



Registering and Certifying Agricultural Inputs in Tanzania:

**An Updated Assessment
of Key Constraints and
Recommendations for
Change**

Tanzania Sector Study

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Sections of this report draw extensively on previous studies of the agro inputs sector in Tanzania and across East and Southern Africa (see References). Many of these studies are supported by empirical research of greater depth than the present study and every effort has been made to acknowledge them.

Finally, all factual mistakes and errors of interpretation are the author’s own.

Acronyms and abbreviations

AECF	Africa Enterprise Challenge Fund
AATF	African Agricultural Technology Foundation
ACT	Agricultural Council of Tanzania
ARIs	Agricultural Research Institutes
ASA	Agricultural Seed Agency
AGRA	Alliance for a Green Revolution in Africa
BRN	Big Results Now
BCAS	Biological Control Agents Subcommittee
COMESA	Common Market for Eastern and Southern Africa
DANIDA	Danish Development Corporation
DUS	Distinctiveness Uniformity and Stability
EAC	East African Community
ESAFF	Eastern and Southern Africa small-scale Farmers' Forum
EU	European Union
FSDT	Financial Sector Deepening Trust
FANR	Food, Agriculture and Natural Resources directorate
GMO	Genetically Modified Organism
IFPRI	International Food Policy Research Institute
ISTA	International Seed Testing Association
KEPHIS	Kenya Plant Health Inspectorate Services
MLND	Maize Lethal Necrosis Disease
MAFC	Ministry of Agriculture, Food Security and Cooperatives
NBC	National Biosafety Committee
NBFP	National Biosafety Focal Point
NPT	National Performance Trail
NPT-TC	National Performance Trial Technical Committee
NPPAC	National Plant Protection Advisory Committee
NVRC	National Variety Release Committee
OPVS	Open Pollinated Varieties
OECD	Organisation for Economic Cooperation and Development
PARTS	Pesticides Approval and Registration Technical Subcommittee
PMO	Prime Minister's Office
SAGCOT	South Agriculture Growth Corridor of Tanzania
SADC	Southern Africa Development Community
SFSA	Syngenta Foundation for Sustainable Agriculture
TAEC	Tanzania Atomic Energy Commission
TBS	Tanzania Bureau of Standards
TFRA	Tanzania Fertiliser Regulatory Authority
TAHA	Tanzania Horticultural Association
TOSCI	Tanzania Official Seed Certification Institute
TPA	Tanzania Ports Authority
TASTA	Tanzanian Seed Trade Association
TPRI	Tropical Pesticides Research Institute
DFID	UK Department for International Development
USAID	United States Agency for International Development

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Introduction

As the Africa Enterprise Challenge Fund (AECF)¹ portfolio has grown in Tanzania, it has become increasingly important to ensure that learning and challenges are shared and that the AECF takes advantage of opportunities to effect changes to market systems. The AECF has therefore commissioned studies to draw insights that help to support and inform changes to broader market systems in Tanzania.

This study is the second in the series and builds upon an initial report published in 2014. It draws upon more than 15 interviews with industry participants, regulators, researchers and advocacy organisations conducted in Tanzania in June and July 2016.

The purpose of the report is (i) to document the often opaque regulations that govern the registration and certification of three types of agricultural input – seeds, fertilisers and pesticides – in Tanzania; (ii) to identify the constraints that companies face in introducing new and improved inputs; and (iii) to provide a series of pragmatic, achievable recommendations for making the registration process for agro inputs less costly and more agile.

What are the core priorities for the registration and certification of new inputs? What are the costs of excessive and misdirected regulation over input registration? When should government agencies assume first-line responsibility for regulation and when is it better to allow suppliers and consumers to self-regulate?² Amid the broader changes in agro input supply and demand that have occurred since markets in Tanzania were liberalised in the 1990s, these questions have often been overlooked.

Yet their importance is difficult to overstate. Ease of access by farmers to affordable and high-quality inputs and technologies is a crucial precondition to securing higher yields and therefore higher incomes. At present, however, the percentage of Tanzanian farmers using improved seed, fertiliser and agrochemicals remains negligible. The application of more customised and high-performing inputs, as opposed to commoditised products that have been on the market for 40 years or more, is lower still.

A key reason for such low usage, this paper argues, is the unnecessarily restrictive, lengthy and costly process for registering and certifying new inputs and technologies. This barrier, combined with a general lack of available information on the registration process, can dissuade

domestic and international companies from engaging in the comparatively small Tanzanian market.

If these regulatory bottlenecks could be removed and a leaner, more effective system put in their place, then innovators would be well positioned to introduce new agricultural inputs that could significantly boost agricultural growth in Tanzania. Indeed, by comparison to other policy levers such as Tanzania's complex and costly agricultural subsidy programmes, the removal of these procedural barriers represents a straightforward, quick and low-cost way to unlock the country's long recognised potential as a 'sleeping giant' of agriculture.³

1 The Africa Enterprise Challenge Fund is a US\$250m private sector fund designed to stimulate investment by the private sector in new and innovative business ideas with the potential for wider social benefit. In Tanzania, the AECF funds more than 70 businesses in agribusiness and renewable energy.

2 Tripp and Gisselquist asked the same questions in a study on agro input regulation across Africa at the time of market liberalisation in the mid-1990s, and they remain pertinent today. See Tripp and Gisselquist (1996).

3 Benson, Kirama and Selejio make this point forcefully: 'Inorganic fertilizer is one of a handful of agricultural technologies that have immense potential for raising the productivity of poor smallholders, enabling them to increase income, accumulate assets, and set themselves economically on a pathway out of poverty.' See Benson et al (December 2012).

1. Executive Summary

Overview

- Tanzania's agricultural sector is central to the economy but productivity is strikingly low, in large part due to the limited adoption by farmers of recommended agricultural inputs such as improved seed, fertiliser and agrochemicals (pesticides). Prices of agro inputs are generally high, quality is often low and availability is limited.
- This study argues that a leading cause of dysfunction in the market for agro inputs is the protracted and costly process for registering and certifying new inputs and technologies. As such, shortening and simplifying the registration process would have an immediate and positive impact on the input market: boosting supply, increasing competition and enhancing product quality and availability for farmers. This, in turn, would boost agricultural productivity and incomes.

Seed sector

- Most interviewees for this study observed (1) that the process for commercialisation of new seed varieties should be streamlined and made more transparent; and (2) that seed multiplication should be primarily a private sector activity, with the public sector in a facilitative role only. Three changes would be required to achieve this: first, the state-owned Agricultural Seed Agency (ASA) should moderate its activities to stop competing directly with private companies in the marketing of seeds; second, the onerous conditions attached to the multiplication of basic seed by private companies should be relaxed; and third, the seed variety release process should be simplified and clarified (see Recommendations).
- A further priority is for Tanzania to obtain accreditation with the International Seed Testing Association (ISTA). This would, at a stroke, open up export markets for Tanzanian seed and boost the country's prospects of becoming a genuine regional seed hub and base of operations for multinational seed companies.

Fertiliser sector

- In the fertiliser sector, innovators face serious challenges due to the over-regulation that has resulted from implementation of the 2009 Fertiliser Act. The Fertiliser Act established a new regulator for the fertiliser sub-sector, the Tanzania Fertiliser Regulatory Authority (TFRA), whose interpretation of the legislation has been rigid.
- The TFRA's insistence that each fertiliser blend undergo an expensive three-year registration process has proven damaging to the sector. The TFRA's one-size-fits-all stance has prevented Tanzanian farmers from accessing the customised and crop- or soil-specific fertilisers that are now widely available in the global fertiliser market.
- To allow customised fertilisers into the market, the Government of Tanzania should waive the multi-year, \$30,000 registration requirement for customised blended fertiliser products, provided the components that make up the blend are already registered. This should be followed by amendments to the 2011 Fertiliser Regulations that confirm a shift away from registering individual blends – of which there are an unlimited number – in favour of registering only the core fertiliser ingredients/components.

Agrochemical (pesticide) sector

- In the agrochemical (pesticide) sector, the unduly long registration process and flat fee for registering new agrochemical products makes the process inflexible. In some cases, the cost of registration far exceeds potential future revenues, thus removing any economic incentive to introduce the product. A further challenge is that the list of allowable chemicals is restrictive and does not reflect the recent global shift away from blanket pesticides and insecticides towards 'softer' (e.g. pest-specific) products. This creates a bias in favour of outmoded, more environmentally damaging products. Hence, the focus for reform of the registration process should be on updating the current list and introducing a more nuanced and graduated fee structure.
- A clear regulatory framework for registration of non-chemical bio-pesticides should also be established, with clarity over which regulatory agency has authority over this process.

Regional harmonisation

- Efforts to harmonise national regulations across East and Southern Africa have the potential to widen and deepen agro-input markets. However, after decades of effort to harmonise national agro-input policies across the Southern Africa Development Community (SADC) and the East African Community (EAC), the regulatory frameworks of the member countries remain highly diverse, with different testing periods and requirements, certification standards, registration lists and border controls.
- On-going regional harmonisation efforts deserve support and, in the case of EAC seed sector, they have already delivered results (with a one-season fast-track process introduced for seed varieties already registered elsewhere in the EAC); but given that regional institutions can be slow-moving and lack the authority to enforce agreements at a national level, the GoT is advised to pursue a unilateral harmonisation and reform agenda for the registration of new agro-inputs wherever possible – for example, by shifting to automatic registration for certain product types and/or by recognising the registration lists of some neighbouring countries. Such an approach would have a positive demonstration effect regionally.

Key challenges and recommendations

- Several challenges are common to the registration and certification process across all agro-input markets in Tanzania. They include: weak legislative process whereby the private sector is rarely consulted and over-regulation is the norm; poor enforcement of existing laws prohibiting counterfeit products, which prompts regulators to erect steep barriers to the introduction of new products; underfunded regulatory institutions; ad hoc policy making and interpretation of laws, which generates uncertainty for companies and imposes high costs; and a failure by regulators to communicate policy guidance, leading to misinterpretation, uncertainty and opportunities for corruption.
- Equally, several recommendations for reform of the registration process can be applied to all agro-inputs, including: the requirement to digitise and publish available market and regulatory information online (such as an up-to-date list of all approved and registered products); the need to improve levels of consultation between the public and private sectors; the need to distinguish between – rather than conflate – regulations that address counterfeiting and regulations governing the introduction of new products; and the overarching necessity for regulators to move from an interventionist stance towards a more open and self-regulating process for the introduction of new inputs.

Latest developments

- In the seed sector, there has been a reduction in the length of time required to register new seed varieties since 2014 but the process still takes at least two years and costs several thousand dollars, making it notably

more expensive than neighbouring seed markets such as Zambia. A second on-going bottleneck is that the variety release pipeline overseen by TOSCI, which is designed to introduce registered varieties into the certified seed multiplication sector, remains highly inefficient. Greater private sector participation in the production of foundation seed is required.

- Implementation of regional regulations enabling companies to introduce improved seed varieties that have already been released in other SADC and EAC countries has been sporadic: some companies have successfully fast-tracked the registration of EAC/SADC-registered seeds, while others have failed. The challenge is to make this system of fast-tracking regionally registered varieties more efficient and standardised, so that it becomes the norm.
- Finally, while the GoT has stated that ISTA accreditation is nearly finalised, the process has not yet been completed.
- In the fertiliser sector, the TFRA has committed to implementing the following key changes, following advocacy by the Tanzania Horticultural Association (TAHA): (1) The trialling period for new fertilisers will be reduced from three planting seasons to a single season, with testing done simultaneously in at least two different ecological zones; (2) the requirement for annual renewal of fertiliser and fertiliser dealer registrations will be abolished; (3) no separate registration process or field trials will be required for new fertiliser blends; and (4) the cost of field trials for new fertilisers will fall from £30,000 to £10,000.
- Together, these changes would prove transformative to the fertiliser industry. All that is required to enact them is an amendment to the 2011 Fertiliser Regulations, signed off by the Minister for Agriculture. According to TFRA officials, this will be achieved before the end of the 2016 calendar year. However, until this happens, the operating environment for fertiliser companies will retain most of the same characteristics and challenges outlined in the original 2014 edition of this report.
- In the pesticide sector, TAHA has engaged with the TPRI to request the following amendments to the existing Plant Protection Act (1997): (1) a reduction in the length of the registration process for new pesticides from three cropping seasons to one season; (2) a reduction in the registration trial time for pesticides that have already been trialled in accredited laboratories and registered in neighbouring countries that have similar climatic conditions; (3) harmonisation of the laws for pesticide registration among all EAC countries; (4) a reduction in the cost of registering new pesticides from the current fee of \$10,000; and (5) clarification on the process for registration of bio-pesticides and amendment to the Plant Protection Act to reflect this.
- However, as an Act of parliament, the Plant Protection Act will prove harder to amend than the 2011 Fertiliser Regulations and the process is likely to take longer than the equivalent changes envisaged for the fertiliser sector. Again, until this happens, the operating environment for pesticide companies will continue to feature very similar characteristics and challenges to those outlined in the original 2014 edition of this report.

2. Tanzania's Agricultural Inputs Sector

Overview

The agricultural sector is central to the Tanzanian economy, with more than three quarters of the labour force employed in farming.⁴ The country is food self-sufficient, producing around 13 million metric tons (mt) of food crops compared to a national food requirement of roughly 12m mt.⁵ Yet the history of Tanzanian agriculture since independence is largely one of failed potential. The country is endowed with a rich array of natural resources but productivity remains strikingly low. Agriculture contributes only one quarter of GDP, held back by a range of structural limitations such as low technology adoption, lack of access to credit, high transportation and distribution costs, weak extension services and a failure to commercialise at scale.

A further constraint is the government's policy inconsistency, which deters investment. Ministers and regulators have a tendency to make ad hoc policy changes without prior consultation with private sector stakeholders.

However, the most significant cause of low productivity is the drastically low use of recommended agricultural inputs such as improved seed, fertiliser and agrochemicals. Weak adoption of agro inputs is recognised by many as the leading driver of entrenched poverty among the 80% of Tanzanians living in rural areas. Prices of agro inputs are higher than elsewhere, quality is generally low and availability is limited.

Of course, inputs are used in commercial agriculture, where such products can be bought in bulk, but this represents only a fraction of all agricultural activity. In the vast subsistence and small-scale farming sector, where individuals and poorly organised farmer groups lack capacity and purchasing power, input use remains limited.

Application rates

According to the 2010/2011 National Panel Survey (NPS), the use of improved seed by farming households in Tanzania stands at 16.8%;⁶ the average fertiliser application rate could

be as low as 5–7 kg per hectare – lower than the African average and piling in comparison to the 70–100 kg/ha application rates recorded in developing economies in Asia and Latin America;⁷ while in the agrochemicals sector, only 14–17% of farming households use any registered chemical products. Across the board, application rates remain well below optimum levels, with latent demand far outstripping the supply of timely, affordable and appropriate inputs.⁸

The opportunity cost of failing to use proper inputs is vast. For instance, average maize yield in Tanzania is 1.5 tonnes per hectare, while the World Bank estimates that the potential yield using sound agronomic practices and adequate quantities of fertiliser is closer to 6–7 tonnes.⁹

Removing supply-side constraints

Chronic under-investment and inefficiency in agro input markets is the backdrop to this paper's assessment of the regulatory barriers that currently prevent new and improved agro inputs from entering the Tanzanian market. Clearly, the difficulty that input supply companies face in registering and certifying new inputs represents only one among several constraints at different stages of the agro input value chain. Nevertheless, removing these supply-side barriers would have an immediate and positive impact: boosting supply, increasing competition, and enhancing product quality and availability for farmers. Moreover, this supply-side action would be far easier and faster to achieve than more costly demand-side policy interventions designed to boost input usage, such as subsidy and voucher schemes.¹⁰

⁴ Agricultural Council of Tanzania (2012) and World Bank (November 2012) 'Agribusiness indicators: Tanzania'.

⁵ World Bank (November 2012).

⁶ A 2008 study on the maize sector by CIMMYT, the International Maize and Wheat Improvement Centre, placed Tanzania in the context of its regional peers. At that time, the adoption rate for improved maize seed varieties in Tanzania and Ethiopia was 21–22%, while Uganda (54%) and Kenya (74%) lifted the average for Eastern Africa to 37%. In Southern Africa, adoption rates were higher: Mozambique mirrored Tanzania with 22%, but widespread adoption of improved maize seed in Zambia (81%) and Zimbabwe (93%) gave the region an average adoption rate of more than 50%. However, maize is among the most commercial of all crops in sub-Saharan Africa – improved seed adoption rates for other crops are likely to be substantially lower. See Langyintuo et al (2008) and a summary in MacRobert (2013).

⁷ The World Bank's 'Agribusiness indicators: Tanzania' (2012) report suggests a higher figure of 19.3 kg/ha, while an interviewee for this study put forward a figure of 10 kg/ha. Both figures are still very low.

⁸ Agricultural Council of Tanzania (2012), pp. 12–14.

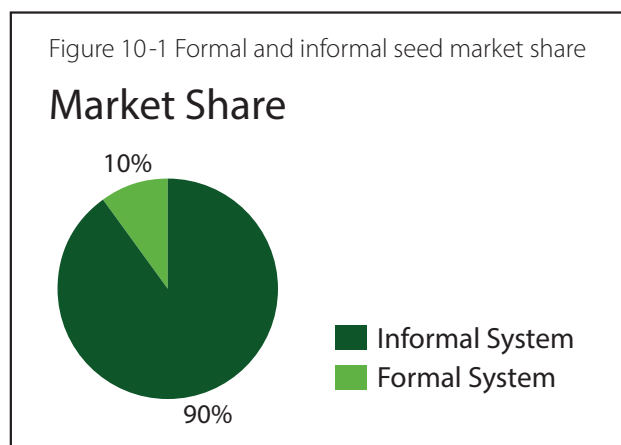
⁹ World Bank (November 2012), p. xi.

