions such as International Maize and Wheat Improvement Center (CIMMYT), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) or the World Vegetable Center (AVRDC). In the case of private sector enterprises that do not have their own maize research materials, these can be accessed at CIMMYT directly through Material Transfer Agreements (MTAs).

In either case, the breeder is responsible for maintaining the variety after it is released. Most seed companies interviewed reported that adequate maintenance of public varieties by the ARIs does not always occur, mainly due to a lack of sufficient funding from the MAFC. A proposal exists to turn the ARIs into semi-autonomous institutions. While this change would give them some degree of financial autonomy, it would also require them to generate part of their own funding. Without ensuring adequate institutional mechanisms to do so as well as central revenue allocations sufficient to meet costs, the new structure risks creating negative incentives on the part of these institutions to turn to alternative forms of revenue generation, such as direct competition with the private sector through the production and sale of certified seed. An effective policy for the licensing of public genetics in which the ARIs themselves retain the licensing fees is a necessary but not sufficient step towards an effective financial incentive system.

**FIGURE 5: MAIZE VARIETIES RELEASED BY PUBLIC AND PRIVATE SECTORS SINCE 2008**



Source: TOSCI

## PRODUCTION OF BREEDER AND BASIC SEEDS

While a small number of private seed companies maintain and produce privately registered seed varieties, the vast majority of certified seed produced in Tanzania derives from public varieties. Breeder seed of public varieties is produced by the ARIs while basic, or foundation, seed is produced almost exclusively by the public sector through the ASA. Seed companies indicated that the supply of basic seed available from the ASA is not adequate in terms of quality or quantity. Seed companies, agrodealers, and farmers' associations all reported occasional low germination problems in addition to discrepancies in the genetic purity of the variety, which reportedly initiate at the level of the ARIs and then are compounded as the basic seed is further multiplied by the ASA. ASA also routinely fails to supply sufficient basic seed in the amounts and at the time required by the seed companies.

Until 2011, the private sector was not permitted to produce breeder or basic seed of public varieties. As a result, many stakeholders reported that there are a large number of released varieties that may have commercial demand but that are not currently under production due to lack of sufficient basic seed. In May 2011, the MAFC published a new circular establishing the licensing of public genetics to private companies under certain conditions. The first tender was held in 2012, and licenses are expected to be awarded shortly. The licensing policy is discussed in more detail in the section on Access to Public Genetics.

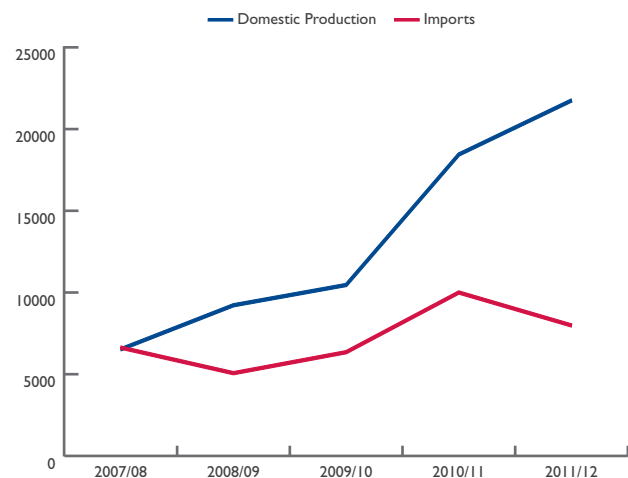
## PRODUCTION, PROCESSING AND STORAGE OF CERTIFIED SEED

Despite its stated role "to promote increased private sector participation in the seed industry development," commercial seed production by the ASA in direct competition with the private sector continues to undermine private seed industry growth. ASA has a distinct competitive advantage in the production, processing, and storage of certified seed. Employee salaries are paid through the national budget, and it has no-cost access to public land, facilities, and equipment. By contrast, the private sector must include all of these costs in their sales prices. Seed companies are also subject to high rates of VAT and local taxes, whereas the ASA operates tax-free. The VAT Act specifically exempts or zero-rates farm implements, fertilizer, and pesticides, yet seed packaging and seed sales are subject to full VAT levies. Under the Local Government Finances Act of 1982, crop cess should only be applicable to produce, which should exclude seed. Yet multiple seed companies reported being subject to crop cess on their seed harvests on behalf of the local District Councils.

There is hope that the Finance Act of 2013, currently under consideration at the Ministry of Finance, will alleviate this burden and satisfy Tanzania's commitment under the New Alliance to end the crop cess and VAT on seed.

Despite these unfavorable conditions, the private sector has increased its certified seed production even as the level of imports has stabilized.<sup>8</sup> The combined amount of imports and domestic production of certified seed from private sources doubled in the last six years from 8,748 to 16,545 tons.<sup>9</sup> If private sector growth continues on this trajectory, private sector output has the potential to reach up to 33,000 MT by 2015/2016. However, rather than phasing out of the market as the capacity of the private sector has increased, the ASA has instead chosen to dramatically increase its own production.

**FIGURE 6: DOMESTIC PRODUCTION VS. IMPORTS OF SEED IN TANZANIA (MT)**



Source: BIC, Zero Draft Report (2013)

<sup>8</sup> Bureau for Industrial Cooperation, Zero Draft Report for Consultancy Services for Preparing Seed Industry Development Strategy, Work Plan, and Budget (2013), citing multiple data sources, including the Seed Unit of the MAFC. The statistics cited in this section represent the most up-to-date statistics available. They are used here for purposes of demonstrating trends in production, which the SeedCLIR team deemed to be reliable based on independent corroboration through stakeholder interviews. The formulas and data collection methods used to derive these numbers could not be verified, and reports containing similar but conflicting statistics that cite the same sources were also found.

<sup>9</sup> MAFC, Seed Industry Status Report (2011), citing the Seed Unit of the MAFC as the source of the data.

In 2010/11, ASA produced 5,679 tons of certified seed, equivalent to 25% of the total of domestic production and imports by the private sector. Since ASA also controls the production and sale of almost all basic seed, it has been accused of retaining the most commercially popular varieties for its own production. ASA states that it plans to withdraw from certain crops as the private sector engages in the market, but it does not have any concrete procedures for how to do so or how to judge when sufficient private sector capacity exists.

**TABLE 1: QUANTITY OF SUPPLIED IMPROVED SEEDS (MT)**

SOURCE OF IMPROVED VARIETIES	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	ANNUAL GROWTH (2009-2010)
Private companies	8,748	14,870	16,174	10,511	14,536	16,545	29%
Public organizations	1,728	1,656	217	545	1,608	5,679	119%
<b>TOTAL</b>	<b>10,476</b>	<b>16,526</b>	<b>16,391</b>	<b>11,056</b>	<b>16,144</b>	<b>22,224</b>	
% from private sources	84%	90%	99%	95%	90%	74%	

Source: Agricultural Council of Tanzania.

ASA does lease some of its substantial number of seed processing and storage facilities to private companies, who report that the cost is sufficiently low, but the quality of the facilities is also low. Of the 27 active seed companies in Tanzania, not more than five have their own seed processing and storage facilities, and four are utilizing ASA facilities for this purpose.<sup>10</sup> These seed enterprises would prefer to have their own facilities for the sake of privacy as they are effectively leasing from a direct competitor.

The ASA needs a long-term plan for reducing its participation in the production of certified seed and transitioning the bulk of its productive assets to the private sector. Ultimately, the ASA should not function as a market participant but rather as a market facilitator and service provider to stimulate private seed enterprise growth and promote farmers' understanding of the value of certified seed through assistance with marketing and product demonstrations, business planning, and the establishment of internal quality assurance mechanisms.

## SEED DISTRIBUTION AND MARKETING

Of the 65 registered seed companies in Tanzania, only 27 are estimated to be "active" according to the Seed Unit of the MAFC. The majority of seed companies are located in Arusha. This concentration of seed production in the North adds significant transportation costs to the price of seed in the market. Interviewees estimated that seed transported from Arusha in the north to Iringa in the south can easily cost 3 times more. This is in line with direct interviews done through a 2010 study by the International Fertilizer Development Center (IFDC) and Wageningen University in which one of the conclusions reached was that:

"For commercial seed enterprises, a key constraint is their so called zone of mobility. Most indicate that their produce can be sold within a 200 km. radius. Beyond that point cost of distribution (to agrodealers/retailers) put too much pressure on the price for it to be competitive. The 200 km. is seen as a breakeven distance for an average commercial seed enterprise."<sup>11</sup>

Helping to create more seed enterprises in the south, central, and west would not only help to reach more farmers more efficiently, but would also dramatically lower the costs of distribution. Similarly, a study should be conducted to determine what the true drivers of these costs and how they could best be mitigated.

<sup>10</sup> The remainder of the active seed companies process seed at other private competitors or manually without the use of (nor the scale of production afforded by) full-scale facilities.