¹⁰ Despite the wave of privatisation and deregulation that occurred in the early 1990s, the government, supported by donors, continues to intervene on the demand-side of the market through various input subsidy and voucher schemes. The largest is the National Agricultural Input Voucher Scheme (NAIVS), a system of direct resource transfers to farmers which began in 2008 and continues today. Under the NAIVS, the price of fertiliser is subsidised at an average rate of 50% of retail cost. Questions hang over the scheme's value for money and sustainability: the Prime Minister himself has voiced concern over corruption in the distribution and re-sale of NAIVS vouchers. Still, the scheme has had positive effects, such as enhancing the capabilities of agro-dealers working at the district level to expand into rural areas.

3. The Seed Sector

Evolution of the seed industry

From independence, the seed supply chain was controlled by the Tanzanian state. The Tanzania Seed Company, created in the early 1970s, was the sole producer and distributor of seeds for many years before insolvency led to its collapse. However, by the early 2000s the sector had been liberalised and a large number of private seed companies had entered the market. Today, roughly 80% of the formal seed supply is provided by the private sector, of which 85%+ is imported by large South African and Zambian firms.¹¹ For the most part, private seed companies have focused their activities on maize production in northern parts of Tanzania and in the Southern Highlands where commercial agriculture is most prevalent – at the expense of developing a strong presence in the country's central and western regions.¹²



Source: 'Regional Access to Seeds Index for Eastern Africa', Prepared by CARDO for the Access to Seeds Foundation (December 2014)

The total supply of improved seed as of 2011/2012 was approximately 29,000 mt per annum, roughly 85% of which was accounted for by hybrid maize varieties.¹³ This supply figure is well short of the Ministry of Agriculture's conservative 120,000 mt per annum estimate of the latent demand for improved seed.¹⁴ Indeed, one recent report by the Bill and Melinda Gates Foundation identified total seed demand in Tanzania at approximately 212,000 MT per year.¹⁵ At present, a large share (roughly 90%) of this demand gap is met by the informal sector, via recycled seed.¹⁶

Adoption rates for quality seed remain extremely low: only 27% of maize cultivated uses improved seed, while just 1% of the cropped area for rice is estimated to have used improved seed. Overall, about 15% of the seed planted in Tanzania is registered and certified. The main cause of these low adoption rates is prohibitively high prices – the seed-to-grain price ratio for hybrid maize in Tanzania stands at 10:1, notably higher than in many regional neighbours.¹⁷

Clearly, there is a yawning gap between the supply of and demand for quality seed. Much of this gulf is filled by the informal seed sector: a large percentage of smallholder farmers either keep and recycle seed from the previous season – instead of buying new seed annually – or trade informally in small quantities with neighbouring farmers. The problem is that much of this old seed is diseased and low yielding.

11 Agricultural Council of Tanzania (2012) and World Bank (November 2012). See also: Alliance for a Green Revolution in Africa (AGRA). 2014. An assessment of agricultural policy and regulatory constraints to agribusiness investment in Burkina Faso, Ethiopia, Ghana, Nigeria and Tanzania. AGRA: Nairobi, Kenya.

12 USAID/SeedCLIR Tanzania (July 2013). According to the Bill and Melinda Gates Foundation, maize is grown by more than 50% of Tanzanian farmers, covers 45 percent of total arable land and generates close to 50% of rural cash income. See: 'Development of Anti-Counterfeiting Program in East Africa: Summary of Project & Next Steps', Report prepared for the Bill and Melinda Gates Foundation in collaboration with Monitor Deloitte.

13 World Bank (November 2012), p. 8. The source for the data is the Seed Unit, MAFC.

14 Agricultural Council of Tanzania (2012) and World Bank (November 2012). By comparison, the ratio of the hybrid maize seed price to the maize grain price in neighbouring Kenya has halved in recent years – from more than 10:1 in 2005 to 5:1 in 2012. For more detail, see the World Bank's (January 2013) 'Agribusiness indicators: Kenya', pp. 20–21.

15 'Development of Anti-Counterfeiting Program in East Africa: Summary of Project & Next Steps'; Report prepared for the Bill and Melinda Gates Foundation in collaboration with Monitor Deloitte

16 According to a 2015 FAO report, "It is estimated that over 70,000 MT of maize seed is used each year in Tanzania. Of this, about 80 percent is seed that has been retained by the farmers from the previous harvest. Of the remainder, approximately 12 percent are hybrid seeds and 9 percent are non-hybrid seeds purchased by farmers, mainly from local sources. The current grower-purchased seed market is valued at US\$18 million." See: 'The Maize Value Chain in Tanzania: A report from the Southern Highlands Food Systems Programme' by Jeffrey Lewis and R. Trevor Wilson (FAO, 2015). One interview for this study also noted that more than 50% of all seed used in Tanzanian is likely to be recycled.

17 This section draws heavily on World Bank (November 2012).

Public versus private sector roles in the seed system

The proper respective roles of the public and private sector in Africa's seed systems are subject to debate. A seed industry that is entirely government-run risks becoming inefficient and inflexible to consumer needs. Yet a seed system dominated only by private firms may underinvest in varietal development for seeds that appear to offer limited commercial returns. Hence, there is likely to be some need for both public and private actors; but where to draw the line? How much of the seed industry value chain represents commercially viable activity and how much requires support from scarce public resources?¹⁸

In Tanzania, it is widely accepted that the public sector Agricultural Research Institutes (ARIs) play a crucial role in producing pre-basic ('breeder') seed. Without the ARIs, the private sector alone is likely only to undertake the lengthy process of breeding new varieties for profitable crops that have the potential to be marketed at scale, such as hybrid maize and selected vegetable and cash crops.

If the purpose of the ARIs is broadly accepted, the role of the Agricultural Seed Agency (ASA), a government parastatal, is more controversial. In addition to multiplying ('bulking') basic seed,¹⁹ ASA competes directly with the private sector through a certified seed production and marketing programme. A sizable cross-section of industry participants disagree with this part of ASA's activities and share the view that the private sector alone, supported by a conducive policy framework and ready access to basic seeds, should be responsible for marketing seeds – not only for high-value crops but also for Open Pollinated Varieties (OPVs) of food crops.²⁰ With ASA participating directly in the market, the government – industry players assert – has failed to accept that the seed industry should be primarily a private sector activity, with the public sector in a facilitative role only.

The regional context

The debate over ASA's role is emblematic of a larger debate across sub-Saharan Africa. A large number of African countries over-regulate and intervene directly in their seed sectors, despite the pressing need to ensure open and competitive markets that can produce quality affordable seed for farmers. The recurring features of overly bureaucratic seed systems in sub-Saharan Africa include complex and unclear requirements for variety release, prohibitions on the bulking of basic seed by private companies, and lengthy and expensive certification requirements and phytosanitary controls.²¹

The need for robust seed policies, regulators argue, is based on the government's obligation to protect farmers from inadvertently buying seed that is either mislabelled, fake, ill-suited to the local ecology or fails to meet national standards.²² Regulators generally have little time for the argument that seed companies are anyway incentivised to self-regulate and protect both their brand and market share by providing a quality product that meets customer needs.²³

Against this regional backdrop, Tanzania's seed system lies somewhere in the middle of the group, some way behind the best performers but nevertheless ahead of several regional neighbours. On the one hand, Tanzania is less rigid and contradictory in its approach than Uganda, where seed legislation represents a "bewildering patchwork of imperfect and incomplete acts, bills and policies",²⁴ where the Seed Board has never convened and where the National Agricultural Seed Policy has yet to be passed into law. On the other hand, none of the regulators involved in Tanzania's seed sector can match the effectiveness and the degree of autonomy of Kenya's Plant Health Inspectorate Services (KEPHIS).²⁵

21 See Keyser (2013) and the summary provided in Joughin (2014), p. 18.

22 The sale of counterfeit, expired or substandard agro inputs is common. Unethical agro-dealers, sometimes in collusion with importers, re-package fake material and sell it to farmers. The exact prevalence of fake inputs is unknown but one industry participant estimated that 35% of all inputs sold in Tanzania are fake. In the absence of any empirical data this seems a reasonable estimate. See Agricultural Council of Tanzania (2012), p. 8.

23 Joughin (2014), p. 19.

24 Joughin (2014), p. 17.

25 Outside of South Africa, KEPHIS represents best practice regionally in terms of managerial independence, staffing and the ability to carry out activities on time and on budget – including field inspections, stamping out counterfeit seed products, and testing new seed varieties and recommending them for release. However, KEPHIS's role is now under threat. In 2013, the Kenyan parliament passed two new pieces of legislation – the Agriculture, Fisheries and Food Authority (AFFA) Act and the Crops Act 2013 – that would strip KEPHIS of its regulatory role and autonomy. Under the new laws, KEPHIS and other parastatals will be brought under a single umbrella body to be led by a new government-appointed Director General. In a telling endorsement of KEPHIS, industry players have publicly appealed for the new laws to be amended to preserve the regulator's current role.

18 These questions are posed and explored in Minot et al (2007) and Minot (December 2013).

19 Also known as 'foundation' seed.

20 Minot (December 2013).

The global context

Beyond sub-Saharan Africa, the world's most developed seed markets are characterised by far lower levels of regulation, state intervention and red tape.

In the United States, a 'truth-in-labelling' approach is followed whereby companies are permitted to market seeds without having to undergo any extensive government registration process. Companies simply trade on their reputations. Inspections and certifications are conducted by a fully independent agency.

In South Africa, new seed varieties are automatically registered after one season of Distinctiveness Uniformity and Stability (DUS) testing and there are no restrictions on the seed varieties companies can introduce.

Finally, in the European Union (EU), varieties that have been registered in one member country can be registered in any other country without undergoing domestic trials.²⁶

3.1 Regulatory and supervisory institutions in the seed sector

This section describes the key institutions in Tanzania's seed sector, with a focus on the agencies that oversee the process of seed variety release and certification.

(i) Tanzania official seed certification Institute

Roles and responsibilities

The Tanzania Official Seed Certification Institute (TOSCI) was established by the 2003 Seed Act and is headquartered in Morogoro. Administratively TOSCI is semi-autonomous from government, but in reality it relies financially on the Ministry of Agriculture, Food Security and Cooperatives (MAFC).

TOSCI has the responsibility (i) to enforce the provisions of the Seed Act and Seed Regulations and to halt the sale of seed that infringes these regulations;²⁷ and (ii) to actively monitor the quality of seed, including through field inspections, sampling and testing.

The main focus of TOSCI's work is certification, which involves asserting that a particular lot of seed corresponds genetically to the registered variety. However, TOSCI also contributes to the seed variety release process, providing data, results and recommendations that feed into the National Performance Trial Technical Committee (NPT-TC) and National Variety Release Committee (NVRC).

26 These global comparisons draw on Keyser (2013) and the summary provided in Joughin (2014), p. 19.

27 USAID/SeedCLIR Tanzania (July 2013).

Finally, TOSCI is partly responsible for engaging with international bodies such as the International Seed Testing Association (ISTA) and the Organisation for Economic Cooperation and Development (OECD).

Performance and reputation

TOSCI is regarded as a competent body by most industry participants. Private sector companies recognise the necessity of TOSCI's role, given that quality control is a policing function that naturally belongs to government. The agency's laboratory facilities are of international standard.²⁸ Capacity has also been boosted by a recent programme to train laboratory technicians in preparation for ISTA laboratory accreditation, funded by the Danish Development Corporation (DANIDA).²⁹ According to one interviewee, "several inspections of the upgraded TOSCI laboratory in Morogoro have now been completed and everything is ready for accreditation."³⁰

However, concerns regarding TOSCI's overall capacity have been raised. The agency sometimes delays its planned activities, perhaps due to a lack of timely government funding. This can inconvenience companies. If, for example, TOSCI plants seed late in the season, the trial must then be repeated the following season at the variety owner's expense. As one report published in early 2016 noted, "under-resourcing at TOSCI leads to delays in seed certification due to inadequate resources provided for inspection of seeds in the field, reviewing results, labelling, etc."³¹ The same report goes on to suggest that:

*"Delays in registration and certification lead to loss of time and income for farmers, who may have to postpone production if they cannot access high-quality seeds; e.g. Sunflower Development Company has spent three years testing, registering varieties that were already registered in Kenya."*³²

28 These include seed testing facilities, germination rooms and seed sample storage areas.

29 USAID/SeedCLIR Tanzania (July 2013).

30 Interview, Dar es Salaam, July 2016. According to the same interviewee, Tanzania is also nearly registered with the Union for Protection of New Plant Varieties (UPOV) which would enable companies to reliably obtain quality seeds. TASTA has reportedly had to work with the GoT to collaborate with authorities on the semi-autonomous Zanzibar archipelago – which has its own legal framework for this issue – to push the UPOV registration process through. As one recent report observed, "Tanzania has already aligned its laws with UPOV standards, which, in addition to the conditions for plant breeders' rights discussed in the following chapter, set standards for DUS testing." See: 'A Legal Guide to Strengthen Tanzania's Seed and Input Markets', SAGCOT, August 2015.

31 'Review of the Partnership and Accountability Committee', US Feed the Future Programme, 2016.

32 Ibid.

TOSCI has only four stations (at Morogoro, Arusha, Njombe and Mwanza) and only a limited number of staff (in 2013, the organisation had just 25 inspectors). Some of TOSCI's field inspection responsibilities have, out of necessity, been delegated to district government officers; but these officers report to their respective district governments and it is unclear how effective their contribution has been.

TOSCI staff also lack the direct authority to stop fake seed sales, relying instead on the police. As a result, less than a quarter of agro-dealers are checked each year and the amount of counterfeit seed circulating in the market is estimated to account for at least 25–35% of all commercial seed.

The incentive to adulterate seed products is strong: hybrid seed, for example, will typically retail at three to four times the price of grain, and yet the two are difficult to distinguish by sight. Under the current legal system, dealers caught selling fake seed are liable to face only Tsh 1 million (US\$600) in fines – a level of sanction that fails to discourage fraud, given the potential rewards.³³

A further shortfall is TOSCI's failure to develop an appropriate IT infrastructure. The agency has recently launched a website (see: <http://www.tosci.go.tz/index.php/en/>) and this includes a published list of certified seed varieties (published in March 2016, see: <http://www.tosci.go.tz/index.php/en/news/36-tanzania-national-variety-list>), but despite these advances few of TOSCI's procedures are automated and the only electronic communication between offices and with other government agencies is by personal email. The consequences of this lack of connectivity include month-long delays in delivering laboratory results and a general lack of access to TOSCI information which ought to be publicly available.³⁴



33 This section draws heavily on USAID/SeedCLIR Tanzania (July 2013).

34 USAID/SeedCLIR Tanzania (July 2013).

(ii) Ministry of Agriculture, Food Security and Cooperatives – Seed Unit

Roles and responsibilities

The MAFC's Seed Unit is mandated to develop the seed policy framework, award licences for public genetics, register and catalogue new seed varieties, register seed companies, and grant permits (import/export and business) to seed companies. The Unit's director reports to the Director of Crop Development in the MAFC.

Performance and reputation

The Seed Unit is reportedly badly understaffed. As a result, the substantive areas of its mandate – such as seed policy development – are generally neglected. Further, the Unit lacks any IT infrastructure, making it difficult, if not impossible, to store data and update the national variety catalogue and national registration lists.

Overall, the Seed Unit plays a limited role in Tanzania's seed system, focusing more on administration than on decision-making.

(iii) Agricultural Seed Agency

Roles and responsibilities

ASA was established in June 2006 as part of the measures set out in the 2003 Seed Act. ASA is based in Morogoro, runs several of its own seed farms and owns land across Tanzania. It serves as an intermediary between Tanzania's public sector research stations and private seed companies.³⁵

Until a government directive in 2011, ASA held the exclusive right to produce basic seed for all public varieties.³⁶ The organisation still produces the overwhelming majority of all foundation seed in Tanzania;³⁷ private seed companies are then required to obtain 'lots' of foundation seed from ASA for multiplication, though in reality they reportedly often substitute basic seed from Consultative

Group (CGIAR) centers or other sources as the quality of ASA foundation seed is unreliable.³⁸ The agency is also responsible for the following:

- Strengthening research capacity to develop new seed varieties
- Expanding seed production and distribution networks
- Increasing demand for improved seed by farmers
- Promoting private sector participation in the seed system via public–private partnerships or joint ventures to produce and distribute seed³⁹

Performance and reputation

ASA multiplies roughly 25% of all basic seed (Certified 1 and Certified 2), mostly non-hybrid OPVs.⁴⁰ Hence, the agency's appearance on the scene has not entirely crowded out private seed companies. However, ASA lacks the capacity to produce effective hybrid varieties, which is where demand growth is strongest. This means that seed companies which are trying to reduce reliance on OPV by switching to hybrid seed must release their own varieties. As one 2016 report observed, ASA's under-performance has led to "low access to public seed varieties by the private sector for production of high-quality seed. [This] low access to public varieties can lower diversity in the market and make prices higher; it also prevents very high-quality seed from getting out from research centres."⁴¹

Why was the establishment of a parastatal such as ASA necessary? ASA officials point out that many minor and low-value crop varieties – such as sesame, groundnut and pigeon pea – are not covered by international companies, thus leaving a necessary role for a public sector seed supplier of last resort. Further, ASA contends that seed companies fail to provide countrywide coverage, concentrating predominantly on the northern regions. Hence, there is a need for a public company to focus on the less well-covered south and west of the country.

ASA also claims that its market promotion activities can serve as a catalyst for private sector participation. In the rice and sesame seed markets, for example, ASA's promotional activities reportedly led to private sector participation for the first time. Finally, ASA justifies its activities by emphasising the need for strong domestic seed production, given that the supply of imported seed is not guaranteed and may be interrupted.

38 Ibid.

39 USAID/SeedCLIR Tanzania (July 2013) and ASA website (<http://www.asa.or.tz/asaa/>)

40 One interviewee noted in July 2016 that "ASA has the farms and the resources but lacks the technical teams to produce some types of seed, especially hybrid maize." Interview, Dar es Salaam, July 2016.

41 'Review of the Partnership and Accountability Committee', US Feed the Future Programme, 2016

35 USAID/SeedCLIR Tanzania (July 2013).

36 Basic or 'foundation' seed (also known as germplasm) is seed that has been multiplied for one or two generations from pre-basic or 'breeder' seed. Basic seed must then be multiplied one further time to produce seed that can be sold on the market to farmers.

37 A recent report notes that "two private companies, TANSEED and AMINATA, have developed their own varieties of maize and sorghum seed. ASA dominates production of rice foundation seed, all OPVs, growing 800 to 1,500 mt per year, but several private companies are producing some 300 mt of rice seed per annum. ASA has expanded sunflower seed production from 50 mt in 2006 to 400-500 mt in recent years." See: Alliance for a Green Revolution in Africa (AGRA). 2014. An assessment of agricultural policy and regulatory constraints to agribusiness investment in Burkina Faso, Ethiopia, Ghana, Nigeria and Tanzania. AGRA: Nairobi, Kenya

Yet serious questions remain over ASA's role and utility. The agency is bulking, marketing and distributing improved seed. Its certified seed production programme places it in direct competition with private companies – the same companies that rely on ASA's provision of foundation seed for their commercial survival. It is difficult to see how ASA's independent commercial activities are compliant with its mandate to 'promote increased private sector participation in the seed industry'.⁴² ASA is competing with private firms as a marketer of seed but it is also the supplier of basic seed to many of these companies – a role that determines how competitive they can be in the very same market. In this way, the conflicted nature of ASA's role serves to hamper the development of an open and competitive private sector seed market. As a 2014 ASARECA report commissioned by the Bill and Melinda Gates Foundation observed, the Government of Tanzania should:

*"Improve the balance between public and private roles in the seed sector, based on the principle that what the private sector is willing to invest in, the public sector can gradually withdraw from."*⁴³

Meanwhile a more recent (2016) report reinforces this viewpoint:

*"Tensions between ASA and companies may make it difficult for the sector to progress and fully flourish, as there is no structure or path for ASA to transition to a more supportive role."*⁴⁴

This shortfall is exacerbated by the fact that ASA reportedly fails to reliably provide companies with timely access to foundation seed. Basic seed should normally be produced by ASA between July and September/October, but there are often delays. The timely availability of adequate quantities of foundation seed is a serious bottleneck in the value chain, limiting the breadth and scale of improved seed production and marketing that private companies can undertake. In addition, as stated above, many interviewees for this study observed that ASA struggles to maintain good quality seed, especially of maize varieties.⁴⁵

A final criticism is that ASA has no formal procedure for establishing contracts with seed companies, which again can lead to delays and ambiguities. (However, for their part, ASA officials refute this criticism and point to seed companies' failure to notify ASA in advance of their seed demand projections.)

⁴² United Republic of Tanzania (2003).

⁴³ 'Tanzania Seed Sector Assessment' by ASARECA / KIT, commissioned by the Bill & Melinda Gates Foundation (2014).

⁴⁴ 'Review of the Partnership and Accountability Committee', US Feed the Future Programme, 2016.

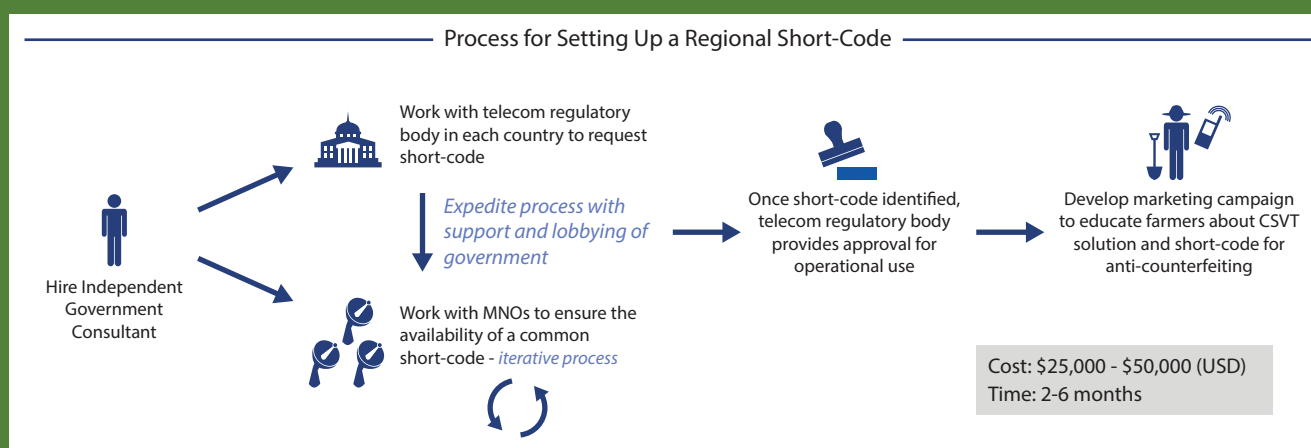
⁴⁵ Interviews, Dar es Salaam, July 2016.

Roles and responsibilities

Recent studies have indicated the need for a more robust, technology-driven approach to anti-counterfeiting by the public and private sectors. For instance, one 2016 report notes a “high prevalence of counterfeit seeds (an estimated 25% of certified seeds in the market [in Tanzania]) due to insufficient enforcement and policing of standards, and low resourcing of agencies to inspect.”

A report commissioned by the Bill & Melinda Gates Foundation observed that certification agencies in Tanzania “are significantly under-resourced, and therefore [they have] expressed strong interest in collaborating on a coin scratch solution [combined with the use of unique short codes and mobile authentication] to improve the quality of seed sold in formal markets.” When combined with a robust quality assurance framework, coin scratch verification enables end consumers to check that the product was produced by a credible, certified manufacturer, thus preventing package adulteration or recycling. This technology would also provide seed, fertiliser and pesticide manufacturers/importers with greater visibility over their supply chains, allowing them to track inventory beyond large agro-dealers to all sub-dealers.

One example of a private sector provider of Coin Scratch Verification Technology is Ghana-based MPedigree, which is a grantee of AECF. MPedigree sells software that companies use to label individual packs with a random 12-digit ‘short code’ hidden under a scratch-off panel on the packaging. When a customer buys the product, he or she can text the code to MPedigree for free and get an instant reply telling him/her whether the product is authentic. Such an approach can be extended to all agro inputs. A key advantage of this approach is that it leverages existing technologies and practices that farmers and agro-dealers are familiar with, as the coin scratch labels and SMS verification process mimics existing approaches to the ubiquitous airtime top-up vouchers sold by Mobile Network Operators (MNOs). Empowering Tanzanian farmers in this way would go a long way to building trust in input products, thereby encouraging greater adoption of modern techniques and inputs, and leading in turn to higher yields and incomes.



Source: ‘Development of Anti-Counterfeiting Program in East Africa: Summary of Project & Next Steps’ Bill and Melinda Gates Foundation in collaboration with Monitor Deloitte

Overall, ASA is emblematic of a business environment [for seed production] that exudes a preference for heavy-handed government control over building the conditions for open competition and private sector growth.⁴⁶ The government to some extent recognises this issue and in May 2011 issued a Ministerial Circular intended to alleviate the problem. This MAFC directive, which has been operational since January 2013, removed the prohibition on private sector production of foundation seed from public varieties by allowing seed companies to sign direct licensing agreements with the Agricultural Research Institutes, through the MAFC.⁴⁷ In theory, this allows companies to bypass ASA: instead of buying basic seed from ASA to certify them and sell on to farmers, companies can produce their own varieties independently.

However, in reality several companies have been dissuaded from obtaining the licences and committing to the large overheads involved because of the onerous conditions attached to them (at present, only four companies have so far obtained licences, though more are expected to apply in late 2016).⁴⁸ At the inaugural public tender in 2012 only three seed companies reportedly applied, and none have progressed to obtain a licence. This is likely the result of three needlessly restrictive and/or ambiguous elements in the MAFC Licensing Circular:

- First, the policy is limited to public sector protected varieties⁴⁹ which, according to a recent report, ‘[places] the majority of publicly developed genetic materials out of reach through this mechanism and solely accessible through ASA.’⁵⁰ Roughly four fifths of all varieties are non-protected and are therefore excluded from the agreement for private firms to produce foundation seeds.
- Second, according to the directive, companies that wish to produce basic seed must have the capacity to produce and sell that seed variety to meet at least 80% of the demand in the company’s area of operation or government district.⁵¹ The ambiguity of this requirement has rightly unsettled companies: how, for example, would ‘demand’ be measured? The government and the Tanzanian Seed Trade Association (TASTA) are reportedly in talks to resolve these issues, though it remains unclear what progress has

been made.⁵² According to one interviewee, there has been significant progress in 2016 and “the government is now talking seeds”, but the actual rule change has not yet occurred.⁵³

- Third, there is ambiguity over the issue of exclusivity. Given that ASA is able to sell anywhere nationwide, including in the locality in which a company may be granted a license, companies are wary of the risk of side-selling. Companies would feel a greater degree of comfort in applying for licenses if exclusive rights were available for a given variety in a given locality, especially when it comes to the market for hybrid maize seed.

Without such stringent conditions, it is likely that several private companies would upgrade their licences to become basic seed providers. In Kenya, for example, several organisations compete in this space in addition to the Kenya Seed Company. One example is the Leldet Seed Company Ltd, which produces pulses from its base in Nakuru; another is the Simlaw Seeds Company, a Nairobi-based firm providing vegetable seed, maize seed and other products. If a similar level of competition and choice could be generated in Tanzania it would greatly improve the availability of certified seed in Tanzania.

(iv) Agricultural Research Institutes

Roles and responsibilities

Tanzania’s zonal Agricultural Research Institutes are public sector agencies that produce pre-basic (or ‘breeder’) seeds in small volumes for ASA, which in turn conducts multiplication to produce basic (‘foundation’) seeds. Each ARI tends to focus on crops and issues related to crop development that are specific to their particular agro-ecological zone.⁵⁴

The following are examples:

Crop	Agricultural Research Institute(s)
Coffee	ARI Lyamungu
Cashew	ARI Naliendele
Maize	Uyole and LLonga (Kilosa) ARIs
Tomatoes	HORTI Tengeru

Source: USAID/SeedCLIR Tanzania (July 2013)

46 USAID/SeedCLIR Tanzania (July 2013).

47 World Bank (November 2012)).

48 Interview with domestic seed company, Dar es Salaam July 2016. The interviewee also noted that companies were at a disadvantage compared to ASA as they generally lack large-scale land and irrigation facilities.

49 ‘Public sector protected varieties’ are seed varieties produced by public sector institutions for which the breeder has successfully applied for protection to the Plants Breeders’ Rights Advisory Committee. The law governing such applications is the Plant Breeders’ Rights Act of 2002.

50 USAID/SeedCLIR Tanzania (July 2013).

51 Ministry of Agriculture and Food Security (May 2011). The document states that for an ‘Exclusive’ licence 80% of demand must be met, while for an ‘Ordinary licence’ 50% of the demand must be catered for.

52 Registered in 2002, the Tanzania Seed Trade Association (TASTA) today has 55 registered members, including key public sector agencies. It costs \$300 to register with TASTA and \$1,500 per year in subscription fees.

53 Interview, Dar es Salaam, July 2016.

54 AGRA (September 2010).

Performance and reputation

The ARIs are generally well respected. It is widely recognised that the supply of pre-basic seed from public research stations is a public good that the private sector would struggle to provide. The justification for public investment in this kind of agronomic research is strong: once developed, new pre-basic seed varieties are non-exclusive – they can be reproduced inexpensively and made universally available.⁵⁵ Moreover, there are many seed varieties for which the potential market size is too small for a private company to consider undertaking lengthy varietal development from the pre-basic phase.

However, the ARIs are underfunded and in some cases rely on external funding to be effective. As a consequence of limited resources and capacity, the genetic quality of the pre-basic ('breeder') seed produced by the ARIs is sometimes below standard.

(v) National Seed Committee

Under the 2003 Seed Act, a National Seed Committee operates as an advisory body to the government. It comprises staff from MAFC (including the Director for Research and Seed Coordinator), private sector representatives from TASTA and other organisations, representatives of higher learning institutions (universities), and farmers' representatives. As with many government bodies, the Seed Committee has no website and no information about the committee is provided on the MAFC website.

The Seed Committee normally meets once per year in November or December. It is sub-divided into two further committees: the National Performance Trail (NPT) technical committee and the NVRC. The NVRC is responsible for deciding on whether candidate seed varieties are approved or rejected. Applicants are informed of decisions by letter.

Non-governmental initiatives

One NGO-sponsored initiative merits discussion in the context of Tanzania's seed system institutions. The African Agricultural Technology Foundation (AATF), with support from the Syngenta Foundation for Sustainable Agriculture (SFSA), has launched an Africa-focused seed technology 'brokerage' under its Seeds2B programme. The goal is to help seed technology owners to license their seed products to African seed companies.

In essence, Seeds2B will offer a low-cost and straightforward service to register new seed varieties on behalf of others. The clients for this service are likely to be national Agricultural Research Institutes and private seed breeders who wish to 'transfer their technologies to local companies in return for fair fees'. Seeds2B will also provide technical support to researchers during trials.

⁵⁵ Minot (2009).

Companies stand to benefit as either technology donors or deployment partners in the process of seed multiplication. Of course, some large seed companies will have no need for this service as they possess their own genetics and are capable of breeding new seed themselves; but companies that lack this capacity and aren't familiar with the local context will benefit from the service.

The initiative – which will focus on staple crops such as sorghum, millet, rice, cassava and potato, as well as higher-value items such as sesame, sunflower, groundnut and vegetables – will help address the lack of available quality seeds in Tanzania and other Africa countries. The initiative is intended to foster stronger partnerships between breeders and seed companies. It will also circumvent the problem that public research stations face in getting the many improved seed varieties they develop to market.⁵⁶

As a result of this benefit-sharing commercial model for public research institutes and other breeders, a greater number of promising seed varieties are likely to progress to the multiplication stage. At present, this represents a major blockage in the value chain in Tanzania: breeders produce large numbers of pre-basic seed varieties but there is little incentive for them to ensure that these varieties are then multiplied and distributed. Outside of the lucrative maize sub-sector, a large number of crop varieties have been released but never multiplied.

However, it may be some time before Tanzania benefits from the Seeds2B programme. The initiative is still at an early stage and South Africa, Malawi and Zimbabwe are the main areas of focus for the first wave of activity. Tanzania would likely form part of a second wave, though timings remain uncertain.

3.2 Private sector seed companies

As of 2011, there were 52 registered companies in the seed sector, of which most are small domestic seed companies. The diffuse nature of the industry in a relatively small market is striking: according to one interviewee, only one African country – South Africa – has more seed companies. This is not necessarily a positive development – given that several of the firms are barely operational – and may simply result from the injection of unsustainably high levels of grant funding into the sector. Indeed, though the proliferation of seed companies stems partly from the more conducive policy environment ushered in by the 2003 Seed Act, it is also likely to result partly from the generous grant support to private seed companies provided by non-governmental organisations.

Only a few multinational seed companies are present in Tanzania, such as Monsanto, Pannar, Pioneer and Seed Co, a regional company that operates across Eastern and

⁵⁶ This section draws on a press release by the African Agricultural Technology Foundation (March 2014).

Southern Africa.⁵⁷ Seed Co and Pannar Seed are the largest players, each accounting for roughly 25% of the certified seed market.

The majority of the commercially sold seed in Tanzania is imported from abroad and the varieties are largely hybrids. Of the imported seed, 89% originates from just four regional neighbours: Malawi, Kenya, Zambia and South Africa.⁵⁸ Many of the seed varieties that are imported are produced by CIMMYT, the International Maize and Wheat Improvement Centre. Typically, companies bring in seed variety lines from CIMMYT and then do their own trials to select the best to submit to TOSCI for the two-year trial process before release onto the Tanzanian market.⁵⁹

3.3 The legal and regulatory framework

The following laws and regulations govern the seed sector in Tanzania:

- Seed Act No. 18 (2003)
- Seed Regulation 2007 (GN No. 37/2007), pursuant to the 2003 Seed Act
- Plant Breeders' Rights Act No. 22 of 2002
- Plant Protection Act 1997

Taken together, these laws provide a reasonably effective and comprehensive legislative framework – in contrast to the equivalent legislation for the fertiliser sector, discussed in the following chapter. The 2003 Seed Act is the core of the legislation and includes measures to stimulate private sector seed production and distribution, as well as procedures to ensure that all seeds meet required standards.