<sup>11</sup> Wageningen University/Center for Development Innovation & International Fertilizer Development Corporation, Progress report: Partnership Arrangements for SME-Driven Seed Systems in East Africa (July 2010).

Seed is primarily sold through agrodealers, although some seed companies and the ASA also engage in direct sales to farmers. The MAFC has a list of over 4000 registered agrodealers, many of whom registered during the height of the voucher program within the last 5 years and received training from CNFA under a grant from the Alliance for a Green Revolution in Africa (AGRA). Only 1500-2000 agro-dealers are estimated to be actively selling inputs today. Their capacity is limited to the short training provided through CNFA and the information provided through the seed enterprises that they are representing. Therefore, their role in protecting against fake seed and the so-called “briefcase seed dealers” that dominate the informal seed trade is also rather limited. As stated in a 2012 report by the Agricultural Council of Tanzania (ACT), “Agrodealers have limited technical know-how of agro-inputs and thus through ignorance of dealers and hence farmers, suppliers of counterfeit find it easy to penetrate up to farm levels.”<sup>12</sup>

As part of the anticipated new laws establishing the ARIs as semi-autonomous institutions, the MAFC is considering allowing the ARIs to generate income through the direct production and sale of certified seed of their own publicly released varieties. There is no indication that the ARIs would have the capacity to function as commercial enterprises, and restructuring the market in this way would be disastrous for private seed companies, many of which derive their products almost exclusively from these same public varieties.

## **SEED MARKET DEMAND**

Ultimately, even the most efficient certified seed supply chain will fail without sufficient demand from the end consumer: the farmer. Farmer demand can be undermined by a variety of causes, including high seed prices, insufficient awareness of the benefits of certified seed, poor quality control of the formal seed market, and a lack of output markets to absorb the increased production yielded by improved seed technologies. In Tanzania, an estimated 75% of all farmers continue to source their seeds through the informal seed system. Farmers report that certified seed costs approximately two times the price of grain for non-hybrid seed and up to four times the price of grain for hybrid seed, prices that, while high, are similar to those found in other developing countries. The government’s unstable trade policies and failure to regulate the quality of seed on the market may be more detrimental to farmer incentives to invest. The GoT’s history of employing sudden export bans on agricultural products, such as the recently lifted maize export ban, and the inability of TOSCI to control the prevalence of fake seed on the market put the farmer who wishes to invest in certified seed in a precarious position. A smallholder farmer with very little savings to cushion a bad investment must weigh not only the cost but also the risk of large-scale loss if the investment fails to yield the necessary returns. A thorough, data-driven economic analysis of the seed markets in Tanzania is needed to elaborate on the causes behind the low usage of certified seed by farmers.

## **WOMEN IN THE SEED INDUSTRY**

Women are very poorly represented in the ownership and upper-level management of seed companies in Tanzania. Information gathered during this assessment suggests that women account for only 6% of all seed company owners. By contrast, interviewees estimated that more than 60% of all agrodealers are women. Many of these women directly benefitted from trainings offered by Citizens Network for Foreign Affairs (CNFA) in association with the national agricultural input voucher scheme. The prevalence of women at the microenterprise or small enterprise level is common in Tanzania, yet few women have a pathway to growth that would enable them to expand their businesses. The application requirements for seed-related enterprise registration alone (including owning land, demonstrating expertise, provision of a business profile/plan, etc.) would exclude many women entrepreneurs, who may not have had access to the same educational opportunities or resources as their male peers. More research is needed to fully uncover the root causes of this gender disparity and to design interventions that encourage seed company start-up and investment by women entrepreneurs.

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<sup>12</sup> Agricultural Council of Tanzania, “Distribution, Access, and Application of Agricultural Inputs” (September 2012).

## THE ENABLING ENVIRONMENT FOR SEED IN TANZANIA

Addressing issues in the availability and use of high quality seed by farmers has been a top priority of policymakers and donors for many years. National agricultural development strategies such as Kilimo Kwanza, the Agriculture Sector Development Strategy (ASDS), and the Agriculture Sector Development Programm (ASDP) all contain provisions aimed at improving the availability of seed but lack a concrete implementation plan. In response, the MAFC has recently drafted a Seed Industry Development Strategy, which is designed to provide a more comprehensive policy approach and specific work plan for the development of the seed industry. The MAFC is in the process of vetting this strategy with the private sector through stakeholder workshops.

The Government of Tanzania (GoT) has also made specific commitments to improving the enabling environment for the seed industry under the New Alliance for Food Security and Nutrition, which include lowering taxes on seeds and seed packaging, reducing the time required for variety registration and release, facilitating private sector access to breeder seed of public varieties, and making key revisions to the Seed Act of 2003 and its regulations to enable entry into UPOV and accreditation by the International Seed Testing Association (ISTA) and the Organization for Economic Co-operation and Development (OECD) seed scheme.

Seed policymaking in Tanzania is, at least on its face, an inclusive process. The TASTA meets regularly with MAFC directorship to discuss specific issues affecting the private sector. Many times agreements are reached, but the implementation of these agreements is haphazard and highly dependent on budget allocations. Discussions on macro issues are addressed in workshops and meetings, including an annual seed stakeholders' meeting hosted by the MAFC and supported financially through donors.

Despite the public statements of commitment to seed sector reform and the apparent inclusivity of the policymaking process, very little reform has occurred in the past ten years. There are a few notable bright spots, such as the imminent acceptance of Tanzania into the UPOV. The GoT is also in the process of amending the Seed Act and making changes to the Finance Act that are expected to include tax reforms for the seed sector in line with Tanzania's commitments under the New Alliance. However, most progress in productivity and usage of improved seed in recent years has been driven by donor-supported programs, such as the input voucher system (see box), which are short-lived. Cementing these gains and improving the long-term health of the seed industry is dependent on deeper, long-term, sustainable reforms to the legal and regulatory environment as well as substantial increases in the capacity of seed regulatory institutions to carry out their functions.

### **Tanzania Seed Trade Association (TASTA)**

**TASTA was established in 1999 with the objective of promoting the seed trade and use of quality seed by farmers throughout Tanzania. Originally just six members, today membership has grown to 45 companies spanning the full range of seed production and marketing activities in the country.**

**TASTA is member of the National Seeds Committee and works closely with the MAFC on seed policy issues. TASTA is also ordinary member of the International Seed Federation (ISF) and the African Seed Trade Association (AFSTA).**

## National Agricultural Input Voucher Scheme (NAIVS)

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The National Agricultural Input Voucher Scheme (NAIVS) started in 2008 as an initiative to stimulate the development of the seed supply chain through increasing the purchasing power of farmers, raising farmer awareness of the value of good quality seed, and fostering competition among agrodealers. The approach was piloted in two districts for one season and scaled up to 53 districts for maize and rice production in 2008/2009. By 2009/2010, roughly 1,500,000 farmers from 61 districts in 20 regions were benefitting from the program, and the value of vouchers distributed was equivalent to 12,500 MT of hybrid maize and 450 MT of rice seeds. For the next two seasons, the program increased to reach 2,000,000 farmers in 2010/2011 and 1,800,000 in 2011/2012 for a total of 20,000 MT and 18,000 MT of maize and rice seeds in 2010/2011 and 2011/2012, respectively.<sup>a</sup> The result of the program was the distribution of over 15 million vouchers to more than 2.5 million households, enabling the purchase of more than 50,000 MT of improved seed. Recent surveys by the World Bank indicate that the subsidy scheme increased yields in maize by 1.2 tons/ha and by 0.6 tons/ha in rice.<sup>b</sup>

Although the program increased smallholder access to seed and fertilizer in 87 districts, it has had mixed results and faced several challenges, including delays in the distribution of the vouchers to farmers and frequent late payment on redeemed vouchers by the government. The program, which reportedly consumed 40-50% of the MAFC budget, may also have contributed to the prevalence of fake seed in the market by allowing agrodealers to redeem the vouchers instead of seed companies. With the World Bank recently declining to renew its monetary commitment, the MAFC is now in the process of winding down the program. The long-term sustainability of the gains achieved under the program are still unknown. An independent report on the impact of the vouchers is expected within the next few months from REPOA, a Tanzanian policy research institution.

To replace the NAIVS program, the MAFC is considering adoption of a subsidized credit system in partnership with five banks, whereby market interest rates of 18-20% would be subsidized to a rate of 4% for certain qualifying farmer groups. Unlike the voucher program, the MAFC does not intend to place a limit on the number of years the beneficiaries could participate in the program. Moreover, in the event of default by the borrower, the bank would be fully compensated through a government guarantee fund. In its current form, this program has the potential to create poor incentives on the part of lenders and borrowers that could bankrupt the program (or the MAFC budget) in short order. The program design should be carefully reviewed before any final decisions are made.

<sup>a</sup> ACT, "Distribution, Access, and Application of Agricultural Inputs" (September 2012).

<sup>b</sup> World Bank, "Boost for Tanzania's Agricultural Sector" (October 23, 2012), available at <http://www.worldbank.org/en/news/press-release/2012/10/23/boost-for-tanzania-agriculture-sector>.