There are no formal restrictions on the importation of seed. However, to import seeds from already approved varieties for sale in Tanzania, the following are required:

- An import permit from the Seed Unit in the MAFC
- A phytosanitary certificate
- A business licence and company registration documentation
- Documentation outlining the company's business model and financial status

International accreditation

Unlike neighbours such as Kenya, Uganda and Zambia, Tanzania is not accredited with the International Seed Testing Association (ISTA). This is a major shortcoming

given that Tanzania cannot export seeds until its seed testing laboratories have received ISTA accreditation. At a stroke, ISTA accreditation would vastly improve Tanzania's prospects of becoming a genuine regional seed hub and base of operations for multinational seed companies investing in the region.

Despite a lack of government focus on the issue during the 2000s, progress has recently been made on the accreditation process. Tanzania is already a non-accredited ISTA member and TOSCI has successfully rehabilitated its laboratories to meet international standards. TOSCI is now entering the final stages of the process for the TOSCI laboratory in Morogoro to become accredited: additional laboratory equipment is being procured and the quality assurance documents that ISTA requires are reportedly being finalised. In a March 2014 interview, TOSCI's acting director general stated that TOSCI has nearly completed all of the documents for accreditations to both ISTA and the OECD, and intends to submit the document packages to the MAFC in April 2014. Thereafter, it will be for the Ministry to decide how to proceed with the application. At a minimum, ISTA auditors will be required to visit Tanzania to corroborate the information provided in the application. Two years later, in mid-2016, interviewees repeated the same message – that TOSCI was on the brink of obtaining ISTA accreditation and had completed all of the preliminary requirements – yet the accreditation has still not been secured.

The government will be required to pay a US\$40,000 annual ISTA accreditation fee, and this may in part explain the long delay in submitting Tanzania's application.

Genetically Modified Organisms

The Tanzanian government has failed thus far to agree and implement a legal framework for GMO. There has been no substantive debate on the subject in government or in the public and media. Current legislation is vague and non-committal: GMO crop development and production is theoretically permitted but impossible in practice.

On the one hand, Tanzania actively participates in projects to develop GM crops. For instance, Tanzania is a member country of the Water Efficient Maize for Africa project, which is developing a variety of genetically modified corn that is expected to increase yields by 25% during moderate drought.⁶⁰ On the other hand, regulations adopted in the 2009 Environmental Management Act have effectively blocked development of all GM crops in Tanzania.⁶¹

Under the current legal framework, a 'principle of strict liability' applies whereby companies working with GM products are liable against any claim of harm, injury

⁵⁷ World Bank (November 2012), p. xiv.

⁵⁸ World Bank (November 2012), p. 10.

⁵⁹ One interviewee (Dar es Salaam, July 2016) noted that companies, not just regulators, must take responsibility for the quality of new seed varieties. Companies should do their own field testing before "diving into the registration process [...] to help ensure that each new variety is a commercial success and is not just released for the sake of it."

⁶⁰ The project is supported by USAID and the Bill and Melinda Gates Foundation.

⁶¹ See: Environmental Management Act (CAP.191), Government Notice N 265 of 24 July 2009.

or loss caused by the products.⁶² The scope of the rule appears to include damage to the environment and to biological diversity in addition to personal loss. This makes the strict liability provision highly ambiguous.⁶³ Under these uncertain conditions, research organisations have hesitated to introduce any GM crops. There are, in addition, economic and business reasons why organisations and companies might hesitate to introduce GM crops. Tanzania's main export market for agricultural products is Europe, and the EU prohibits the importation of all GM products.

At the institutional level, responsibility for regulating genetically engineered organisms rests with the Ministry of Environment. However, the main focal point for what remains a highly politicised issue is the Vice President's Office, which hosts the National Biosafety Focal Point (NBFP). The NBFP is responsible for reviewing and approving 'all biosafety applications for research, confined release, and pre-commercial release, as well as oversee[ing] the Tanzanian policy regarding biosafety at national and international levels'.⁶⁴ The NBFP in turn is advised by the National Biosafety Committee (NBC), a 15-member body comprised of government officials and representatives from NGOs, academia and the private sector.⁶⁵

3.4 The certification and registration process

Despite the presence of a strong legislative framework for seed, there is some frustration in the private sector over the process for seed variety release.⁶⁶ The registration process for new seed varieties takes at least two years and costs several thousand dollars, making the process notably more expensive than comparable neighbouring seed markets

such as Zambia.⁶⁷ This is problematic because, as one recent report observes, "variety release and registration is a fundamental aspect of the seed enabling environment, because this stage determines how quickly improved seeds can reach the hands of farmers."⁶⁸

In-country research data (Value for Cultivation or VCU testing) must be provided by the breeder to TOSCI, after which TOSCI will conduct DUS testing and a National Performance Trials (NPT).⁶⁹ As a 2015 report commissioned by SAGCOT observes:

*"Tanzania requires two seasons of government-supervised DUS trials and one season of government-supervised NPT testing [...] some DUS trials could run concurrently with NPT, and, with proper irrigation, the entire government-supervised process could take as little as one year. However, other companies have indicated that such a short time period is [generally speaking] not realistic."*⁷⁰

The full process for domestic Tanzanian seed candidate varieties is as follows:

- The breeding station or private breeding company develops a new candidate variety with data to support it. This involves both on-station trials and off-station multi-location trials in several different ecological zones to test for yields and susceptibility to drought and disease. A minimum of two years of agronomical and breeder's data is required (down from the 3-4 year minimum that applied previously).⁷¹
- Data is collected on performance and a list of promising lines is produced. These in turn are sent for on-farm participatory variety selection in which farmers check the taste, maturity, productivity, disease-resistance, drought resistance and other criteria for promising lines.

62 The Act states: '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'.

63 There has been a debate over the precise legal interpretation of the strict liability provision between the Vice President's Office and researchers, with no clear outcome. The government has also held USAID-sponsored workshops to try to achieve clarity on the issue. See: USAID/SeedCLIR Tanzania (July 2013).

64 USAID/SeedCLIR Tanzania (July 2013).

65 The NBC's main function is to review biosafety applications made to the NBFP.

66 As one interviewee observed, "TOSCI says it's protecting the farmer, but in fact they're denying the farmer access to good varieties. The market self-regulates. Companies won't spend money on varieties that will fail. In the seed sector you spend the first year with a new variety doing expensive promotions and demonstrations to win the confidence of farmers; only in second year do you start making real sales. So it's not in the company's interest to promote poor quality varieties." Interview, Dar es Salaam, July 2016. In a similar vein, the 2015 SAGCOT report on Tanzania's seed sector observed that "because breeders will have an interest in yields and other aspects that make new seeds superior to what is already in the market, it is in their direct interest to do their own testing to make sure a variety performs well." See: A Legal Guide to Strengthen Tanzania's Seed and Input Markets, SAGCOT, August 2015

67 This time-frame was previously 3 years, at a cost of USD \$15,000. Several companies interviewed in 2016 noted that the reduction to two years was a major improvement

68 'A Legal Guide to Strengthen Tanzania's Seed and Input Markets', SAGCOT, August 2015.

69 As the 2015 SAGCOT study explains: "There are two types of testing in the variety release process: testing for Distinctness, Uniformity, and Stability (DUS) and testing for Value for Cultivation or Use (VCU), also referred to as National Performance Trials (NPT). DUS tests indicate whether a particular variety is distinct from what is currently available on the market and will behave in a consistent manner. NPT tests show whether the variety has an advantage over already registered varieties and tend to focus on yield measures [...]" Under the 2007 Seeds Regulations, the DUS test application must be submitted one season prior to the NPT application to determine suitability. The DUS application requires a description of the variety and must include on-farm trial and farmer's assessment data, among other information." See: 'A Legal Guide to Strengthen Tanzania's Seed and Input Markets', SAGCOT, August 2015.

70 Ibid.

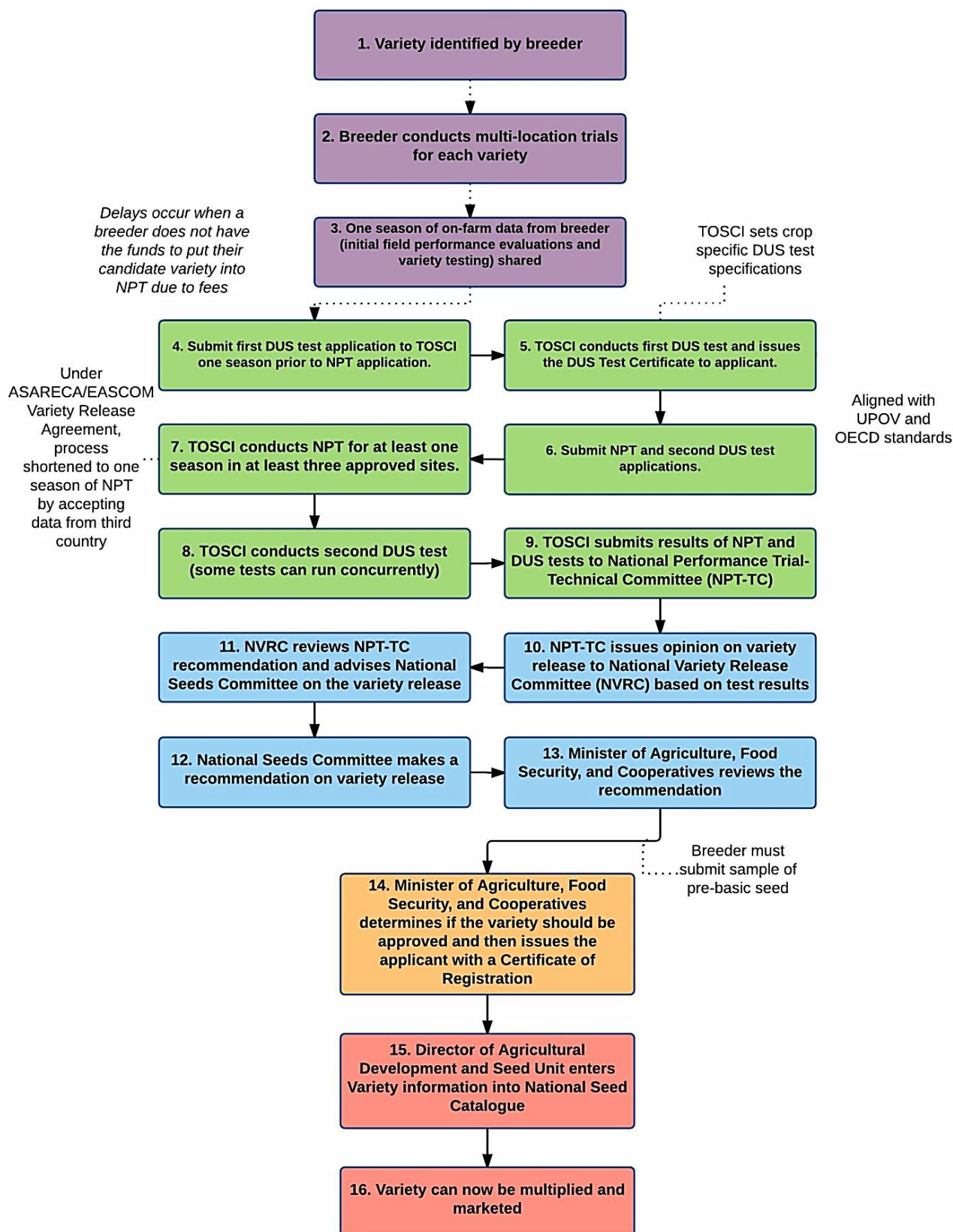
71 However, the process can take longer, with data collection sometimes taking five to seven years. The process can be protracted because it sometimes requires several years' worth of performance data collection and on-farm participatory variety selection to produce applicant variety data of sufficient quality for submission to the Seed Committee.

- Once the data is developed, the breeder may submit a variety release proposal ('letter of intent') and variety description form to TOSCI, requesting (i) a DUS test at one of four TOSCI branches across the country, which verifies that the candidate is a unique variety and allows for a proper description of the variety; and (ii) an NPT, which is conducted in the same geographical and ecological zone (in terms of weather conditions, altitude and other factors) in which the breeder has done its own tests.⁷²
- The NPT Technical Committee (comprised of technical experts including breeders, agronomists and pathologists) then evaluates both the data from the breeder and the result of the NPT conducted by TOSCI. At this stage, the breeder can be called to present to the NPT Technical Committee to explain any outstanding issues. Some varieties are then rejected if the approval criteria have not been met; others are recommended to the NVRC for consideration to be released.
- The NVRC will then meet to have an open discussion about all varieties recommended over the previous period (usually one year in length). At this stage the breeder may again be invited to participate, though the final decision is made by the committee alone. If a candidate variety is rejected, the committee will explain its decision by letter and provide guidance on improvements to be made before re-application.
- If the NVRC approves the variety, it only remains for the Minister to publicly announce that the new variety may be used by farmers in Tanzania.
- However, if a seed variety has already been registered in East Africa, companies need apply and do tests for one season only. TOSCI is only required to verify the information provided by the company by conducting DUS and NPT to cross-check and to confirm whether the variety can succeed in the Tanzanian environment.⁷³

⁷² Note that the data from three years of candidate variety testing must be compiled by the relevant breeder and submitted to TOSCI 15 days prior to the Technical Committee meeting for variety release.

⁷³ A more detailed 10-page summary of the variety release process can be found on pages 41-51 in the following report: 'A Legal Guide to Strengthen Tanzania's Seed and Input Markets', SAGCOT, August 2015.

Tanzania's Seed Variety Release and Registration Process



Source: New Markets Lab, 2015 (adapted from 'A Legal Guide to Strengthen Tanzania's Seed and Input Markets', SAGCOT, August 2015)⁷⁴

⁷⁴ Note that the process for seed variety release and registration in Tanzania is detailed in Part III of the Seeds Regulations (Government Notice No 37 published on 9/2/2007)

Seed certification

To obtain certification from TOSCI, an application form must be completed for inspection of seed field crops. Following the completion of field inspections and harvesting, TOSCI takes samples for laboratory testing, after which the seed is provided with a 'lot number'. Thereafter, the lot number is referenced when packaging the seed for marketing.⁷⁵

This process is more straightforward than the variety release process but companies report that it is overly expensive and in practice the requirements can vary each time (for example, companies may or may not be asked to cover TOSCI's costs), making it unpredictable. As one recent report summarised,

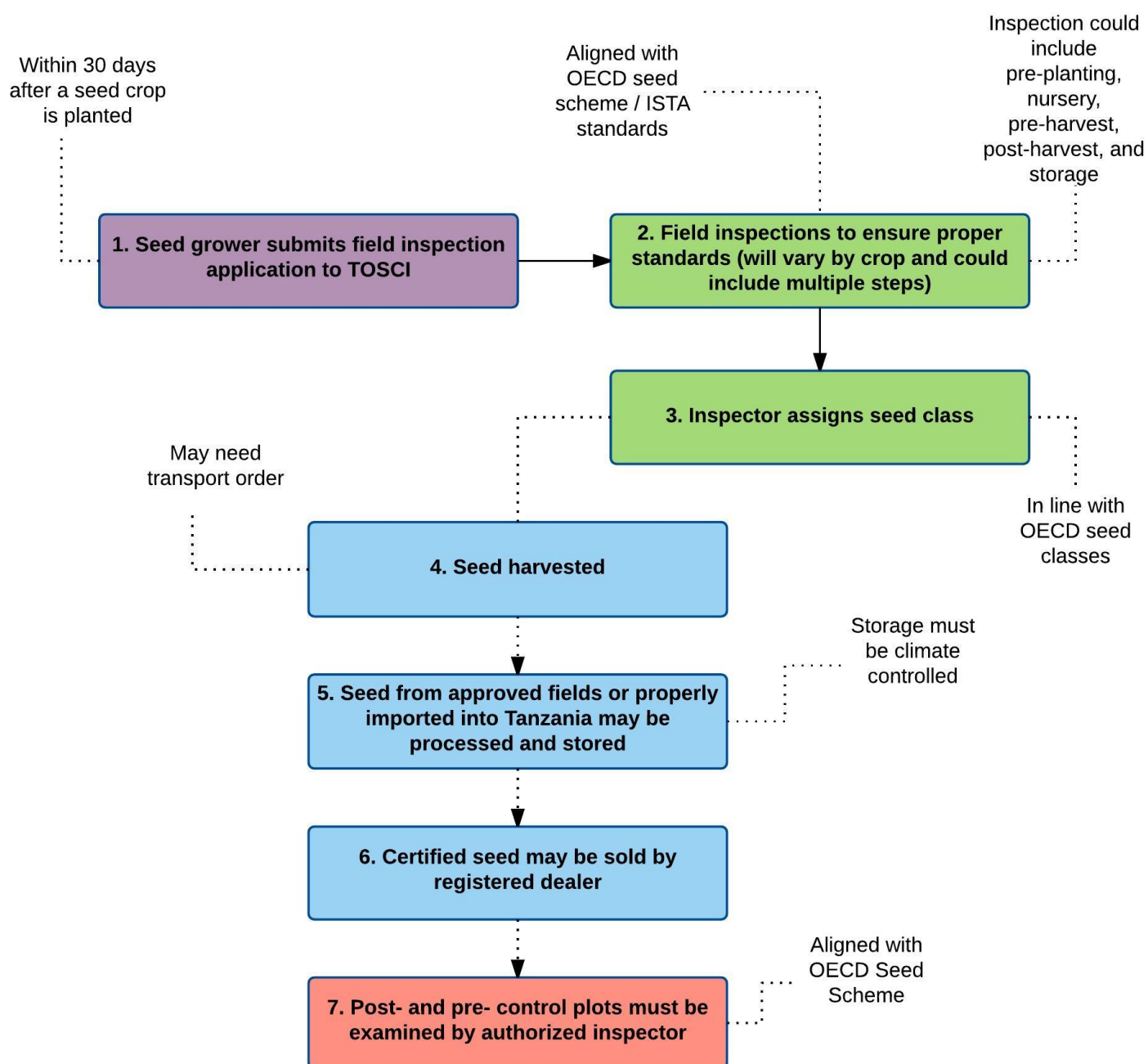
*"Some stakeholders have reported that the seed certification process can take two to three years depending upon how the numerous steps play out in practice [...] because of the costs of production in Tanzania, some companies find it more profitable to produce seeds in another country and then import the seed, which is easier overall even given the process for importing seed. Overall, the seed certification process would benefit from a systems audit of the steps in the process, which would assist with streamlining the process."*⁷⁶



⁷⁵ The complete process for seed certification is described in sections 26 - 35 of the 2007 Seeds Regulations.

⁷⁶ 'A Legal Guide to Strengthen Tanzania's Seed and Input Markets', SAGCOT, August 2015'.

Seed Certification Process



Source: New Markets Lab, 2015 (adapted from 'A Legal Guide to Strengthen Tanzania's Seed and Input Markets', SAGCOT, August 2015)⁷⁷

⁷⁷ Note that the process for seed variety release and registration in Tanzania is detailed in Part III of the Seeds Regulations (Government Notice No 37 published on 9/2/2007)

3.5 Regional harmonisation

Efforts to harmonise national seed systems across the Southern Africa Development Community (SADC) and the East African Community (EAC) have been ongoing since 1987 and are focused on the following:

- Variety registration and the promotion of new varieties
- Seed certification
- Seed phytosanitary regulations
- Plant variety protection
- Seed import and export procedures and ease of cross-border seed trading

According to AGRA, current regional regulations for both the SADC and EAC enable firms to bring in improved varieties released in other countries in Eastern and Southern Africa and do only one season of seed testing. In practice, however, implementation of these regulations has been sporadic – there have been some success stories (see the Mtanga Farms case study below) but for imported hybrid maize seed from EAC or SADC neighbours, for example, multiple seasons of testing are still required (both at experiment stations and nationwide in farmers' fields).⁷⁸ This is unfortunate as there are several high performing varieties in the region that would benefit Tanzanian farmers if they were readily available.

East African Community

Of the two main regional organisations in which Tanzania is a member – the EAC and SADC – the former is the most relevant in the seed sector context. One of the agreed goals of EAC integration is that varieties which have been released in other countries in the region under similar agro-ecological conditions should automatically be permitted to advance directly to NPT.⁷⁹ This would cut down the length of the registration from three seasons to one.

However, despite ministerial consensus to review and align all national seed legislation, the actual implementation of regional harmonisation in the EAC remains stalled.⁸⁰ According to the Seed Unit in the MAFC, Tanzania's 2003 Act is fully compliant with regional accords – the stumbling block to harmonisation is Kenya and Uganda's failure to complete a similar update of their own seed legislation.⁸¹

Yet developments since 2010 point to a breakthrough.

78 Alliance for a Green Revolution in Africa (AGRA). 2014. An assessment of agricultural policy and regulatory constraints to agribusiness investment in Burkina Faso, Ethiopia, Ghana, Nigeria and Tanzania. AGRA: Nairobi, Kenya.

79 World Bank (November 2012), p. 6.

80 Over the decades, regional integration of agricultural markets and regulation has ebbed and flowed. For instance, until 1977, there were active East African Community agricultural research institutions – including one in Arusha – but these were nationalised when the EAC broke up in 1977.

81 World Bank (November 2012), p. 6.

One company, Mtanga Farms, has navigated the release process for four new varieties of potato seed in a single season.⁸² Mtanga successfully put to test the nominal EAC regulations that allow varieties released in other East African countries to be tested for only one season. Existing trial data from another EAC country was used by Mtanga Farms to accelerate the registration process in Tanzania. As a result, a process that would normally have taken three years took Mtanga 14 months.⁸³ The Mtanga Farms case study does not by itself prove that a new norm has been established in Tanzania; but it represents a positive signal from the government that future applicants can highlight as a precedent.

The challenge now is to make this system of fast-tracking EAC-registered varieties more efficient and standardised, so that it becomes the norm – not just a one-off requiring extensive advocacy and negotiation.⁸⁴ As one interviewee noted in mid-2016,

“The use of registered varieties in other EAC countries that could be used for fast-track multi-locational trials in Tanzania is inefficient [...] this is because TOSCI lacks the capacity to manage this efficiently and therefore loses the opportunity of more quickly introducing these registered varieties from other EAC countries to Tanzania.”⁸⁵

Significant challenges remain. For Tanzania to market seed regionally, TOSCI's laboratories would require ISTA accreditation, which despite nearly ten years of effort has yet to be obtained. The region's seed policies are also highly diverse, with different testing periods before official variety release, different seed certification standards and so on.⁸⁶ In addition, differences in phytosanitary control measures will limit cross-border trade in seeds despite the presence, for the most part, of common pests and diseases across countries.⁸⁷

82 Mtanga Farms is a commercial mixed arable farming business in the southern Tanzania highlands.

83 Heirs Holdings Press Release (April 2012).

84 As an example of this unevenness, one interviewee noted “the process for cereal crops seeds is reasonably well understood by regulators, but legume crop seed variety registration is still a nightmare”. Interview, Dar es Salaam, July 2016,

85 Correspondence, June 2016.

86 One feature of this variability is that while TOSCI will accept NPT data from the Kenya Plant Health Inspectorate Service (KEPHIS), so that only one season of testing is required, it does work the other way around: companies taking varieties registered in Tanzania to Kenya are blocked – i.e. KEPHIS demands that normal Kenyan seed trail procedures are followed, with no fast-tracking.

87 The presence in Kenya in 2014 of Maize Lethal Necrosis Disease (MLND), a viral disease that destroys maize crops, serves as a reminder that some degree of phytosanitary control at the national border is desirable.

Southern African Development Community

In 2010, Tanzania signed a SADC seed sector Memorandum of Understanding (MoU) that permits registration of a seed variety without any additional testing if the variety has already been released in two other member countries. However, national authorities retain control over the implementation of the MoU, and thus far they have reportedly failed to implement the harmonised system.⁸⁸

At present, seeds imported from SADC require two seasons of testing, in contrast to the single season fast-track available for seeds registered in EAC countries.⁸⁹

For its part, the SADC Secretariat plays only a facilitating role and is impotent to compel its members to implement regional agreements. The SADC experience is a reminder that false starts can interrupt the complex journey from high-level regional agreements to aligning national legislation and actually implementing agreed harmonisation principles.

3.6 Key challenges

The key regulatory challenges for the registration and certification of new seed varieties can be summarised as follows:

- Private seed companies struggle to access the basic seed they need from ASA at the time they need it.⁹⁰
- ASA's certified seed production programme represents an apparent conflict of interest and places it in direct competition with seed companies, thus hampering the development of an open and competitive private sector.
- Over-regulation is holding back some private seed companies from developing direct licensing agreements with the ARIs to multiply basic seed. According to one interviewee, "small seed companies are really struggling" as a result.⁹¹
- Weak enforcement of regulations and laws exacerbates the problem of fake seeds. This greatly increases the cost of doing business for seed companies, and generates mistrust among farmers/customers.⁹²

88 ASARECA (2011). In early 2016 one AECF grantee company tried to register a seed variety that had already been registered in two other SADC countries, but the company was refused on the basis that Tanzanian seed variety release processes have not yet been aligned with other SADC countries. Interview, Dar es Salaam, July 2016.

89 Interview, Dar es Salaam, July 2016.

90 Though one interviewee (Dar es Salaam, July 2016) also noted that companies have an equal responsibility to give ASA sufficient advanced warning of their intentions.

91 Interview, Dar es Salaam, July 2016.

92 Costs are already high due to the cess tax and the requirement to spend heavily in equipment and land to produce seeds whose return on investment is slow and unpredictable.

- As stated above, the variety release pipeline overseen by TOSCI, which is designed to introduce registered varieties into the certified seed multiplication sector, remains highly inefficient. In particular, the process of implementing multi-locational variety trials of promising lines – and of collating the resulting data for presentation to the National Variety Release Committee (NVRC) – is slow and consistent. As one interviewee noted, the length of some multi-locational trials has meant that "there are examples of farmer-popular [seed variety] lines [...] that take another 15 years to become registered and legal for multiplication of certified seed for marketing to farmers."⁹³ TOSCI is responsible for collating these data but the organisation is under-resourced: many senior scientists have retired and there are reportedly few scientists left with thorough training as seed breeders.⁹⁴
- In addition, the multi-step review process that occurs after testing has been completed is overly protracted and complex. The process contains four main steps: first, a review of the test data is conducted by the National Performance Trial-Technical Committee (NPT-TC); second, a review is undertaken by the National Variety Release Committee (NVRC); third the National Seeds Committee completes its own review; and finally, the Minister for Agriculture decides whether or not to grant approval. As one recent report explains,

*"Challenges arise once testing is complete and a variety moves forward for registration [...] the NPT-TC, NVRC, and National Seeds Committee generally meet at least once per year [but] frequency of meetings can be an issue, and implementation delays and inconsistencies have been cited at this stage in the process. The NVRC [...] reportedly must sometimes cancel its meeting due to resource constraints, which means that the variety release process could be put on hold until the following year, sometimes causing companies to miss a critical stage in the seed cycle. One company noted that the NVRC did not meet in 2012 or 2013 due to resource constraints."*⁹⁵

- Breeders (ARIs) suffer capacity shortfalls that delay the seed variety release process and undermine the quality and availability of pre-basic seed. As one interviewee noted, "breeder seed is not well managed by public research institutes, which leads to delays of at 2-3 years after official registration of a new variety before enough Basic Seed becomes available in enough quantity to bulk to certified seed for farmer distribution."⁹⁶
- Regional harmonisation of seed variety certification and release protocols has not been fully embedded, though progress has been made.

93 Correspondence, June 2016.

94 Correspondence, June 2016.

95 'A Legal Guide to Strengthen Tanzania's Seed and Input Markets', SAGCOT, August 2015.

96 Ibid.

- The government has not yet obtained international accreditation from ISTA and OECD, which would open up export markets for Tanzanian seed.
- The government has failed to adopt and communicate a clear stance on GM crop development.

Lewis and Wilson provide a concise summary of these challenges in their 2015 FAO report:

“The seed industry — for most crops, not just maize — faces a series of challenges that restrict growth and participation by foreign investment. There is a range of powerful and restrictive regulations that do not encourage innovation or the rapid, widespread adoption of suitable varieties — even if they are already commercially released in neighbouring countries. The potential for rapid, commercially based bulking and release of improved appropriate maize varieties needs to be developed and supported as a matter of priority. Policy issues here include: greater private sector participation in foundation seed; procedures for the commercial release of varieties already available in neighbouring countries; and improving seed export possibilities — including accreditation by the ISTA and OECD.”⁹⁷



⁹⁷ The Maize Value Chain in Tanzania: A report from the Southern Highlands Food Systems Programme’ by Jeffrey Lewis and R. Trevor Wilson (FAO, 2015).

4. The Fertiliser Sector

Overview

Like many African countries after independence, the government of Tanzania began by selling fertiliser at subsidized rates via a centrally controlled importation and distribution system. The 1967 Arusha Declaration formalised the state's monopoly on fertiliser and set the tone for the following decades – during the 1970s and 1980s fertiliser prices were kept artificially low but quality controls were poor and delays and shortages abounded.

By the late 1980s, a severe debt crisis had forced the government to liberalise parts of the agricultural market and reverse the nationalisations of the Nyerere era. Fertiliser subsidies were phased out from 1991 to 1994 and private firms were allowed into the market. Some 13 companies set up operations in Dar es Salaam, buying stock from international fertiliser manufacturers, importing it at zero-rated duty and selling from wholesale depots in the major towns.⁹⁸ A number of these early movers continue to dominate today's market. Their interests are represented by the Fertiliser Society of Tanzania, an association of approximately ten importers and distributors.

The most commonly used fertilisers in Tanzania are Urea, CAN, DAP and NPK, which together account for more than 70% of all fertiliser use. According to AMITSA, a regional agricultural input market information system, the average prices of a 50 kg bag of Urea, DAP and NPK in Tanzania are US\$48, US\$56.50 and US\$48 respectively.⁹⁹ Although there are no taxes or tariffs on fertilisers, retail prices are high – fully 40% higher than the cost of fertiliser imports.¹⁰⁰ This is likely to be the result of a lack of significant economies of scale, combined with high shipping and domestic distribution costs.¹⁰¹ In addition, while there is no import duty on fertilizer, 18% VAT is still charged on locally produced bags and also on services rendered at the port of Dar es Salaam (e.g. bagging) and onward transportation. These costs are passed on by importers and are therefore ultimately born by farmers.¹⁰²

However, these figures account only for the formal fertiliser market – as a result of the restrictive regulatory framework, a flourishing black market for fertiliser has also emerged.

98 Agricultural Council of Tanzania (2012), p. 1.

99 See: <http://www.amitsa.org/>.

100 The figure provided in Rao and Lee (2013) is 19.3 kg/ha but other estimates are lower.

101 Rao and Lee (2013).

102 Alliance for a Green Revolution in Africa (AGRA). 2014. An assessment of agricultural policy and regulatory constraints to agribusiness investment in Burkina Faso, Ethiopia, Ghana, Nigeria and Tanzania. AGRA: Nairobi, Kenya.

Application rates

Annual supply of fertiliser – which stands at approximately 340,000 tonnes – falls well short of latent demand. A leading player in the Tanzania fertiliser market estimates that annual demand is at least 600,000 mt per season. As a benchmark, if Tanzania were to match Asian rates of fertiliser application, annual demand would reach approximately 1 million mt.¹⁰³

The average fertiliser application rate in Tanzania is under 20 kg of fertiliser nutrients per hectare of arable and permanent cropland.¹⁰⁴ Indeed, recent research from the African Fertilizer and Agribusiness Partnership (AFAP) indicates the figure may be as low as 7kg per hectare.¹⁰⁵ This figure is lower than that of regional neighbours such as Zimbabwe, Malawi, Kenya and South Africa.¹⁰⁶ Clearly Tanzania remains some distance off the 50 kg/ha target set by African governments at the 2006 Abuja Declaration on Fertilizer, an African Union summit that focused specifically on fertiliser use.¹⁰⁷ In reality, many Tanzanian smallholder farmers use no fertiliser at all. This under-utilization is compounded by a backdrop of nutrient depletion that is estimated to be five times higher than the annual replenishment rate.¹⁰⁸

To put this in global perspective, the fertiliser application rate in the sub-Saharan region remains less than half that of other developing regions and is barely a fraction of the application rate in European and North American agricultural markets.

103 Agricultural Council of Tanzania (2012).

104 Nitrogen (N), Phosphates (P205), Potash (K20).

105 See: 'Helping Farmers to Buy Large Quantities of Fertiliser' by Ikunda Erick, Tanzania Daily News, June 2016.

106 See Druilhe and Barreiro-Hurlé (2012).

107 African Union (2006). However, the amount of fertiliser in use is not necessarily an accurate yardstick of productivity gains because if fertilisers are inappropriate or of poor quality they may deliver little benefit. In the worst case, poor fertilisers may do as much harm as good by degrading the long-run fertility of the soil.

108 'Support for the Establishment of a Regional Fertilizer Policy and Regulatory Framework in East and Southern Africa' by Franklin Simtowe, African Fertilizer and Agribusiness Partnership.

At the sub-national level, fertiliser use in Tanzania is highest in the northern and coastal regions of the country – the rural zones with the greatest concentrations of commercial agriculture – while usage is generally lowest in the west and south-west. Fertiliser usage is naturally highest in commercial agriculture, where sophisticated fertilisers are used to maximise yields from cash crop plantations. Among smallholder farmers, whose access to credit and functioning supply chains is limited, the majority of fertiliser application is given to maize and to cash crops such as cotton, cashew, coffee and tobacco.

Why, despite the demand pull generated by large-scale subsidies, are fertiliser application rates in Tanzania so low? The following factors are at play:

- Lack of awareness among farmers about fertiliser use and its benefits
- Lack of access to credit (fewer than 2% of farmers use bank loans as a source of finance, with most relying directly on farm sales)
- Lack of affordability (63% of Tanzanian farmers who do not use fertiliser cite high prices as the reason¹⁰⁹)
- Volatility in the price of both fertilisers and outputs (crops)
- Weak public and private sector extension and distribution networks, meaning that the right fertilisers are not always available at the right time (or at all)
- The presence of counterfeit and adulterated fertilisers in the market, which discourages buyers
- Over-regulation of the registration and certification process for the introduction of new fertilisers, which discourages investment in the fertiliser sector and exacerbates the issues listed above

Clearly, the stunted nature of Tanzania's fertiliser sector results from a complex medley of factors. While a full examination of these causes is beyond the scope of this study, it is easy to see how all are exacerbated by a restrictive process for the registration of new and improved fertilisers. This regulatory bottleneck discourages new market entrants, restricting competition, choice and market coverage. As a result, prices are higher than they ought to be and the choice of fertiliser products facing most Tanzanian farmers has changed little in 40 years.