# LEGAL FRAMEWORK

## VARIETY REGISTRATION AND RELEASE

### Legal Authority

The system for the approval and listing of new seed varieties was established under the Seed Act No. 18 of 2003, Part IV, Section 21. Under this provision, registration in the national catalogue is mandatory for all varieties that are distributed in the country, and requires the approval of the Minister of Agriculture upon advice by the National Seed Committee. Detailed procedures for variety testing, release, and registration are provided under the Seed Regulations, Part III.<sup>13</sup>

Variety testing, registration, and release requires the coordinated effort of multiple institutions. The TOSCI is responsible for seed testing, the Seed Unit of the MAFC for variety registration, and release decisions are made through a multi-step process involving three separate committees and the Minister of Agriculture.

### Adoption of Regional or International Norms

In 2007, Tanzania participated in a multilateral conference for the harmonization of seed policies and regulations within SADC, where technical consensus was reached on a regional variety release system for the 13 most important crops for the region. However, Tanzania is not yet a signatory, and negotiations have been slow to bear fruit. Tanzania is also a member of the East African Community (EAC), the East African Seed Committee (EASCOM), and is signatory of an EASCOM variety release agreement that is being implemented through the Seed Act and Regulations.

### Regulatory Procedure

Applicants for the testing, release, and registration of a new variety face an extended, multi-year process. A breeder who wishes to release a new variety must submit an application to TOSCI under the forms established by the provisions in the Fifth Schedule of the regulations along with a seed sample, the prescribed fee, and two years of testing data.<sup>14</sup> The new variety is evaluated through a National Performance Trial where the candidate variety is tested for distinctness, uniformity and stability (DUS) and value for cultivation or use (VCU). TOSCI conducts DUS testing for two seasons and VCU for one season. The fees charged by TOSCI for this testing are high (500,000 Tanzanian Shillings (TZS)<sup>15</sup> for the two DUS tests and TZS 600,000 for the VCU test), but are somewhat alleviated in the case of varieties that were already released in the EAC, for which TOSCI accepts the DUS results from the country of origin.<sup>16</sup> This is an excellent agreement that has the advantage of moving new varieties faster to farmers' fields. Anecdotally, in one case a breeder has been permitted to release a variety solely on the basis of the data he/she submitted. In this case, a tobacco variety was exempted from TOSCI testing due to TOSCI's lack of experience with that crop.

The TOSCI employees in charge of variety testing are the same technical staff responsible for conducting field inspections for seed certification and market quality control. Clearly, there is a lack of personnel to carry out all functions prescribed by the law. TOSCI's key office and laboratory facilities are currently being refurbished, but the institution still lacks a proper information technology (IT) system for the seed testing and certification functions that are under its responsibility. The availability of budgetary disbursements in a timely manner is also a continual problem, generating a large degree of uncertainty in TOSCI's ability to comply with the established schedules for variety testing. Trials also need to have the same treatment of water, fertilizer, and pesticide in a timely way to avoid unwanted variations in the results, and there are concerns that a lack of adequate resources at key stages in the testing process could impact TOSCI's findings.

<sup>13</sup> Government Notice No. 37 published on 9/2/2007.

<sup>14</sup> The exact type of testing data required to be submitted is unclear from the regulations but likely includes VCU or similar testing data. DUS testing was only recently introduced in Africa.

<sup>15</sup> USD \$1 is equivalent to approximately TZS 1,600.

<sup>16</sup> According to TOSCI, Kenya has not reciprocated in accepting the DUS results from Tanzania. In fact, the Kenyan seed agency has gone so far as to require that its own inspectors be allowed to inspect fields in Tanzania for seed that is intended to be exported and sold in Kenya.

When a variety has passed the DUS and VCU tests, the applicant begins a four-stage process to obtain final approval for the release of the variety. The National Performance Trial Technical Committee (NPT-TC) evaluates the DUS/VCU testing results and reports its findings to the National Variety Release Committee (NVRC), which evaluates the report of the NPT-TC and makes recommendation for release to the National Seed Committee (NSC). TOSCI estimates that approximately 50% of all applications are rejected at the NVRC stage. If the NVRC recommends release, the NSC reviews the report and sends a final recommendation to the Minister of Agriculture for approval. These three committees (NPT-TC, NVRC, and NSC) meet only once per year, in succession, for purposes of addressing these applications. The private sector expressed concern about the unnecessary delays for registration of a new variety caused by the infrequency of these meetings and clear duplication of efforts between these committees. By contrast, neighboring countries such as Uganda, Kenya, and Ethiopia have only one level of approval, a single variety release committee.

Membership in the NPT-TC, NVRC, and NSC is defined under the Seed Act. The committee members consist of a group of individuals with significant experience in the seed industry, but there is not a sufficient balance between public and private sector members. Lack of private sector representation in these bodies could lead to bias in the release decisions. The NPT-TC is composed of 8 members, only one of which (the Tanzania Seed Trade Association) represents the private sector. Similarly, the NVRC is made up of 14 members of which only three represent the private sector: a representative of TASTA, one from the national breeders' association, and one from a farmers' association. Both the NPT-TC and the NVRC do, however, have the authority to invite any experts or relative stakeholders to attend to their meetings as needed, and stakeholder report that the meetings are open to participation (or at least observation) by the applicant.

Upon approval of the release of a new variety by the Minister of Agriculture, the Director of Crop Development issues a Certificate of Registration using the form established in the Fifth Schedule of the regulations and publishes the variety in the national gazette. The new variety must then be entered into a national variety catalog, which is maintained by the Seed Unit at the Ministry of Agriculture. Neither the Seed Act nor its regulations stipulate a frequency or procedure for the publication of the variety catalog for purposes of making this critical information available to seed companies, agro-dealers, and farmers. In practice, lack of resources and manpower prevent the catalog from being regularly updated, and the information is shared with neither the public nor other relevant government agencies such as TOSCI. TOSCI instead maintains its own internal record of the current status of the catalog through compiling information from press releases regarding the variety release decisions of the NSC.

## **SEED CERTIFICATION**

### **Legal Authority**

The Seed Certification legal provisions were established under the Seed Act No. 18 of 2003, Part II, Section 8, where the Minister appoints the Chief Seed Quality Controller, inspectors, and analysts. Part II, Section 10, establishes TOSCI as the designated authority to conduct seed certification including field inspection and seed testing. TOSCI is authorized to delegate seed certification activities to the private sector; but in practice no procedures have been established in enable this to occur. The seed classes and standards are established under the Seed Regulations, Part IV (Government Notice No. 37, published on 9/2/2007); Part V includes requirements for marking and labeling; Part VI includes seed certification, field inspection, and processing and storage conditions. Part VII includes seed sampling procedures and testing following ISTA Rules. The "First Schedule" attached to this regulation contains the table for laboratory and field standards for different crops.

### **Adoption of Regional or International Norms**

Tanzania is a member of the International Seed Testing Association and is highly interested in having TOSCI's central laboratory ISTA-accredited. ISTA accreditation would allow TOSCI to issue international orange certificates, a result that has been much pushed by TASTA, who has some members that export seed to Europe and others wanting to access the Kenyan market. Despite substantial donor efforts to strengthen TOSCI, these goals have yet to be achieved. For the same reasons, Tanzania also seeks membership to the OECD, which establishes uniform seed certification standards. Obtaining OECD membership will require a complete capacity building program for seed certification, including training in understanding the rules of the OECD seed scheme, further training in field inspections, and a study of lessons learned from neighboring countries such as Kenya, who joined the scheme years ago. Tanzania has also agreed to (but not yet implemented) common seed certification standards and accreditation as part of a larger harmonization effort within SADC.

## Regulatory Procedure

TOSCI follows the regulations to proceed with the seed certification based on the field and laboratory standards. In field inspections, TOSCI (and therefore the private sector) needs to ensure the genetic quality, checking for distance or time isolation to avoid mixtures with other varieties, “nicking” in the case of hybrids, and the presence of noxious or common weeds. This must be done through a certain number of inspections prescribed in the standards at certain periods of growth of the seed crop. In seed testing, TOSCI uses the international ISTA rules and also has developed the quality manual required to be an accredited laboratory by ISTA. Fees for field inspections range from TZS 2,150-5,000 per hectare, with a TZS 20,000 minimum. Laboratory tests per sample are TZS 20,000 and 50,000 for seed destined for domestic and export markets, respectively.<sup>17</sup>

A lack of human and financial resources currently impedes TOSCI's ability to meet the mandates of field inspections, labeling, and seed testing in a timely manner. There are reportedly delays of up to one month in obtaining the results of the seed testing and the final seed certification approvals. This delays the printing and issuance of the labels of the seed enterprises as well as seed deliveries to agrodealers. Reportedly, this delay is not happening with certified seed of the ASA. Delays in seed certification approvals lead to below-standard seed quality in the marketplace and discourage farmers from purchasing certified seed.

The accreditation or authorization of private third parties to conduct field inspection and seed testing has the potential to substantially alleviate these delays. This approval has three advantages that benefit all parties: it would 1) relieve the pressure on TOSCI inspectors to cover the present 10,000 ha of seed fields; 2) reduce the costs of operation of TOSCI; 3) allow the private sector to streamline field operations, and 4) stop the double payment that private seed enterprises undergo presently to get their fields inspected. Policies and procedures enabling such accreditation should also ensure that such third parties are adequately trained in seed crop inspection, properly licensed, and subject to effective monitoring of their compliance with seed regulations.

Tanzania also recognizes Quality Declared Seed (QDS), a class of seed not formally recognized at the international level because it does not follow a genetically-accepted multiplication process. This category of seed was adopted by Tanzania to allow small farmers to produce and sell seed without seed certification, including breeder, basic, certified 1, and certified 2 seed classes. However, the amounts of seed produced under this method in Tanzania are quite limited when compared to the certified seed production. A judicious “graduation” of the current QDS farmers to formal certified seed production and the establishment of their own seed companies would do more for a country that urgently needs more local seed enterprises.

## SEED IMPORT AND EXPORT

### Legal Authority

The seed import/export legal framework is under the Plant Protection Act 1997, which establishes the provisions to prevent the introduction and spread of harmful organisms and regulates the import and export of plants and plants products in accordance with international agreements. In addition, the Seed Act 2003, Part III, Sections 13 and 14 establish the basic provisions governing seed imports and exports. The Seed Regulations 2007, Sections 33 and 34 establish the procedures to be followed for the import and export of seeds. The templates for all forms required for seed import or export can be found in the Fifth Schedule.

The designated authority for the application of the Plant Protection Act is not clearly defined in the provisions of the Act. It is inferred that the Minister is the authority and has an advisory committee named the National Plant Protection Advisory Committee (NPPAC). Neither the Tropical Pest Research Institute (TPRI) nor of the Plant Health Services (PHS) section of the MAFC are mentioned in the legal framework, although in practice both play a large role in the administration of the provisions of the law and regulations. Stakeholders reported the existence of an ongoing tug of war between PHS and TPRI regarding which institution has the absolute mandate to clear imported seed.

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<sup>17</sup> Seed Regulations of 2007, Sixth Schedule.

## Adoption of Regional or International Norms

EAC member countries, including Tanzania, have agreed to standardize seed import and export documentation into three main documents: a plant import permit, a phytosanitary certificate from the country of origin, and a quality certificate. A similar agreement was reached between SADC countries in 2007 with respect to common seed import and export procedures and a common pest quarantine list, but Tanzania has failed to sign the agreement and negotiations continue. For seed exports, some countries such as Kenya request the ISTA orange certificate, which Tanzania cannot issue until the ISTA accreditation of its seed testing laboratory is finalized. The Plant Health Service (PHS) and Tropical Pest Research Institute (TPRI) follow the phytosanitary measures established by the International Plant Protection Convention (IPPC).

## Regulatory Procedure

In Tanzania seed is imported mainly from USA, Uganda, Zambia, Malawi, Kenya, South Africa, Zimbabwe and United Arab Emirates (UAE). To import seeds for varieties that are already approved in Tanzania, companies need an import permit from the Seed Unit of the MAFC and must meet the phytosanitary certificate requirements of the Plant Health Services office. The import permit is issued in the different ports of entry but an export permit may only be issued in Dar es Salaam.

After obtaining the import permit, the seed importer must inform Plant Health Services of the arrival date of the consignment so that an inspector can verify as soon as possible all the documentation and conditions of the seed lot prior to release. At the same time, Plant Health Services checks with TOSCI to insure that the variety being imported has been released and registered.<sup>18</sup>

On arrival, the consignment is checked by the plant health inspectors. For tubers and cuttings, these may be detained and quarantined and the seed cannot be sold until cleared by TPRI in Arusha. This process can take 14 days in order to make the necessary verifications. Companies report that requests for “speed payments” at the borders are a regular occurrence and not insignificant cost. However, it was not possible to determine if the payments were made to customs agents, police officers or plant health inspectors. The issue of “speed payments” required at border points for entry clearance is discussed in more detail in the “Institutions” section.

A Standard Operational Procedure (SOP) for seed import and export has been developed and is followed by the Plant Health Services section. The required documents for countries outside the EAC include: Plant Import Permit, Import Declaration, and Commercial Invoice Custom for Import/Export, in addition to a Purity and Germination Certificate and a Phytosanitary Certificate from the competent authority of the exporting country.

## SEED-RELATED ENTERPRISE REGISTRATION

### Legal Authority

The Seed Unit at MAFC is responsible for the registration of seed-related entities. The registration for all seed enterprises is established under the Seed Act 2003, Part III, which states that any person who is involved in the production, processing, distribution, sale, or advertisement for the sale of seeds is required to obtain a permit from the Seed Unit. Also in Part IV, Section 15 of the Seed Act, the law establishes the registration of seed dealers, widely defined as any legal person that wishes to deal in seed production, processing, importation, exportation, distribution, or sale. The specific form for the registration of seed dealers is attached in Part II, Fifth Schedule and the corresponding fees are found in the Sixth Schedule. This registration is separate from the general business start-up registration that the company must complete via the Business Registration and Licensing Authority.

### Regulatory Procedure

The process for registration is to submit the completed application form to the Seed Unit with the accompanying documentation required by the Unit. After a favorable review of the application, the Director issues the Certificate of Registration following the form established in the Fifth Schedule of the regulations. Based on the information obtained from the Seed Unit, at the height of the voucher program there were over 4000 registered agrodealers and 65 registered seed companies. Today only 1,500-2,000 of those agrodealers and 27 of the seed companies are estimated to be actively supplying the Tanzanian seed market. The Seed Unit is in the process of trying to determine which entities are inactive for the purpose of deregistering them.

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<sup>18</sup> Vegetable seed is exempted from these release requirements.

The questions formulated in the seed dealer application form for registration purposes with the Seed Unit are not restrictive per se. However, the questions asked in the registration form (i.e. to produce or grow seed, the applicant needs to provide details of his/her own land, equipment, business profile, time that he/she has been engaged in seed business, etc.) could be used to deny a registration on grounds that are not necessarily relevant to the ability of the applicant to carry out seed production activities.<sup>19</sup> For example, the fact that an individual may not **have** land, processing equipment, or storage facilities should not preclude registration if such individual **has access to** land, equipment, or storage facilities. In the same vein, the imposition of educational requirements could also be construed as a restriction. At a moment when Tanzania needs to grow the local seed industry, few if any limitations should be placed on potential entrepreneurs. Criteria for registration approval should be established in writing to avoid confusion.

Although there is no fee for registering with the Seed Unit, seed businesses (including seed companies and agrodealers) must also register with the Ministry of Trade at a cost of TZS 20,000, obtain a 3-year district business license at a cost of TZS 75,000, and apply for a permit from TPRI for a fee of TZS 50,000.

## ACCESS TO PUBLIC GENETICS

### Legal Authority

Access to public varieties in Tanzania is restricted by the existence of the Agricultural Seed Agency (ASA), a parastatal seed company that holds the sole responsibility for the production of basic seed for all public varieties. The ASA was established in June 2006 under the Executive Agencies Act #30 of 1997. The agency is designated as a semi-autonomous body under the MAFC with the following key functions:

1. Expand seed production and distribution networks so as to facilitate seed accessibility by farmers.
2. Promote increased private sector participation in seed industry development through the establishment of public-private partnerships or joint ventures in seed production and distribution.
3. Promote increased demand for certified seed by farmers.
4. Strengthen research capacities for breeding and producing varieties that address farmers' specific demands.<sup>20</sup>

Administratively, the ASA structure is under the Minister of the MAFC as an Executive Agency and is managed by a Chief Executive Officer. ASA has three divisions to fulfill its' mandate: Production, Marketing & Distribution; and Business Support.

The ASA structure substantially limits private sector access to public genetics and makes ASA a bottleneck to the effective production of certified seed each year. Recognizing these challenges, in May 2011 the MAFC released a Ministerial Circular on Licensing of Protected Varieties of Plants, which enables increased access to breeder seed of public varieties by allowing the private sector to sign licensing contracts directly with MAFC (on behalf of the ARIs that developed the variety), as described below.

### Regulatory Procedure

In the public sector, plant breeders of the ARIs produce breeder (or pre-basic) seeds, which are then provided to ASA to produce basic seed in accordance with quality standards and in the quantities required by the private sector. Private companies can then access the basic seed to develop and multiply their own certified seed. The ARIs involved in breeder seed production include but are not limited to the list shown in Table 2.

**TABLE 2: ARIs INVOLVED IN BREEDER SEED PRODUCTION**

CROP	AGRICULTURAL RESEARCH INSTITUTE(S)
Coffee	ARI Lyamungo
Cashew	ARI Naliende
Maize	Uyole and LLonga (Kilosa) ARIs
Tomatoes	HORTI Tengeru

<sup>19</sup> The registration application forms are found in the Seed Regulations of 2007, Fifth Schedule.