4.1 Regulatory and supervisory institutions in the fertiliser sector

The Tanzania Fertiliser Regulatory Agency (TFRA), established in 2012, is responsible for the regulation of fertiliser. The TFRA's mandate is set out in the 2009 Fertiliser Act and 2011 Fertiliser Regulations. The agency reports to the Agricultural Inputs Section of the Ministry of Agriculture, Food Security and Cooperatives (MAFC) and is authorised to conduct the following activities:

- Monitor the quality of domestically-produced and imported fertiliser
- Regulate the importation, production, storage, distribution, sale and disposal of fertiliser
- Register and issue licences to fertiliser dealers and register their premises
- Issue import and export permits
- Train field inspectors and analysts and collect data on fertiliser use
- Maintain a register of all approved fertilisers
- Regulate fertiliser prices in light of government directives and appropriate regulations¹¹⁰

In reality, however, many of these functions are still carried out by the MAFC and the Tanzania Bureau of Standards (TBS). The TFRA was created in 2012 but in terms of funding, staffing and capacity the organisation is still in its infancy. The agency has only 13 staff – all of them seconded from the MACF – and just two office rooms available to it. Much of the TFRA's organisational design has yet to be determined and the agency has not begun the process of contracting for an IT provider to set up a website and ensure connectivity for staff. However, it is envisaged that the TFRA will gradually take over responsibilities from the TBS and other agencies as greater resources become available.

The TFRA's financial support from central government is not known. However, the agency's financial provisions set out in the 2009 Act include the right to retain 'moneys raised by way of fee or charges'. This creates a survivalist incentive for TFRA to generate earnings through fees, as it is the agency's only source of guaranteed income.

¹⁰⁹ Minot (2009).

¹¹⁰ Benson et al (December 2012).

4.2 Private sector fertiliser companies

The fertiliser market is now almost entirely private, though the state-run Tanzania Fertiliser Company (TFC) has limped on into the deregulated era, its fertiliser factory at Tanga defunct and its activities confined to in-country distribution. The majority of fertiliser demand is now met by foreign imports. The stock is shipped in bulk before being bagged under supervision by the Tanzania Ports Authority (TPA) in Dar es Salaam. In 2011, 318,060 tonnes were imported, a figure that is likely to have risen in 2012 and 2013.

However, there is one domestic supplier, the Minjingu Mines and Fertiliser Company Ltd ('Minjingu'), which supplies Phosphate and NPK from a site in northern Tanzania. The company reportedly has the capacity to produce 100,000 tonnes per annum but utilizes only 20% of this.¹¹¹ As the lone domestic producer, Minjingu is a powerful player in the sector: its chief executive is head of the Fertiliser Society of Tanzania and the government retains a direct stake in the company.

Today, the fertiliser market has evolved into an oligopoly dominated by three large agribusiness companies. More than half of all imported fertiliser is supplied by Yara Tanzania Ltd,¹¹² with two other international companies – Export Trading Group and Premium Agro – each accounting for roughly a quarter of the market.¹¹³ Minjingu and a selection of smaller importers account for the remainder.

4.3 The legal and regulatory framework

The following laws and regulations govern the registration and certification of fertiliser in Tanzania:

- 2009 Fertiliser Act
- 2011 Fertiliser Regulations

¹¹¹ Agricultural Council of Tanzania (2012), p. 19.

¹¹² Yara, a Norway-based company with operations in over 120 countries, has invested heavily in Tanzania. The company launched a US\$20 million investment programme in 2011 to build a packing and distribution terminal as part of the SAGCOT programme. The terminal, which can discharge bulk shipments of up to 7,000 tonnes a day, is part of wider effort to enhance quality control and develop fertiliser distribution networks with local agents. Meanwhile, a consortium led by the German company Ferrostaal Industrial Projects in early 2016 announced plans to develop a \$3bn fertilizer complex in Tanzania with capacity to produce 3,900 tonnes per day, together with the state-owned Tanzania Petroleum Development Corporation. However, the project – which is forecast to come on-stream in 2020 – is in practice dependent on successful development of offshore natural gas deposits, which make take a decade or more. See: 'Tanzania to start building \$3 bln fertiliser plant this year', by Fumbuka Ng'wanakilala, Reuters News (May 2016).

¹¹³ World Bank (November 2012), p. 14.

The 2009 Act represents the original item of legislation, while the Fertiliser Regulation 2011 is a guidance document providing direction on implementation. The 2009 Act is available online but the 2011 Regulations are reportedly available only in the government bookshop in Dar es Salaam. The latter document contains a series of schedules that includes the list of registered fertilisers.¹¹⁴

Implementation of the 2009 Fertiliser Act only began in earnest in early 2013. It has since become clear that the Act suffers an array of defects, as outlined in the following section.

4.4 The certification and registration process

The 2009 Fertiliser Act has erected significant and largely unnecessary barriers to entry in the fertiliser market by requiring that all fertilisers be registered – a stringent and exorbitant process which requires testing and three consecutive crop seasons of government-run trials, at a minimum cost of US\$30,000 per registration (compared to just \$5,00 in Kenya).¹¹⁵ There was no prior consultation with companies during the drafting of the Act – several companies were simply told without warning to stop importing when the bill came into effect.

A second shortfall is that the TFRA, acting on a rigid interpretation of the 2009 Fertiliser Act, categorises all fertiliser blends and compounds as unique, stand-alone fertilisers requiring individual registration.¹¹⁶ This is out of line with the great majority of regulatory frameworks for fertiliser worldwide. Indeed, custom-blended fertilisers have been on the market in neighbouring countries such as Zambia for some time, and blends do not require individual registration in these countries. This allows Zambian firms to produce NPK blends with added micronutrients suited to particular crops and agricultural production zones with particular nutrient deficiencies. The consequence of this lack of flexibility in Tanzania is that companies that wish to introduce customised plant- and soil-specific fertilisers that are tailored to the requirements of a particular crop or soil composition are effectively unable to do so in Tanzania.

¹¹⁴ However, the list is not comprehensive as certain NPK fertilisers have been left off.

¹¹⁵ Basic fertilizers such as Urea are the only exceptions. These only require testing. The Act also requires that (i) all fertiliser dealers must be registered; (ii) all premises used for wholesaling and distribution are registered; and (iii) permits are obtained for all imports and exports of fertiliser. Also note that as TFRA does not have its own laboratory, these trials are conducted by four testing laboratories across the country – at the Sokoine University of Agriculture (SUA) at Morogoro, the Tanzania Bureau of Standards, the Mlingano Agricultural Research Institute at Mlingano in Muheza, Tanga Region and the Government Chemist in Dar es Salaam. However, these, laboratories are primarily soil and not fertilizer laboratories.

¹¹⁶ Fertilizer is defined by the 2009 Act as 'any substance or mixture of substances, containing one or more of nitrogen, phosphorus, potassium or other elements represented for use as a source of plant nutrients'.

Recent developments in the global agricultural industry clearly demonstrate the efficacy of custom-blended fertilisers in delivering optimum crop growth. To a significant extent, customisation represents the future of fertilising, a useful alternative to the bulk selling of standardised fertilisers that have been on the market for as long 40–50 years. As such, Tanzania’s regulatory framework should be configured to accommodate the introduction of a large number of different fertiliser mixes.

At present, however, the Fertiliser Act is deaf to these concerns and requires each blend to be tested and undertake three years’ worth of trials. One fertiliser company that had intended to introduce 30 or more blends in Tanzania reportedly faced a total fee for registration of roughly £1m; another company was considering a US\$3m investment to introduce specialist blended fertilisers. Both firms aborted their efforts to enter the Tanzanian market.¹¹⁷ Clearly, the requirement that each blend must be tested individually is destroying the business model for companies that wish to innovate and move beyond the sale of traditional, commoditised fertilisers.

AGRA summarises the situation as follows:

“The Fertilizer Regulations specify that for any new (imported or blended) fertilizer or fertilizer supplement that samples need to be submitted for laboratory tests and the fertilizer needs to be tested under field conditions for at least three consecutive seasons to determine the suitability for use of said fertilizer. This requirement is excessive, even for large-volume importers who bring in full vessels of fertilizer. It also deters investment in smaller-batch fertilizer blending, where blenders create (and modify) formulations to meet specific crop requirements and offset soil deficiencies in various agro-ecological zones. Providing fertilizers with the right mix of macro and micro nutrients, which will vary across production areas, is the wave of future scientific agriculture, rather than simply importing massive volumes of 2-3 standard, internationally bulk-traded fertilizer types such as urea, DAP, CAN and ammonium sulfate.”¹¹⁸

A further unintended side effect of the TFRA’s strict registration rules is that suppliers have become reluctant to import specialist fertilisers for which there is only a small market in Tanzania. At a flat rate of US\$30,000 (US\$10,000 per trial per year), the registration fee for some specialist fertilisers – including several required to boost yields in the niche flower sector – is higher than many years’

worth of prospective sales.¹¹⁹ Yet most fertilisers of this type are standardised global products already tested in a large number of countries.

In early 2016, one commercial farmer in northern Tanzania cited boron in a media interview as an example of a crucial micro-element required in agriculture that is unavailable and unregistered in Tanzania, thus denying farmers adequate yields. The interviewee noted that boron is the biggest deficiency in Kilimanjaro Region soils and:

“Foliar feeds are not sufficient to apply enough boron to the soil and are very expensive [...] We need Solubor and Borax to be registered and [these are] normal, simple products used all over the world – why on earth do they have to be trailed when everyone knows what the results will be?”¹²⁰

A further damaging impact of this lack of availability is the potential for agribusinesses in Tanzania to lose access to European Union (EU) markets. The EU requires that fresh produce brought into the EU market be free of harmful pesticides and also below maximum allowable residual levels of pesticide (for example, no more than 2% of herbicide sprayed on the crop). However, the ‘safe’, allowable chemicals that farmers could use to comply with these EU regulations while still protecting their crops from pests are not registered in Tanzania owing to the cost and bureaucracy of the registration process.¹²¹ This potentially leaves farmers with an impossible choice: either lose the EU as an export market or fail to protect crops from pests by ceasing to use pesticides.

The net effect of this costly and bureaucratic registration process is that crop yields will remain below potential and farm-gate costs will increase as suppliers pass on the registration costs to consumers. In response to the TFRA’s rigid implementation of the Fertiliser Act, several regional and international fertiliser companies have opted either to withdraw from Tanzania to focus on other markets or to rationalise the range of fertiliser products on sale in Tanzania. In short, the government of Tanzania has handicapped its agriculture sector through over-regulation, denying farmers access to productivity-enhancing fertiliser applications and corroding the country’s competitiveness in world agricultural markets.

The impetus behind the 2009 Act remains unclear. What problems were its sponsors seeking to address, other than a desire to update the Fertilisers and Animal Foodstuffs Act of 1962? What arguments were put forward to justify the

117 This section draws heavily on an interview conducted in Arusha in March 2014.

118 Alliance for a Green Revolution in Africa (AGRA). 2014. An assessment of agricultural policy and regulatory constraints to agribusiness investment in Burkina Faso, Ethiopia, Ghana, Nigeria and Tanzania. AGRA: Nairobi, Kenya.

119 The need for iron as a micronutrient in the rose-growing industry is a good example.

120 ‘Registration of fertiliser faces various barriers in Tanzania’ Tanzania Daily News, April 2016.

121 ‘Tanzania horticulture farmers risk losing lucrative EU market’ by Adam Ihucha, Citizen Newspaper, (April 2016).

establishment of a new regulator that is more heavy-handed and interventionist than its predecessor? What was wrong with the existing system of import controls to regulate fertiliser? What, if any, is the evidence base on which the Act was drafted? Why were private sector companies and farmers not consulted? Answers to these questions are difficult to obtain as most communication with TFRA staff is verbal and there is a reluctance among staff to put the agency's stance in writing.

For its part, the TFRA has rejected charges of over-regulation by citing the need to protect Tanzania's smallholder farmers from purchasing non-performing fake, expired, mislabelled or adulterated fertiliser – an issue that non-governmental organisations such as AGRA have been vocal about for several years. Indeed, the government's justification for the 2009 Fertiliser Act appears to revolve around the need to combat the sale of fakes (e.g. sand and salt).

Clearly, a percentage of the fertiliser circulating in the Tanzanian market is either poor quality or adulterated, and there are issues with farmers misusing fertiliser due to a lack of knowledge on its proper use.¹²² However, the causes of – and solutions to – these challenges are entirely distinct from the issue of fertiliser registration. The TFRA rightly wishes to prevent the marketing of fake and misbranded fertiliser (though it has achieved little in this area so far); but it is mistaken to assume that imposing tougher rules on the introduction of new inputs will achieve this goal. Indeed, if combatting the sale of counterfeit fertilisers was the objective, a new Fertiliser Act was not necessary – existing legislation would have been sufficient to ensure quality and to allow regulators and police to prosecute suppliers of fake products; it is only that the rules are not properly enforced.

Instead, restrictive registration procedures will only lower the quantity and increase the price of legitimate fertiliser in the market. Ironically, the TFRA's hard line on registration may actually 'open the door to corrupt practices as traders seek alternatives to following the regulations'¹²³ and embolden counterfeiters to 'take advantage of restricted fertiliser choices and increased costs' to sell more fakes.¹²⁴

In a March 2014 interview, TFRA officials noted the following:

- The sale of blended fertilisers is permitted if there is a special request for such a product from a commercial farming company, but blended fertilisers may not be sold directly to smallholder farmers.
- Some fertiliser types such as foliar (liquid) fertilisers might receive a waiver from the requirement to conduct three-year trials on the basis that these are categorised as a different mode of application rather than as a new fertiliser.
- For fertilisers that receive waivers there is no longer a requirement for lengthy and expensive agronomic trials, but tests are still required to confirm that the nutrient content is the same as that described on the product label. These tests are conducted by the TPRI and can be completed in a one-to-two-week timeframe (the fee depends on the nutrient type). The TFRA noted that many suppliers have completed these tests already.¹²⁵
- The TFRA is seeking approval from the Minister of Agriculture to grant waivers to all NPK blends and combinations. This would mean that individual NPK blends would no longer be required to undergo expensive three-season-long validation tests. According to TFRA staff, the request has been made and all that is now required is the Minister's approval. No formal legal amendment is required for the change to take effect because, according to the 2009 Fertiliser Act, 'the Minister shall [...] make regulations for the better carrying into effect of the provisions of this Act'. Hence, if and when the Minister makes the guidance public it will come immediately into effect.
- Once ministerial approval for the award of waivers to all NPK blends and combinations is granted, the TFRA intends to check the list of companies that have previously made registration requests and will contact them all to explain the change in rules.
- None of the above developments and/or intended actions was properly communicated by the TFRA to industry stakeholders.

After 18 months of limited progress, progress began to emerge in early 2016 thanks to a change of leadership at TFRA and concerted efforts by the Arusha-based Tanzania Horticulture Association (TAHA), outlined below.

¹²² Benson et al (December 2012).

¹²³ Benson et al (December 2012).

¹²⁴ Interview in Arusha, March 2014.

¹²⁵ The notion of waivers and exemptions for some fertilisers was reportedly agreed at a meeting at the Prime Minister's Office of several fertiliser stakeholders, including the TFRA and private companies, in late 2013. However, the outcomes of this meeting were never documented or published so it is unclear exactly what was agreed.

Latest developments: TAHA special initiative on registration of fertilisers

In 2015, TAHA launched a special initiative on the registration and importation of fertilisers and pesticides in recognition of the severe challenges faced by the association's member companies. The horticulture industry centred on the Kilimanjaro and Arusha regions is reliant on specialist imported inputs, many of which are unavailable due to the inflexibility of the 2009 Fertiliser Act and 2011 Fertiliser Regulations. As a result, several commercial horticulture businesses have been actively exploring relocation to Kenya.

TAHA's initiative began with an evidence-based study to identify key gaps and issues in the regulatory framework. Drawing on this work, TAHA then led consultative meetings with agro input companies and government agencies (such as TPRI and TFRA). TAHA further engaged the Prime Minister's Office (PMO), Local Government Authorities (LGAs) and the Ministry of Agriculture.

Issues were raised on both sides and then a series of working sessions were arranged to develop solutions. By late 2015, the Government of Tanzania had committed to reviewing the Fertiliser Regulations, and following a stakeholder meeting in June 2016 a commitment was made to amend the Regulations as follows:

1. The testing/trialling period for new fertilisers and fertiliser supplements will be reduced from three planting seasons to a single season, with testing done simultaneously in at least two different ecological zones.¹²⁶
2. The current requirement for annual renewal of fertiliser registrations will be abolished.
3. The current requirement for annual renewal of fertiliser dealer registrations will be reduced so that registration is required once only (at the outset).
4. For new fertiliser blends, no separate registration process or field trials will be required (the only requirement will be 2-3 day laboratory tests to check the contents against the label); hence companies will be able to introduce customised blends into the market without incurring heavy costs and delays, provided the primary components are already registered.¹²⁷ According to TFRA officials, this new approach is being implemented already.¹²⁸

¹²⁶ Some government scientists have reportedly questioned this proposed approach (i.e. a single season, two sites) as insufficient, given that it can be difficult to identify all issues in a single season.

¹²⁷ Companies wishing to sell blended fertilisers will also have to establish the soil status of the locality in which they intend to sell the product. The registrant must tell TFRA which soils are suitable for that particular blend.

¹²⁸ Interview, Ds res Salaam, July 2016.