<sup>20</sup> Official website of the Agricultural Seed Agency, available at <http://www.asa.ortz/>.

Regular shortfalls in the availability of basic seed in Tanzania have been blamed on ASA's retaining of basic seed for its own certified seed production program. This goes hand-in-hand with the complaint that ASA continues to hold a large market share and competes directly with the private sector. Reportedly, ASA dominates 25% of the seed market through its own independent commercial activities, which indeed is a hefty share and in contradiction with ASA's second function "to promote increased private sector participation in the seed industry development through the establishment of public-private partnerships or joint ventures in seed production and distribution."<sup>21</sup> ASA reportedly tries to provide the amount of basic seed that the private sector requires but argues that is very difficult to anticipate the needs of the private sector. ASA also does not have a formal procedure for establishing contractual agreements with seed companies, which could help to solve the problem.

The first public tender under the new MAFC Licensing Circular occurred in 2012. Three seed companies applied, and two are expected to be granted licenses within the next 3-6 months. The poor participation of the private sector in the public tender has been blamed on unnecessarily strict conditions within the Circular. The policy applies only to public sector protected varieties, leaving the majority of publicly developed genetic materials out of reach through this mechanism and solely accessible through ASA. In addition, there are other conditions that limit the interest of seed companies to enter a licensing agreement, such as the mandatory requirement to fulfill all the basic seed requirements in the seed company's area of influence or district. Revising this policy to allow for simple contractual agreements between the ARIs and seed companies could have a substantial impact on private sector investment in the seed industry, as demonstrated by a similar programs in Brazil, Argentina, and South Africa.

## **QUALITY CONTROL IN THE SEED MARKET**

### **Legal Authority**

The Seed Act 2003, Part IV and Seed Regulations, Part VIII, Section 45 establishes the authority of TOSCI to stop the sale of any seed that contravenes any provisions of the legislation. As such, TOSCI has the responsibility to check the quality of the seed in the market place, based on the attributions established by the Seed Act and its regulations. The authority to carry out this quality control lies officially with TOSCI but is also delegated to authorized district-level inspectors. TOSCI's inspectors are not granted policing power, and thus must rely on the cooperation and support of the police to enforce stop sale orders.

### **Regulatory Procedure**

To adequately control the quality of marketed seed, it is indispensable to have a clear procedure to conduct the inspections, as well as a randomized inspection plan every year to ensure that the seed in the marketplace is true to type and properly labeled. TOSCI is authorized to engage in seed market inspection but has very little capacity to do so effectively. TOSCI's small number of inspectors focus their efforts on inspection of seed company facilities and merely conduct spot checks in the market. The bulk of market inspection falls on authorized inspectors at the district level. These district inspectors, who received training from TOSCI in 2007, are authorized to conduct randomized site visits and to alert TOSCI in the event a problem is found. Overall, the quality control program covers an estimated 20% of agrodealers per year. However, in practice neither TOSCI staff nor the district inspectors have the power to enforce a stop sale order and must rely on the police. TOSCI staff report that by the time they arrive at the premises, it is not uncommon to find the police colluding with the agrodealer. Delays in budgetary disbursements also directly affect the availability of funding to put the inspectors "on the road."

As a result, fake seed is extremely common, with most interviewees estimating that 25-30% of all seed in the market in Tanzania is fake. It is nearly impossible to distinguish a legal seed sample from a fake seed sample by visual observation, and therefore a seed traceability system at TOSCI is urgently needed. The national strategy for reducing the incidence of fake seed needs to begin with a pre-defined randomized quality control program staffed by a sufficient number of duly empowered inspectors and a system of penalties and fines sufficient to deter fraudulent individuals from cheating farmers' off their livelihoods. Part of the strategy must also include a coordination of their activities with TASTA to cross-reference information with the appointed districts inspectors.

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<sup>21</sup> Official website of the Agricultural Seed Agency, available at <http://www.asa.ortz/>.

The draft amendments to the Seed Act include specific provisions aimed at strengthening and empowering TOSCI to more effectively carry out its mandate. These provisions should be carefully reviewed to determine whether the proposed structure will achieve this objective. In addition, the Seed Regulations should be revised to include stiffer penalties and fines for infringements. Under the current regulations, violators face up to TZS 1 million in fines or 3 months in jail, which is considered insufficient to deter fraudulent behavior in light of how lucrative seed business can be. The average hybrid seed costs 3-4 times the amount of grain, yet the two are indistinguishable by the consumer.

Unlike seed certification, the control of seed quality in the marketplace is inherently a government policing function that should not be delegated to a private third party entity. However, the private sector can contribute to reducing the incidence of fake seed through better commitment to brand promotion and protection. The technology exists to control seed products through the use of scratch-off codes on seed bags that enable the buyer to confirm the authenticity of the product via text. This innovation has been successfully introduced elsewhere in East Africa but is not yet present in Tanzania. Despite its promise, this approach is not a panacea, particularly in Tanzania where empty official seed packaging is often stolen straight from the company warehouse or simply opened and resown with the fake product. The technology also adds cost to the packaging, which is passed along to the consumer. For the small size packets popular with smallholder farmers, the increase may be cost-prohibitive. The feasibility of introducing technological innovations in seed packaging should be explored as one aspect of broader system for controlling seed quality in the marketplace that effectively imposes harsh penalties and fines for infringement.

## **PLANT VARIETY PROTECTION**

### **Legal Authority**

The legal framework for plant variety protection in Tanzania is the Plant Breeders' Rights Act of 2002 that came into force in 2005. In 2010, the government developed a new Plant Breeders' Rights Act in compliance with the UPOV Convention Act of 1991. In June 2012, a Bill Supplement was presented to and approved by Parliament containing final amendments required by UPOV for accession to the Convention. The Plant Breeders' Rights Registrar of the MAFC is responsible for the implementation of the Plant Breeders' Rights Act.

### **Adoption of Regional or International Norms**

Tanzania has been an observer member at UPOV, the international body that deals with plant breeders' rights, since 2011. This year, the United Republic of Tanzania deposited the legal instrument to become an official UPOV member following the adoption of a UPOV-compliant Plant Breeders' Rights Act in Zanzibar.<sup>22</sup> It is estimated that their membership will be approved during the next UPOV Council meeting in October 2013.

### **Regulatory Procedure**

All the procedures for protection of a plant variety are clearly defined in the national regulations and in line with the instructions and guidelines of UPOV. The regulatory procedure with the submission by the breeder or other entity of an application for protection to the Registrar for Plant Breeders' Rights within the MAFC. If the application is in compliance with the formalities and requirements established in the Act, the Registrar publishes a notice of the application in the gazette and in a newspaper of vast circulation. The purpose of the publication is to give to public the opportunity to raise any objection related to the applicant and/or the candidate variety. If an objection is voiced, the applicant may respond to the objection upon request by the Registrar.

The Registrar submits the samples of the candidate variety to TOSCI to undergo DUS testing after having determined the novelty and denomination requirements. After reception of the DUS results, the Registrar submits the application and test results to the Plants Breeders' Rights Advisory Committee (PBRAC), which makes the final determination on the application. The applicant is then issued a certificate evidencing his or her rights to the newly protected variety.

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<sup>22</sup> The United Republic of Tanzania is made up of mainland Tanzania, known as Tanganyika, and the semi-autonomous island of Zanzibar. In international matters, these constituent states are represented by the United Republic of Tanzania, thus both states must meet the requirements for UPOV membership.

## BIOSAFETY

### Legal Authority

The legal framework for biosafety is contained in the Environmental Management Act (CAP.191), Government Notice N 265 of 24th of July 2009. This law grants legal authority to the Ministry of Environment to regulate genetically-engineered organisms.

The National Biosafety Focal Point (NBFP) is housed in the Vice President's Office, Division of Environment, which is charged with the responsibility to review and approve biosafety applications for research, confined release, and pre-commercial release, as well as oversee the Tanzanian policy regarding biosafety at national and international levels.

The National Biosafety Committee (NBC), a multidisciplinary body of 15 members from government, non-governmental organizations, academia, and private sector, acts as an advisory body to review applications received by the NBFP. The NBC is coordinated by NBFP, which designates advisory sub-committees in the field of biotechnology and biosafety to review applications or proposals.

### Adoption of Regional or International Norms

At the international level, Tanzania is one of the 163 countries that are signatories of the Cartagena Protocol on Biosafety to the Convention on Biological Diversity, an international agreement that aims to ensure the safe handling, transport, and use of Living Modified Organisms (LMOs) resulting from biotechnology. The National Biosafety Framework is in accordance with the provisions established in the Cartagena Protocol.

### Regulatory Procedure

Any entity that wishes to engage in biotechnology research or commercialization must first establish an institutional biosafety committee (IBC) to act as the focal point for all biosafety regulatory activities and procedures.

The NBFP receives the biosafety applications for research, confined release, or pre-commercial release and transmits them to the NBC for review. In the case of agricultural biotechnology products, the Agricultural Biotechnology Advisory Committee (ABSAC) also reviews the application. In all steps from research to commercial release, the applicant must conduct a risk assessment and management of the LMO under the supervision of the NBFP. Application and licenses fees established under the Environment Management Regulations are intended for cost recovery and are not considered excessive.<sup>23</sup>

The process established in the regulations is very similar to the rest of the biosafety frameworks worldwide including the safety assessment for environment, human and animal health, and socio-economic impacts. The main principles that are included in the Tanzania biosafety regulations are: the "precautionary principle" (approval or not depends on clear scientific knowledge and lack of them shall not be used as a basis for not taking preventive actions); the "prevention principle" (risk assessment and environmental assessment to be conducted so informed decision may be made); and the "principle of strict liability" (any person affiliated with the Genetically Modified Organism (GMO) products shall be liable for any harm, injury, or loss caused directly or indirectly by the GMO or any related activity).

In practice, differing legal interpretations of the strict liability provision between the Vice President's Office and researchers has created confusion and uncertainty that have limited the scope of biotechnology research and prevented any commercialization of biotechnology products in Tanzania. The government, with USAID support through the Program for Biosafety Systems project, is currently hosting several stakeholder workshops to discuss the interpretation of the regulations and define common goals.

### The WEMA Project

The Water Efficient Maize for Africa (WEMA) Project is funded by the Bill & Mellinda Gates Foundation and the Howard Buffet Foundation. This project, established via national research institutions in five African countries, is designed to develop genetically-modified drought-tolerant maize varieties. The Tanzania Commission for Science and Technology (COSTECH) is the government agency coordinating the project, which is being implemented by researchers at the Mikochei Agricultural Research Institute (MARI). To date, there had been several confined field trials, but due to the strict liability provision in the biosafety regulations, all confined field trials have been discontinued.

<sup>23</sup> Environmental Management Act of 2004.



# IMPLEMENTING INSTITUTIONS

## TANZANIA OFFICIAL SEED CERTIFICATION INSTITUTE (TOSCI)

### Role

The Seed Act of 2003 creates the Tanzania Official Seed Certification Institute (TOSCI) as a seed certification agency with the following functions: conduct field inspections, seed sampling, and testing; accredit seed sampling and testing laboratories; train seed producers, inspectors, and analysts; liaise with ISTA and other international bodies; and carry out pre- and post-control tests. TOSCI's headquarters are located in Morogoro, and it coordinates three other stations in Arusha, Njombe, and Mwanza.

### Staff

The total staff of TOSCI is 48 of which 25 are inspectors. The headquarters technical staff is 14, with 7 in Arusha and 3 in Njombe. Three additional staff have been selected and expect their appointment to TOSCI in the near future. The staff is responsible for 10,000 ha of field inspections, seed testing of over 4,000 samples per year; quality control of 2,000 plus agrodealers, and varying amounts of DUS and VCU testing for variety release purposes. The volume of work is compounded by the number of inspections each field should have (i.e, two for self-pollinated crops and five for hybrids) and the highly variable size of fields. Three percent of seed production farms are more than 50 ha; 60% are 20-50 ha; and 37% are less than 20 ha. The number of staff is insufficient for the expected workload.

The technical staff does have a variety of skills necessary for carrying out their functions. All staff members have at least a degree in agriculture and upon entry undergo further training with the more experienced inspectors and laboratory technicians. Also, under a recent DANIDA project, the laboratory technicians were further trained in preparation for ISTA laboratory accreditation.

Due to the excessive workload of TOSCI and the magnitude of the challenge of fake seed in the marketplace, seed inspection responsibilities were delegated to over 300 district government officers (one per district). These district-level inspectors are not assigned to TOSCI but rather remain under the report and management of the district governments. Ultimately, although it appears that TOSCI has more staff, they cannot rely on the district inspectors for any programmed activities.

### Resources

TOSCI is in the process of remodeling its laboratory facilities and upgrading its headquarters buildings, complete with improved office space, seed testing facilities, seed sample storage, and germination rooms. It was not possible to evaluate the equipment and technology that TOSCI is using for their activities due to the construction process. However, in light of a recently completed DANIDA project that supported the modernization of TOSCI's laboratory, it is expected that all equipment and technological methods were updated to international standards.

TOSCI does not have any automated procedures using information technology. Furthermore, the institution is not connected electronically with any of their offices in Arusha, Njombe, and Mwanza other than by e-mail. In the case of a seed quality problem, the tracking of the problem becomes a major task and delays in resolution are to be expected. The lack of IT also negatively impacts the provision of timely information, such as the reporting of laboratory results to seed companies, which can take up to a month when it should not take more than two weeks. Equally important is the lack of connectivity with other government agencies such as the Seed Unit at MAFC and no online accessibility to the public.

### Budget

The private sector expressed concerns about the capacity of TOSCI to enforce the regulations for seed certification due to their budgetary constraints. TOSCI's annual budget is comprised of TZS 600 million in salaries, which are deducted directly by the Treasury; roughly TZS 250 million for operations; and TZS 568 million from a development fund originating at the World Bank and TZS 326 from the government's Agricultural Sector Development Program. The structure of disbursements is set up so that TOSCI must obtain approval from the central administration prior to budget expenditures. This is a quarterly exercise with the end result that the availability of funds in a timely manner is not only very uncertain but eventually also reduced to 70% of their approved annual budget. The amount TOSCI collects in fees for variety testing and seed certification are retained by the agency,

but TOSCI must get clearance from the MAFC in the form of a supplementary budget before using those funds. Thus not all activities scheduled can in fact be done on time or carried out. As reported by the private sector, the net effect is that final field inspections are not carried out on time or at all, laboratory results are delayed, or programmed quality controls are not carried out.

## **Transparency and Governance**

In general, the private sector has respect for TOSCI's technical capacity in the seed certification areas of field inspection and seed testing. However, several sources indicated that the lack of resources, particularly for purposes of field inspection, pushes the private sector feel obligated to "remedy" the situation through transport, meals, and a small allowance to ensure the required inspections are carried out on time.

TOSCI's work is at least indirectly subject to review and oversight through the variety release process. The NVRC reviews the data, results, and recommendations for release emanating from the National Performance Trial Technical Committee (NPT-TC). Administratively and financially, TOSCI has oversight from the MAFC following established government procedures for internal and external audits that effectively protect against the misuse of funds. The private sector may appeal a negative decision from the NPT or NVRC through an appeal to the National Seeds Committee (NSC), and if needed file a second appeal of the NSC decision directly to the Minister of Agriculture.<sup>24</sup>

## **MINISTRY OF AGRICULTURE, FOOD SECURITY, AND COOPERATIVES – SEED UNIT**

### **Role**

The Seed Unit Office of the MAFC is responsible for seed policy development, variety registration, updating of the national variety catalog, granting licenses for public genetics, registration of seed-related enterprises, granting of import/export permits, advising the MAFC on national seed availability for seed import recommendation, and issuing of business permits to seed companies and agrodealers.

### **Staff**

The only staff of the Seed Unit Office is the head of the unit and his assistant. Based on the number of responsibilities enumerated above, it appears that the present staff is insufficient to cover all areas appropriately. Seed policy development alone would demand a team with different skills including seed industry development, technical issues, regulatory requirements, economic analysis, and others. At a minimum, a team of four to five individuals would be more adequate.

The existing low staffed structure is an obstacle the effective operation of the Office. The Director is a well-trained individual with specialization in seed technology from New Zealand and experience in seed policymaking. Nonetheless, one individual is insufficient for all the responsibilities that the office carries. A compromise solution could be to merge the Seed Unit Office and TOSCI, allowing more human resources to be available to the Seed Unit and bringing together roles and responsibilities similar in nature.

### **Resources**

The Seed Unit is a one office facility at MAFC headquarters in Dar es Salaam. The Seed Unit has a limited computer system and no vehicles nor other facilities other than a small office within the MAFC. The office does not track data and does not have any connectivity to other related institutions, including TOSCI, other than e-mail. For example, the Seed Unit has no software program to enable it to track and share the status of the national variety catalog or national registration lists for seed-related enterprises.

### **Budget**

There is not a specific budget for the Seed Unit. Salaries and office operation are paid through MAFC central revenue allocations and are sufficient to cover the activities programmed in a summary way. The office is permitted to collect fees for the registration of seed enterprises or agrodealers under the Sixth Schedule of the Seed Regulations of 2007, but reportedly no fee is charged.

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<sup>24</sup> Seed Regulations of 2007, Part VIII, Section 41.

## Transparency and Governance

The Seed Unit reports directly to the Director of Crop Development, who signs all certificates, applications, and registrations. The unit is not perceived as a decision-making agency, but rather as an administrative and advisory body with information-gathering responsibilities. As such, checks on abuse of power or improper application of the law are conducted within the confines of the Crop Development Division of the MAFC.