5. The cost of field trials for new fertilisers will fall from £30,000 to £10,000.¹²⁹

Overall, these changes will greatly reduce the cost and time of registering new fertilisers and fertiliser supplements. Given the transformative impact these changes would have, TAHA and individual companies should make every effort to encourage TFRA and the Ministry of Agriculture to push for their adoption without delay. The next steps required for full adoption are:

- A paper summarising the proposed amendments will be prepared by the TFRA technical committee, the Department of Crop Development and the Department of Policy and Planning (DPP) in the Ministry of Agriculture and then reviewed by the Permanent Secretary.¹³⁰
- It will then be taken to the Attorney General's chambers for legal review (as of July 2016, this process was already underway).
- The amendments will then be reviewed by the Minister of Agriculture.
- As this is a Regulation, not an Act of parliament, the Minister can then sign off on the amendments without further consultation. The amendments will then be published/gazetted and available on the Ministry of Agriculture and Attorney General websites.

According to officials at the TFRA interviewed in July 2016, the above steps will be completed before the end of the 2016 calendar year.¹³¹

¹²⁹ Additional proposed changes include: (1) a reduction in the fee for registration of a new agro dealer; (2) increase in the fee for registration of new fertiliser plants from \$1,000 to \$5,000; (3) increase in the cost of a licence for fertiliser importation from \$20 to \$100 (a one-off fee); (4) increase in the fee for an agro dealer licence from \$20 to \$50; (5) fertiliser companies applying for an export permit will be required to pay \$0.5 per tonne of fertilizer; and (6) an importation fee of 1.25% of CIF value will be introduced for fertiliser at point of entry – a suggestion that has been opposed by several stakeholders as the cost is likely to be passed on directly to smallholders, over and above the many taxes importers already pay. An example of such taxes is VAT on the services and port handling costs which associated with fertiliser processing and distribution (which, unlike fertiliser itself, are not VAT exempt).

¹³⁰ With technical support both from the Southern Agricultural Growth Corridor of Tanzania (SAGCOT) and from the AGRA-funded Micro Reforms for African Agribusiness (MIRA) project, which has seconded a National Coordinator to the Ministry of Agriculture.

¹³¹ According to one interviewee, the amendments would already have been signed off if the draft had been ready in time for the June/July 2016 budget session in Dodoma, but unfortunately this deadline was narrowly missed. Interview, Dar es Salaam, July 2016.

4.5 Key challenges

The key challenges facing companies that wish to introduce new fertilisers in Tanzania can be summarised as follows:

- Under the TFRA's interpretation of the 2009 Fertiliser Act, companies are effectively debarred from introducing specialist and customised fertilisers, as well as fertilisers that harness new technologies. The registration process for these 'new' fertilisers is too long and expensive for companies to embark on.
- The registration process can be arbitrary. Registration of some fertilisers has reportedly been refused without tests and trials, while others that have been in use in Tanzania for several decades have been forced to undergo tests and trials as if they were new. Even the TFRA's award of waivers for certain types of fertiliser is ad hoc and is not properly communicated to the private sector.
- The underlying necessity of the three-year registration process is questionable, as most imported fertilisers are standardised global products and all fertilisers and/or their components are anyway tested prior to importation under the Tanzania Bureau of Standards' Pre-Export Verification of Conformity (PVoC) programme.¹³²
- In July 2016, TFRA officials indicated their intention to implement a fixed price regime for fertilisers. In future, TFRA intends to issue indicative reference prices for fertiliser, based on a calculation of what 'reasonable' farm gate prices should be, given TFRA's assessment of the manufacturing/distribution costs faced by importers and agro dealers.¹³³ While the 2009 Fertiliser Act allows for this kind of intervention, the setting of price ceiling – even if it is done in consultation with industry – is likely to damage the fertiliser industry, creating unnecessary rigidities and disincentives to investment, which in turn will increase the cost and reduce the products available to farmers. A better approach to reducing the price smallholders pay at the farm gate would be to reduce barriers to market entry as well as importation and distribution costs to enable healthy market competition to bring prices down.¹³⁴



132 Interview in Arusha, March 2014. During clearing process, fertiliser importers are required to go through the following regulatory institutions: TFRA, TBS, Chief Chemist, SUMATRA, Tanzania Atomic Energy Commission, and the Weight & Measure Agency, among others.

133 Interview, Dar es Salaam, 2016.

134 As an example, TFRA could create a one-stop centre for fertiliser companies to eliminate the current requirement for companies to engage with no fewer than eight different government agencies during the importation process.

5. The Agrochemical Sector

Overview

The use of commercially sold agrochemicals (specifically, pesticides) in Tanzania is largely restricted to the commercial farming sector and virtually all agrochemical products are imported by private companies.¹³⁵ Due to the small size of the market for most specialty agrochemicals in Tanzania, the menu of available products even in the commercial sector is often restricted. Among smallholders, awareness of the purpose and application method of agrochemicals remains limited, though there is a thriving black market for pesticides.¹³⁶

By the mid-2000s, the total supply of registered agrochemicals into Tanzania was roughly 2,500 mt. However, while there is no empirical evidence, the informal market for agrochemicals smuggled across the border from neighbouring countries is believed to be significant.

One interviewee suggested that the majority of pesticides sold in Tanzania are in some way adulterated: product labels are reprinted, the bottle shape is copied, and fake or diluted chemicals are added. According to industry participants, government law enforcement agencies have so far shown no willingness to track down offending suppliers and agents, despite the relative ease with which this could be accomplished.

5.1 Regulatory and supervisory institutions in the agrochemicals sector

Tropical Pesticides Research Institute (TPRI)

The TPRI, which reports to the Director of Crop Development at the MAFC, is generally viewed by those who have to engage with it as a capable and professional body. However, as with other semi-autonomous public agencies, the unreliability of disbursements from central government to the TPRI reportedly means that it is incentivised to generate higher than normal fees from

¹³⁵ 'Agrochemical' is here used to cover a range of pesticides, including herbicides, insecticides, and fungicides, and various chemical growth agents.

¹³⁶ According to the Agricultural Council of Tanzania, the risk of misuse among smallholder farmers is significant. Farmers' knowledge of the proper application of chemicals can be undermined by a failure to understand container labels or instructions regarding use of protective gear, and the risk of localised environmental pollution. See Agricultural Council of Tanzania (2012)

the input registration process because, aside from donor funding, this represents the agency's only guaranteed income stream.

The TPRI itself is a large and relatively well-funded agency which, unlike the TFRA and TOSCI, maintains an active website. Using this IT infrastructure, the TPRI is able to communicate better with stakeholders, though in reality many of the website's sections are tired. For example, as of October 2016, no up-to-date list of pesticides registered in Tanzania is available on the website, thus denying companies access to useful information.

Plant Health Services (PHS) Division

In addition to the TPRI, the PHS Division of the MAFC plays a role in regulating the agrochemical sector.¹³⁷ The PHS, which is headquartered in the MAFC in Dar es Salaam, oversees phytosanitary controls and is responsible for ensuring that phytosanitary certificates are in compliance with the importing country requirements. It maintains additional facilities and inspectors at the main overland border crossings at Namanga and Tunduma as well as at the country's main airports and harbours.¹³⁸

Tanzania Atomic Energy Commission (TAEC)

The TAEC is a regulatory agency operating under the mandate of the Ministry of Communication, Science and Technology. Since 2003, the TAEC has conducted mandatory radiation testing of pesticides – along with other food and agricultural imports and exports – regardless of the origin of the product.

5.2 The legal and regulatory framework

Key legislation includes:

- Plant Protection Act, No. 13 of 1997 (Cap. 133 R.E 2002) & its Regulations of 1998
- The Tropical Pesticides Research Institute Act, No. 18 of 1979 (Cap.161 R.E 2002) & Regulations 1984
- Environmental Management Act (2004)
- Tanzanian Biosafety Regulations (2009)

¹³⁷ Note that the PHS, together with the TPRI, also has a mandate to clear imported seed at the border.

¹³⁸ USAID/SeedCLIR (July 2013).

All agrochemicals must be tested and approved by the Arusha-based TPRI and the TAEC. Suppliers of agrochemicals are required to register under the Tropical Pesticides Research Institute Act (1979). This Act sets out the requirement for the importation, storage and distribution of pesticides and mandates the TPRI to conduct testing and certification of pesticides.¹³⁹ The TPRI is also empowered to license agrochemical traders.¹⁴⁰

Clearly, an important difference between the regulation of agrochemicals and other inputs such as seed is that agrochemicals have the potential to harm human health (both farmers and consumers) and the environment. As a result, regulations must address safety concerns in addition to the integrity and effectiveness of the product.¹⁴¹

However, one category of pesticide – bio control agents (BCAs) – has somewhat different characteristics. BCAs offer an alternative to chemical pesticides for the horticultural industry. Also known as biological pesticides ('biopesticides'), they are biological pest control products based on micro-organisms (i.e. a fungus, virus, bacterium, mycoplasma or rickettsia) that function as a pesticide (the micro-organisms are parasites and predators of pests and their eggs).¹⁴² BCAs differ from conventional chemical pesticides because they generally impact only the target pest and are less toxic to humans and the environment. The particular regulatory framework for BCAs is addressed in the following section.

5.3 The certification and registration Process

The registration process for new pesticides is as follows:

- Fill out the appropriate pesticides registration form for submission to the TPRI office in Arusha.
- Submit documents in two languages (English and Swahili) to the Registrar for Pesticide (dossier and label draft).
- Pay the experimental registration fees (US\$1,000–US\$1,500) and submit to the Registrar of Pesticide three samples of the candidate product and Analytical Standard.¹⁴³ Two of the samples are for field trials; the

other is for scientific laboratory analysis and quality verification.

- The field trial duration can be up to two to three years (three full rain seasons).
- Once trials are complete, the Registrar of Pesticide submits the field trial results and laboratory report to the Pesticide Approval and Registration Technical Subcommittee (PARTS) for scrutiny.
- The PARTS report is in turn presented to the National Plant Protection Advisory Committee (NPPAC) for approval.
- If approved, the candidate product is upgraded from the experimental registration category to either the 'restricted' or 'provisional' category. Under provisional registration, the product is allowed in the market for its intended use. This category elapses after two years, after which the product must be re-categorised or a new application made. Under restricted registration, the product should be handled and applied by technical/professional personnel and there are no time limitations.

This three-to-four-year process is viewed by industry participants as overly long, especially for substances such as pyrethroids which have already been found by regulators across the globe to pose very little risk to human health and the environment. At the other end of the regulatory spectrum, countries such as Sweden conduct no trials and instead follow a global precedent-based approach through reference to the literature – the same approach that is taken by the Tanzania Food and Drug Authority with regard to pharmaceuticals.

Costs associated with pesticide registration in Tanzania

Importers of pesticides must pay a fee equivalent to 0.5% of the FOB (free on board) value of the pesticide, a \$150 analytical fee per sample collected, and a pre-business licence fee of \$150 per year. Additional costs include a \$50 application fee, a one-off \$1,000 experimental registration fee, and between \$2,000 and \$6,000 as a field test fee. The importer must further pay \$1,000 for a five-year renewable full registration or \$1,500 for a renewable two-year provisional registration fee, or \$1,000 for a renewable two-year restricted registration fee.

¹³⁹ Note that the TPRI's mandate also includes testing of seed imports.

¹⁴⁰ Booz Allen Hamilton (2010).

¹⁴¹ In practice, this can result in regulations not only for product registration but also for the sale and application of registered products.

¹⁴² The European Union defines biopesticides as 'a form of pesticide based on micro-organisms or natural products'.

¹⁴³ While the product is under experimental registration it is not permitted into the market for any use.

Bio control agents

Since the early 2000s, the global agricultural industry has embraced bio agents, with positive results. For their part, international regulators have begun to encourage the use of BCAs in pest and disease control as a safer alternative to chemical agents. Yet in Tanzania, where demand for BCAs is growing among commercial farmers, the process for registration of bio agents is so long and its requirements so unclear that registrants have struggled over the past half-decade to introduce these products to the market.¹⁴⁴

At present, the policy framework for registration of BCAs is determined by the following:

- Plant Protection Act (PPA) 1997
- Regulations of 1999 (regulation Nos 42–45) which regulate importation, export and use of biological control agents in Tanzania

However, the PPA and the 1999 Regulations are not based on a comprehensive understanding of modern biopesticides and pest management. The registration system detailed in the policy framework lacks clarity and fails to provide a standardised procedure. To date, few biological control agents have been registered in Tanzania.

In response to these challenges, the Tanzania Horticulture Association (TAHA), an advocacy organisation funded by companies in the horticultural sector, has engaged the MAFC and other stakeholders in discussion over the need to streamline registration for BCAs.¹⁴⁵ TAHA has recommended the following:

- Fast-track registration of BCAs (TAHA has identified over 30 BCAs for fast-tracking)
- Create a separate and standardised registration mechanism specific to BCAs, including categorisation of different sub-groups of BCA
- Appoint a body to handle BCA registration
- Review the fee structure for registration
- Review the registration form and prepare a document by the Biological Control Agents Subcommittee (BCAS) clearly summarising the step-by-step registration process, to be posted online
- Develop a standardised presentation template for use by registration applicants
- Establish a testing protocol by BCAS for presentation to the NPPAC for approval

¹⁴⁴ Ministry of Agriculture and Food Security (July 2012).

¹⁴⁵ Ministry of Agriculture and Food Security (July 2012).

- Reduce the length of efficacy trials from three seasons to one
- Develop a framework for fast-tracking bio agents based on the criteria used by the Pesticides Approval and Registration Technical Subcommittee (PARTS) to fast-track registration of pesticides
- Longer term, review relevant legislation to address BCAs specifically¹⁴⁶

However, as of mid-2016 it remains unclear how many of these recommended changes to regulations and guidance have been adopted.

Latest developments

At present, no policy framework for the registration and certification of bio control agents exists in Tanzania. According to one interviewee, “TPRI has plant pathologists but they and the Plant Health Services committee are not yet familiar with how these products work [...]. They don’t have a background in this area; they need to be empowered to develop the expertise.”¹⁴⁷

A Bio Control Agents Sub-Committee (housed in the Plant Health Services division of the Ministry of Agriculture) exists, with a sub-committee based at the Sugarcane Research Institute in Kibaha (SRI-KIBAHA). However, there is no agreement between SRI-KIBAHA and the TPRI in Arusha over which organisation should have final authority over the bio-pesticide registration process. TPRI claims that BCAs and all microbes should fall under TPRI jurisdiction, while the SRI-KIBAHA reportedly argues that because these products have no chemical component they should not fall under TPRI, whose remit covers chemical-based products only.

For now, the Bio Control Agents Sub Committee at SRI-KIBAHA is reportedly willing to ‘register’ BCAs by issuing an import permit after efficacy trials have been satisfactorily completed. However, no registration number is provided for the product, reflecting the relative informality of the process.

This new sub-sector of the pesticide industry deserves attention from the Government of Tanzania as a more transparent and consistent registration process would encourage greater investment by importers of BCAs. This in turn would benefit specialised farming operations and organic farmers in Tanzania, as well as helping agribusiness exporters to comply with increasingly stringent maximum chemical residue requirements in global end-markets.¹⁴⁸

¹⁴⁶ Ministry of Agriculture and Food Security (July 2012).

¹⁴⁷ Interview, Dar es Salaam, June 2016.

¹⁴⁸ A further benefit of greater BCA use would be less reliance on relatively toxic chemicals like organophosphates and carbonates.

TAHA special initiative on registration of pesticides

Since early 2016, TAHA has engaged the GoT to request amendments to the existing Plant Protection Act (1997) as follows:

1. A reduction in the length of the registration process for new pesticides from three cropping seasons to one season (with simultaneous testing in three different agrological zones).¹⁴⁹
2. A reduction in the registration trial time for pesticides that have already been trialled in accredited laboratories and registered in neighbouring countries (for example, by KEPHIS) that have similar climactic conditions.
3. Harmonisation of the laws for pesticide registration among all EAC countries.
4. A reduction in the cost of registering new pesticides from the current fee of \$10,000.
5. Clarification on the process for registration of bio-pesticides/bio control agents and amendment to the Plant Protection Act to reflect this.

However, as an Act of parliament, the Plant Protection Act will prove harder to amend than the 2011 Fertiliser Regulations and the process is likely to take longer than the equivalent changes envisaged for the fertiliser sector.

TAHA's efforts deserve strong support. However, the organisation currently has only two staff working on advocacy. This is an area where further backing from development partners would be of great benefit. As an apex organisation representing the interests of all horticulture companies, TAHA can ensure unity of message in interactions with the GoT, in contrast to the piecemeal efforts of individual companies.

5.4 The regional context

As with the seed and fertiliser industries, shortfalls in regional harmonisation lead to avoidable duplication of testing and trialling in individual countries across Eastern and Southern Africa. The absence of a functioning regional list is damaging. Many agrochemical products new to the Tanzanian market are already registered in neighbouring countries with the same environmental conditions, including Kenya and Uganda; hence, there is little need to undergo the process again. If a pesticide has been in use in Kenya for several years without difficulty, why should it undergo a three-to-four-year trial period in Tanzania?

There is a need to develop compatible regional processes in the EAC and SADC for the testing and registration of agrochemicals and BCAs based upon common data requirements, mutually equivalent and compatible standards, common approaches to data storage and use (e.g. toxicity data), and harmonised registration systems.¹⁵⁰

Efforts to harmonise regional systems continue. A consultation process was inaugurated in Zanzibar in June 2012 to produce guidance on the regulation of biopesticides.¹⁵¹ However, it is unclear whether this process will translate into tangible action.