## PLANT HEALTH SERVICES AND THE TROPICAL PESTICIDE RESEARCH INSTITUTE

### Role

The Plant Health Services (PHS) Division of the MAFC is responsible for controlling imports and exports to ensure that phytosanitary requirements are met. Upon arrival of an imported seed lot, PHS conducts the documentation and visual inspections of the seed lot for clearance. If there is an issue with the seed import, PHS must transfer the seed lot to the TPRI in Arusha for quarantine and evaluation. For seed exports, the PHS's only responsibility is to issue the phytosanitary certificate in compliance with the importing country requirements.

The Tropical Pesticide Research Institute (TPRI) is chiefly charged with regulation of the production, importation, distribution, sale, and use of pesticides in Tanzania, but it also has the mandate to test all seed imported from outside the country, whether for research purposes or for commercial sale. Stakeholders suggested that PHS and TPRI have been in a tug of war over which institution has the absolute mandate to clear imported seed.

### Staff

The staffing for Plant Health Services is somewhat complex. PHS is located at the MAFC in Dar es Salaam as well as at all points of entry. In addition, the TPRI, which is based in Arusha and houses the Post Entry Quarantine Station, also has staff for quarantine purposes. Comparatively speaking, the volumes of seed imported or exported from the country are miniscule when compared with all the other plant materials that are moved to and from the country. The existing staff is considered more than enough to cover all seed-related plant health requirements.

PHS inspectors are very experienced in pathogens carried by seed of different crops. They are participating in a regional EAC seed harmonization program that continuously updates their knowledge through specific workshops. This engagement on a regional level indicates that they have the knowledge and access to training necessary to carry out their seed-related duties.

### Resources

Given the low volumes of seed imports compared to other plant imports, the equipment, facilities, and technology available to Plant Health Services appear sufficient for the responsibilities assigned. The same facilities, technology, and equipment are often used for pathogens in grain, perishables, and other plant materials as for pathogens in seed. In the past five years, only two seed lots have been identified as problematic; one from a maize seed lot from Zambia and another untreated seed lot from Zimbabwe, with no reports of pathogen issues in the field after planting in all other imports. This indicates that PHS is identifying problems well and in a timely way.

There is no IT system that connects all stations and allows the authority to have real time information on ongoing inspections. However, insufficient data was collected with respect to the data tracking and sharing capabilities of PHS and related institutions. At a minimum, the private sector did not report any difficulties of this type.

In addition to its offices at the MAFC, Plant Health Services has entry point facilities and inspectors at the overland border entry points at Namanga and Tunduma as well as Dar es Salaam International Airport, Kilimanjaro International Airport, Dar es Salaam harbor, and Tanga harbor. These overland routes are critical transport points for the large amounts of seed imported from Kenya and Zambia.

## **Budget**

No information was available regarding the budget of Plant Health Services or TPRI. While both entities would clearly benefit from capital investments in their infrastructure and equipment, none of the stakeholders interviewed voiced concerns about a negative impact on seed imports or exports due to the day-to-day operating budgets of these institutions. However, outgrowers and agro-dealers expressed frustration with the level of bureaucracy within TPRI and fears that the need to generate revenue flows from high registration fees would encourage the approval of undeserving applications.

## **Transparency and Governance**

Plant Health Services and TPRI are perceived as highly professional bodies whose decisions are based on science. The two cases of rejection of an imported seed lot within the last five years were both technically justifiable, and the private sector expressed trust in and respect for both institutions and the important role that they play in preventing the introduction and spread of quarantine pests. However, seed importers complained of being subject to demands for “speed payments” at the border. It is unclear if these payments were to customs agents, police officers, or plant health inspectors. What is clear is that these “payments” are of regular occurrence and not insignificant in amount.

Plant Health Services and TPRI both report directly to the Director of Crop Development at the MAFC and are subject to financial oversight by the MAFC Financial/Audit Units.

## **PLANT VARIETY PROTECTION OFFICE**

### **Role**

The Registrar for Plant Breeders' Rights is responsible for the administration of the plant variety protection system. This responsibility entails granting of plant breeders' rights (PBR), maintaining a PBR register, maintaining documentation for public information, facilitating PBR licensing, and collaborating with national and international bodies on PBR matters. The PBR system in Tanzania effectively started in January 2005 when the PBR office was established with the appointment of the Registrar.

### **Staff**

The staff is composed of the Registrar and one assistant. This staff is complemented by TOSCI staff, who conduct the DUS field tests necessary for the evaluation of a PBR application. TOSCI collects the data and submits the results to the PBR Registrar. Because of this setup, the PBR office staff is sufficient to carry out its entire mandate.

The Registrar has extensive knowledge of the PBR system and UPOV as a product of years spent attending UPOV meetings and regional workshops and preparing Tanzania's legal framework to align with the UPOV Convention. As a result, he is regularly selected by UPOV to assist other African nations in PBR matters. Further training, if required, can be accessed from UPOV when Tanzania become a full member. Additional training on DUS may be required by TOSCI staff as additional crops are included in the PBR system.

The Plants Breeders' Rights Advisory Committee (PBRAC) is comprised of nine members, of which only three are government officials, and more than half of the members represent the private sector (4) or universities or training institutions (1). The final member of the committee is an attorney with expertise in plant breeders' rights issues.

### **Resources**

The PBR office is located at the headquarters of MAFC in Dar es Salaam. The office and equipment are highly sophisticated by comparison to the resources of other seed institutions and indeed other units within the MAFC. The Registrar has IT-based technology provided through UPOV for populating variety characteristics and making comparisons to other varieties. This access to UPOV information technology also includes the ability to search through worldwide databases.

No complaints were heard either from any quarter regarding the PBR office operation. The office does not have nor need additional facilities elsewhere in the country to carry out its mandate, although its level of service delivery to the private sector would increase significantly with the introduction of a website and online application filing capabilities.

## Budget

Although the budget for the PBR office was not reviewed as part of this assessment, the salaries for the two staff are believed to come from MAFC budget allocations. All PBR office operations are financed through the fee structure outlined below (amounts in US\$), which is comparable to fees charged in other countries:

- » Application for a grant of PBR: 200
- » Application for a Provisional Protection: 300
- » For technical evaluation of a variety (DUS): 600
- » Annual maintenance: 200
- » Purchase of a report from a testing authority in another country: 320
- » Replacement of lost or destroyed certificate: 40
- » Claim of priority from a preceding application outside Tanzania: 20
- » For change of an approve denomination: 80
- » Reinstatement of an abandoned application on petition: 80
- » Surcharge for late payment: 60
- » Application for a compulsory license: 70
- » Application for extension of the period of a grant: 100
- » Inspection of register and documents: 40
- » Duplicate page of register or documents: 0.50
- » Grant for Plant Breeders Rights certificate: 240

Worth noting is that the PBR office does pay the statutory rate for TOSCI's services rendered in the DUS testing, data collection, and submission to the Registry from their operational costs budget.

## Transparency and Governance

The main institutional decision taken by the PBR office is the granting of plant breeders' rights. Prior to granting protection for a new variety, the request is made public to allow time for public review and comment through a communication system approved by the MAFC. The PBR office reports administratively to the Minister of Agriculture and is subject to his/her oversight through the Financial and Audit Units of the MAFC. On technical matters, the PBR office works in conjunction with an Advisory Committee that represents all major stakeholders of the plant breeders' rights system including farmers and seed producers. The committee functions include making expert consideration on a PBR grant report and advising the Registrar on the actual grant of a PBR. There is also an appeals system for the private or public sector to appeal in the event the application is rejected.

## CONCLUSION

The private seed industry in Tanzania faces some fundamental challenges to investment and growth, including restricted access to breeder and basic seed, stiff competition from the ASA, and a prevalence of fake seed in the market that undermines farmer confidence in and demand for seed of improved varieties. Addressing these issues will require long-term adjustments to the legal and institutional environment as well as a fundamental shift in the Government of Tanzania's (GoT's) attitude towards and trust in the private seed sector. Tanzania is in the midst of several ongoing policy initiatives related to seed sector reform that raise cautious optimism that true reform could be on the horizon, including a commitment to the G8 for the implementation of specific reforms under the Cooperation Framework of the New Alliance for Food Security and Nutrition. The following recommendations provide a guide for donors and policymakers to effectively engage in these reforms to generate sustainable long-term growth within the seed industry.

## RECOMMENDATIONS

The following recommendations have been categorized as urgent and critical, critical, or non-urgent but important. Urgent refers to those recommendations that should be addressed prior to the next planting season, critical recommendations are those that need to be included or implemented in the regulatory regime for further development of the seed sector, while those under the important category refer to those that need have lengthy processes and will therefore require regular accompaniment and follow-up

### LEGAL FRAMEWORK

<b>Urgent</b>	<b>Develop a national program for the control of seed quality in the marketplace.</b> A country with a reported 20-30% of fake seed needs to take urgent steps that protect their farmers with a strong quality control program. A fake seed average of 25% and a national production of 28,000 tons of seed signify that over a quarter of a million farmers are not only being cheated but their livelihoods put at risk each year. The lack of timely budgetary and human resources should be addressed by the Ministry of Agricultural, Food Security, and Cooperatives (MAFC). The pressure on TOSCI's budget would also be alleviated through the accreditation of third parties for seed certification, freeing up additional budgetary resources to focus on market visits. <b>A good seed market quality control program over a 2-year period with heavy randomized site visits, clarification and expansion of powers to inspectors, district inspectors, and police, and a stiffer system for penalizing offenders</b> would make a significant impact on would-be cheaters.
<b>Urgent</b>	<b>Advise the Government of Tanzania (GoT) on Seed Act amendments.</b> The government of Tanzania is undergoing a review of the Seed Act that opens the door to ensure that all critically needed modifications to the legal framework are addressed. In their current form, the draft amendments have the potential to tackle a number of the problems identified in this report, including provisions to strengthen the power and authority of TOSCI. <b>Private sector bodies such as Tanzania Seed Trade Association (TASTA) and the Agricultural Council of Tanzania should be consulted in this process,</b> as well as banks involved in agriculture such as the National Microfinance Bank. USAID and other donors could complement this effort by providing knowledgeable and unbiased external advisors to review the proposed Seed Act revisions and work with the MAFC and other stakeholders to ensure the reforms are as effective as possible.
<b>Critical</b>	<b>Revise Licensing Circular.</b> The development of the licensing circular is a good effort by MAFC to resolve the basic seed issues between ASA and the private sector. At the same time, <b>the licensing policy could and should be modified to provide for a licensing agreement between two parties without conditions.</b> The conditions of only licensing protected varieties and having to cover all basic seed needs of a region limit private sector interest and complicate the implementation of the agreement. Consideration should also be given to establishing licenses directly between the private sector and Agricultural Research Institute's (ARI's) in lieu of the MAFC.
<b>Critical</b>	<b>Ensure Finance Act revisions align with G8 commitments.</b> Under the Cooperation Framework of the New Alliance for Food Security and Nutrition, the GoT has committed to reducing or lifting all taxes on seeds and seed packaging, including abolishing the crop cess and granting exempt or zero-rated status under the VAT regulations. The timeline for completing these reforms is July 2013, in line with the GoT's stated commitment to include these reforms in the Finance Act of 2013, which is currently under consideration in the Ministry of Finance. Efforts should be made immediately to <b>work with the Ministry of Finance to ensure these needed tax reforms are addressed in this year's Finance Act.</b>

## LEGAL FRAMEWORK (CONTINUED)

<b>Critical</b>	<p><b>Authorize third parties to conduct seed certification.</b> Third party seed certification is allowed under the present Seed Act but should be further clarified in the revision of the Seed Act. <b>This recommendation is complementary to the seed certification recommendation and provides an additional resource to TOSCI to increase control coverage and reduce costs.</b> This third party certification is also an OECD-approved function for national authorities and one of the SADC agreements. TASTA has expressed a willingness and readiness to be accredited for this function. Policies and procedures enabling such accreditation should also ensure that such third parties are adequately trained in seed crop inspection, properly licensed, and subject to effective monitoring of their compliance with seed regulations.</p>
<b>Critical</b>	<p><b>Allow breeders to supply their own data when applying for variety release.</b> Applicants for variety registration and release are currently required to submit two years of advance trial data, then pay fees to TOSCI to conduct an additional two seasons of DUS testing and 1 season of Value for Cultivation or Use (VCU) testing. Allowing breeders to supply their own testing data would considerably shorten the timeline for release of new varieties.</p>
<b>Critical</b>	<p><b>Revise the committee process for variety release.</b> Variety release decisions undergo four levels of review before a final decision is made. Streamlining this process through combining the NPT-TC and National Variety Registration Committee (NVRC) and eliminating review by the NSC would avoid lengthy delays in variety release and bring Tanzania's procedures in line with those of its East African neighbors. This reform will require an amendment of the Seed Act and is indeed already contemplated as part of the proposed amendments to the Seed Act. <b>This reform should be strongly supported as the revisions to the Seed Act are finalized.</b></p>
<b>Important</b>	<p><b>Critically evaluate the parameters of the proposed MAFC credit guarantee program.</b> The MAFC has proposed replacing the input voucher scheme with a credit guarantee program that would subsidize loans from private banks to certain producer groups. Any such proposal needs to be carefully vetted to ensure that appropriate incentives are created on the part of the lender and borrower and that there is a clear exit plan.</p>
<b>Important</b>	<p><b>Convene additional stakeholder workshops to agree on national biosafety regulations.</b> Discussions held with the Division of the Environment of the Vice President's Office (VPO) seemed to indicate that the interpretation of the strict liability clause was the main barrier to reaching an understanding of the regulations between the VPO and researchers. Continuing the scheduled string of workshops to discuss this issue between stakeholders on both sides may lead to the adoption of language acceptable to both parties. At the same, <b>further strengthening of the biosafety system should give the necessary guarantees</b> to avoid and/or resolve potential issues.</p>

## IMPLEMENTING INSTITUTIONS

<b>Urgent</b>	<p><b>Modify the role of Agricultural Seed Agency (ASA).</b> The first function of ASA is “to produce and market seed” while the second function of ASA is “to promote private sector participation in seed production” as prescribed in their mandate. ASA is fulfilling its first mandate well but at the same time has a market share of approximately 25%, producing over 5,000 tons of seed per year, which conflicts with the second mandate. Both functions are critical for reaching all farmers, but there are two simultaneous activities that can resolve this valid private sector complaint: a) the immediate establishment of clear and transparent criteria, agreed upon by all parties involved, by which the <b>ASA will gradually withdraw from all seed production as private sector capacity to meet farmer demand increases;</b> and, b) <b>reorient ASA funding to promote the development of new seed companies in under-served regions of Tanzania through private sector services in marketing, business planning, and internal quality control mechanisms, as well as increasing farmers’ understanding of the importance of certified seed.</b></p>
<b>Urgent</b>	<p><b>Revamp budgetary and technical frameworks of Tanzania Official Seed Certification Institute (TOSCI).</b> The lack of a strong seed certification service impacts immediately the quality of the seed placed in the market. Registration with poor follow-up on seed actors, untimely field inspections, and delayed seed testing results are being caused mainly by time-delayed approvals of budgets and staff. <b>It is in the best interest of the MAFC to modify the budget approval system to a complete year approval</b> rather than piecemeal, ensuring high quality seed in the market. However, this should not remove the major responsibility that each seed enterprise has to produce and market high quality seed.</p>
<b>Critical</b>	<p><b>Improve data management.</b> Data on seed production, imports, sales, and demand levels abounds, yet the data collection methods and formulas used to produce these statistics is unknown. Stated statistics from various public sources vary widely. A comprehensive and transparent strategy for data management should be established that forms the basis for sound policymaking for the seed sector and should include a platform for sharing information locally between farmers, extension providers, and researchers. Formal information sharing between seed regulatory institutions is also needed so that testing data can be readily shared between research stations across the country and an official version of the national variety list can be easily accessed by the Seed Unit, TOSCI, Plant Health Service (PHS), and the public.</p>
<b>Critical</b>	<p><b>Establish a variety maintenance program at ARIs. The genetic quality of the breeder seed coming out of the ARIs must be improved to avoid multiplying problems rather than seed.</b> Every bag of seed that is sold with sub-standard quality directly affects negatively the name of certified seed, affecting future sales and market expansion. This variety maintenance process is not only lengthy but continuous throughout the life of a seed system and needs to be constantly monitored. It should be followed by a good seed certification system for basic and certified seed as mentioned above under “Urgent and Critical.”</p>
<b>Important</b>	<p><b>Obtain International Seed Testing Organization (ISTA) accreditation of the official national seed laboratory.</b> Several seed enterprises that export seed to other African countries and Europe need to provide the ‘orange certificate’, an internationally recognized certificate that allows them to export. TOSCI has been seeking ISTA accreditation for multiple years and has received ample assistance from DANIDA and other donors. <b>A time-lined commitment from TOSCI and a continuous monitoring and evaluation sub-system need to be put into place for ISTA accreditation to finally occur.</b> The MAFC Seed Unit may be a good option for this monitoring and evaluation role.</p>
<b>Important</b>	<p><b>Prepare seed certification system for joining OECD.</b> The same recommendation holds true for OECD as expressed in the above for ISTA accreditation. Accessing membership to OECD is also a long process that demands time and effort and a strong commitment to the process as well as capacity building within TOSCI in terms of infrastructure, seed technologists, laboratory technicians, and field inspectors at the district level. The assistance of the PBR Registrar’s Office should prove invaluable, given the recent experience in successfully achieving all of the requirements for International Union for the Protection of New Varieties of Plants (UPOV) membership.</p>



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