5.5 Key challenges

The key challenges facing companies that wish to introduce or access agrochemicals and bio-pesticides in the Tanzanian market can be summarised as follows:

- The flat registration fee for new agrochemicals, regardless of the potential market size (i.e. demand) for the product, makes the process inflexible. For example, the market for some specialist pesticides is only about 2.5 tonnes per year, which translates into earnings potential of roughly US\$5,000. In this case, the cost of the flat registration fee would exceed the potential revenues from future product sales, so there is no economic incentive to register the product in the first place.
- The list of allowable chemicals set by the TPRI is very restrictive and does not reflect the shift in world markets away from blanket pesticides and insecticides to 'softer' and more modern pest-specific products. At present, the registration list is dominated by old-fashioned chemicals, creating a bias in favour of using 'hard' chemicals over more modern 'soft' ones.
- Registration is unduly long (three seasons of trials are required for what in most cases are standardised global products) and the registration system lacks clarity.
- Regulators lack expertise in BCAs and have yet to develop a standardised procedure for their registration.
- The informal black market for agrochemicals in Tanzania is prolific – smallholder farmers are able to obtain virtually any chemical they wish from local informal vendors, regardless of the health and environmental risks. This is in stark contrast to the inability of regulated companies to obtain the safe, globally standardised chemicals that they need.

¹⁴⁹ In some case, for example if the fertiliser is intended for tomato crops, the season is only 3 months in duration.

¹⁵⁰ African Agricultural Technology Foundation (August 2013).

¹⁵¹ African Agricultural Technology Foundation (August 2013).

6. Barriers to Entry: Why do Innovators Struggle?

Several broad conclusions can be drawn from this paper's assessment of the registration and certification processes for seed, fertiliser and agrochemicals (pesticides). There are challenges which are common to the introduction of all types of agro input, including:

- **Conflicting belief systems** between the public and private sectors in Tanzania whereby a statist mind-set in government and a lack of experience in developing market-based institutions leads to over-regulation of the registration process.
- **Under-performing institutions** that lack capacity and lack expertise on the inputs they are required to certify and register.
- **Weak legislative process** in which the private sector is rarely consulted in the drafting of new bills that address agro input policy.
- **Poor enforcement of existing laws** that prohibit the sale of counterfeit agro inputs.
- **Erratic and ad hoc policy making and interpretation of laws**, which generates uncertainty for companies and imposes an unnecessary cost – in terms of both time and resources – to the registration process. Even when regulatory bottlenecks are addressed by regulators there is a preference for short-term solutions – for instance, in the form of one-off 'fast-track windows' that later elapse – rather than enduring changes to legislation and guidance.
- **Lack of information and a failure to communicate** agreed regulations and policy guidance both to the private sector and to other government agencies. This leads to misinterpretation and poor coordination, and creates opportunities for corruption.
- **Funding shortfalls** at semi-autonomous regulatory agencies, leading to a survivalist mentality in which income generation through registration fees becomes an overriding focus, in part due to the unreliability of budgetary transfers from central government.
- **Underlying political economy issues** whereby some incumbent companies and regulators may collude in and benefit from the status quo – and may therefore be reluctant to disrupt it.

Underpinning these challenges is a problem of *agency*. Put differently, it is unclear which individuals and institutions have the ability to effect change in the agro input sector. Since market liberalisation in the early 1990s, several national agricultural development initiatives have been launched but none have delivered the structural reforms they set out to achieve. In the 2000s, for instance, an Agricultural Sector Development Strategy (ASDS) was adopted, followed by an Agriculture Sector Development Program (ASDP), both with donor support.

More recently, in 2010, the Kilimo Kwanza Resolution was adopted as a flagship initiative to stimulate agriculture through private sector growth and collaboration between public and private stakeholders.¹⁵² Kilimo Kwanza was joined by a region-specific public–private initiative, the South Agriculture Growth Corridor of Tanzania (SAGCOT).

However, the difficulty with each of these high-level programmes is that they have lacked clear sector-specific policy reform goals and a sustained focus from domestic (rather than external) actors. The fanfare surrounding Kilimo Kwanza, which involved an implementation framework based on ten separate 'pillars', had already abated. Attention later shifted decisively away from Kilimo Kwanza towards the latest donor-inspired initiative, the Big Results Now (BRN) agenda, which includes agriculture among its top priorities, but BRN too has been disbanded.

Clearly, the reforms necessary to unblock the registration process for agro inputs are not going to come from such high-level agendas. Instead, this paper suggests a series of specific, discrete interventions in the value chain for agro inputs, most of which do not rely on legislative amendment and high-level consensus to be achieved.

Of course, whether such interventions can be implemented will depend to some extent on the national policy-making environment. With general elections completed in October 2015, the new Magufuli administration has a chance to pursue long-term reforms. The main emphasis for proponents of reform should be on framing 'low-level' targeted, pragmatic changes and engaging the individual or regulator empowered to make them.

¹⁵² Kilimo Kwanza translates as 'Agriculture First' in Swahili.

7. Towards a More Innovative and Competitive Agro Input Sector in Tanzania

What overarching principles should guide these targeted policy recommendations? First, the regulatory regime must become significantly lighter, based on a recognition that in competitive and vibrant markets a process of self-regulation, combined with adequate product choice and information on product quality, is sufficient.¹⁵³ As such, registration processes should be shortened, streamlined, and in many cases removed altogether. The corollary of this emphasis on light-touch regulation is recognition of the true costs of heavy regulation, the benefits of which are outweighed by the cost in time and money imposed on suppliers – costs which are then passed on to the farmer in the form of higher prices and restricted choice.

A second principle is the need to improve levels of engagement and consultation between the public and private sectors. Tanzania's regulators have struggled to adapt to changes in the agro input market in part because they lack any cultural affinity with the prerogatives of market enterprise and market-based institutions. For example, there is no cost-of-service philosophy: fees charged for registration of inputs outweigh the costs incurred by the agency by an order of magnitude.

Moreover, the notion that regulators should play a supportive rather than a policing role with regard to the private sector is not widely held. Neither is the need to respond to market changes with prompt, decisive policy action recognised. Regulators are generally poor at communication and frequently refuse meeting requests. An illustration of this lack of urgency is the fact that during 2013, 30 government agencies in Tanzania – including the Tanzania Investment Commission, a body designed to promote foreign investment – were without an appointed board, leaving them in limbo.

This mind-set may well be rooted in the state-directed policies of the Nyerere era and the fact that for a long time all agricultural inputs were overseen not by regulatory agencies but as part of a production system managed directly by powerful cooperatives. But it is harder to think how the mind-set could be overcome. What is required is nothing less than a fundamental shift in the government's attitude towards – and trust in – the private sector.¹⁵⁴

Third, there is a need to correct the pervasive view among government regulators that the way to address the problem of counterfeit agro inputs is to tighten the rules for introducing new inputs. In practice, the reverse is true: the prevalence of fake products in the market is due to

chronically weak enforcement of existing legislation and a lack of competition in the marketplace.¹⁵⁵ Indeed, in a properly competitive agro input market where there are few barriers to the introduction of new products, firms that sell adulterated products are “unlikely to retain their customer base in subsequent farming seasons. [However, if regulations serve to] restrict the levels of competition by placing high hurdles for firms to enter or remain in the [Tanzanian market], then the chance of adulterated products being sold is likely to increase.”¹⁵⁶

¹⁵³ This point is made with regard to fertiliser policy in Benson et al (December 2012).

¹⁵⁴ Drawing on USAID/SeedCLIR (July 2013).

¹⁵⁵ A recent anecdotal example illustrates this point. The TFRA was reportedly called to investigate complaints over fake fertiliser in the south of the country near Rovuma and, after testing samples, the fertiliser in use was proved to be fake. However, according to interviewees familiar with the incident, no suspensions or successful prosecutions ever resulted from the investigation.

¹⁵⁶ Benson et al (December 2012). The italicised emphasis has been added by the author.

8. Recommendations

The following section sketches a road map for reform of the policy framework, institutional architecture and regulatory processes that govern the introduction of new agro inputs in Tanzania. To the greatest extent possible, the recommended interventions are supportive of – though not reliant upon – ongoing high-level reform agendas such as the G8 cooperation framework to support the New Alliance for Food Security and Nutrition in Tanzania.

At a generic level, the actions required to deliver change can be grouped as follows:

- Agree a **road map for change** that complements and harnesses existing, ongoing reform initiatives led by the donor community, government and/or advocacy organisations in the Tanzanian agricultural sector. Ensure that proposed changes to institutional roles and policies are formulated in a clear, pragmatic and easily communicable way.
- Develop a **constituency for change** that spans the public and private sectors by conducting a series of targeted presentations, forums and workshops with selected reform ‘champions’. Ensure consistency of message across all stakeholders.
- Provide **targeted financial and technical support** to organisations that have the willingness and ability to effect change, including: advocacy organisations, elected offices such as the Prime Minister’s Office (PMO), regulatory bodies and donor-sponsored forums such as the Big Results Now (BRN) initiative.
- Undertake **empirical field work** based on data collection and economic modelling to provide a more robust case for change. For instance, there is a need for research that demonstrates the opportunity cost – in terms of yields and incomes – of restrictions to the introduction of improved fertilisers, pesticides and seed varieties in Tanzania.¹⁵⁷

8.1 Recommendations: to regulatory and supervisory authorities

To all regulatory agencies

1. Digitise and publish available market and regulatory information online. Create an Online Web Application (e-Portal) for each lead regulatory agency where critical information (e.g. lists of approved varieties or products) and application forms can be hosted online on a single platform. Also create a mailing list for all private sector stakeholders.

Rationale: At present, with only a few exceptions, the key government regulatory agencies that govern Tanzania’s agro inputs sector do not have websites. They lack the IT skills and infrastructure to maintain reliable databases, publish policy guidance, update lists of registered inputs and so on.

If key information such as the lists of already registered fertilisers and seed varieties was publicly available it would represent a significant public good. It would also boost regional harmonisation efforts, as the inability to share technical data sheets and information between regulators in neighbouring countries is one of the largest barriers to greater cooperation.

During the interviews for this study, both private sector companies and regulators were in universal agreement on the need for digitisation. The only constraints are funding shortfalls and an organisational culture among government agencies in which IT and communications are not prioritised. To address this, regulators should:

- Urgently seek central government and/or donor funding to develop and maintain IT infrastructure
- Make all legislation and guidance publicly available online
- Develop and publish online clear guidelines for all registration and certification processes

¹⁵⁷ These groupings draw on the change agenda envisaged for Uganda’s seed sector in Joughin (2014).

2. Where they do not already exist, establish Stakeholder Forums for each sub-sector with regular (e.g. quarterly) rather than ad hoc meetings between regulators, ministries and companies. Digitise and publish available market and regulatory information online. Create an Online Web Application (e-Portal) for each lead regulatory agency where critical information (e.g. lists of approved varieties or products) and application forms can be hosted online on a single platform. Also create a mailing list for all private sector stakeholders.

*3. Invest in upgrading public sector laboratories and promote the creation of private laboratories to improve the accuracy of laboratory testing results of soil samples, seed properties and fertilizer content.*¹⁵⁸

To seed sector regulators

To the Ministry of Agriculture, Food Security and Cooperatives (MAFC):

4. Pursue a path of deregulation by either shifting to automatic seed variety registration or accepting the registration list of another country that has well-developed seed laws and broadly similar agro-ecological conditions.

Rationale: After decades of effort and donor support, the drive to achieve regional harmonisation has resulted in little tangible progress. High-level agreement on EAC or SADC harmonisation protocols has been reached on paper at the presidential and ministerial level but this does not always translate into action by domestic regulators, parastatals and agricultural institutes, who are often left in the dark.

As such, instead of pursuing technically demanding regional integration, Tanzania should consider either unilaterally moving to relax its seed registration requirements in line with the South African model, or accepting another country's variety list as its own. Both options are straightforward to implement and would have an immediate beneficial impact, allowing a deeper, more efficient and more competitive seed market to emerge.

This is not to undermine regional integration efforts, which deserve support. It is simply to recognise the slow pace of harmonisation processes, as well as the limits of what supranational authorities can achieve in transforming domestic market systems in Tanzania. Where underfunded and slow-moving regional institutions can be circumvented by the unilateral implementation of domestic policies that anyway advance the cause of regional integration, so much the better.

¹⁵⁸ See: Alliance for a Green Revolution in Africa (AGRA). 2014. An assessment of agricultural policy and regulatory constraints to agribusiness investment in Burkina Faso, Ethiopia, Ghana, Nigeria and Tanzania. AGRA: Nairobi, Kenya; p. 114.

5. Remove the cess tax charged on locally produced seed by Local Government Authorities (LGAs).

6. Accelerate preparations to obtain the relevant Organisation for Economic Cooperation (OECD) membership.

Rationale: This will ensure that Tanzania's seed certification procedures are globally recognised

7. Finalise the application process for the International Seed Testing Association (ISTA) and obtain ISTA accreditation for the TOSCI laboratory in Morogoro by ensuring that new equipment is available and lab analysts are fully trained to conduct proficiency tests of seed samples.

Rationale: ISTA accreditation will permit Tanzanian seed to be sold to export markets. Tanzania's seed varieties, particularly rice, have great potential to generate demand for exports. Until an export market is accessible, Tanzanian seed companies face a major disincentive to investment and expansion in high quality certified seed. Tanzania is currently a large-volume importer of seed,¹⁵⁹ but with the right regulatory framework the country could produce much of its own certified seed and export to the EAC and COMESA sub-regions.

8. Remove the extraneous conditions attached to the provision for direct licensing agreements between ARIs and private seed companies set out in the 2011 Ministerial Circular on Licencing.

Rationale: If contractual agreements for the licensing of public genetics were simplified then private companies would likely become active in the multiplication of basic seed from public varieties, as is the case in South Africa, Brazil and many other countries.

9. Convene the Variety Release Committees more regularly than once per year.

Rationale: This would help to prevent delays to the release of new seed varieties and would therefore provide farmers with earlier access to new varieties.

10. Pursue genuine regional harmonisation in the EAC and SADC of seed testing and release requirements.

Rationale: If Tanzanian regulators were able to

¹⁵⁹ According to AGRA, "Tanzania imports seed, particularly hybrid maize from Kenya Seed Corporation, Seed Co, PANNAR, the East African Seed Company, and Kibo Seed; imports averaged 12,906 mt per annum from 2010 to 2012 but rose to a reported 27,109 mt in 2013". See: Alliance for a Green Revolution in Africa (AGRA). 2014. An assessment of agricultural policy and regulatory constraints to agribusiness investment in Burkina Faso, Ethiopia, Ghana, Nigeria and Tanzania. AGRA: Nairobi, Kenya.

automatically accept seed varieties already approved by other members of the EAC and SADC, the registration process would become significantly more straightforward.¹⁶⁰

To the Tanzania Official Seed Certification Institute

11. Simplify and shorten the seed variety release process .

12. Publish a release list along with descriptors of the seed varieties online.

13. Either (A) allow third parties to conduct seed certification; or (B) pursue a shift towards voluntary rather than mandatory certification, so that companies need only obtain government certification if they wish to.

Rationale: Countries such as South Africa and the United States have adopted voluntary seed certification. As a result, companies in these markets trade on their reputations and this self-regulating mechanism has generally served to guarantee seed quality.

Formal certification becomes optional and government agencies responsible for certification are incentivised to provide excellent and affordable services to companies or face irrelevance.

*14. Develop a digitised seed information system that provides all stakeholders with information on seed prices, demand estimates, crop forecasts, contact information, and feedback from farming groups and companies.*¹⁶¹

Rationale: A seed information system would represent a non-exclusive public good that offers value for money by providing benefits to all seed companies and farmers at relatively little expense to the government.

15. Develop a traceability system, funded by contributions from industry participants (in proportion to market share) and drawing on existing traceability and due diligence schemes used in sectors such as the minerals industry.

Rationale: An effective and independently administered traceability scheme would minimise the opportunities for introducing fake seeds into the market and would enable enforcement agencies to identify counterfeiters across the value chain, from local distributors to bulk importers.

16. Increase the transparency of national variety release criteria to reduce the likelihood of rejection of new varieties by the Seed Committee .

To the Agricultural Seed Agency

17. Set clear criteria and timescales for withdrawing from ASA's certified seed production and marketing programme and make these public.

Rationale: ASA's monopoly on the production of foundation seed is damaging to the seed system. The organisation's mandate is currently too broad, given its limited capacity. The above changes would reduce unfair competition with the private sector and thus promote a more open and competitive seed market.

Certification, testing and inspection are indisputably public functions but some segments of the value chain in which ASA is functioning – including seed production and distribution – should be privatised. ASA will never be as proficient as private firms in bulking up seed quickly and in sufficient volume to meet farmer demand, provided that the policy framework is configured to support private sector growth in this area.

*18. Increase support services to private seed companies that focus on underserved localities in the country's central, southern, and western regions.*¹⁶²

19. Establish and commit to transparency over the tendering process for public–private partnerships and lease arrangements with private seed companies.

¹⁶⁰ This recommendation should be enacted in parallel with the unilateral deregulation described in part (i) above.

¹⁶¹ See Minot (December 2013).

¹⁶² These recommendations are echoed in USAID/SeedCLIR (2013).

To the Agricultural Research Institutes (ARIs):

20. Develop a variety maintenance programme across all research stations.

Rationale: This would ensure better standards and quality in the pre-basic seed being produced at ARIs.¹⁶³

21. Build human capacity and staff numbers.

Rationale: ‘Strength in depth’ is required so that the departure of a key researcher does not leave the industry waiting an additional year or more for trial data.

22. Engage with the Seed Committee to agree a clear, standardised template for the presentation of seed variety data and provide training to ARI staff on how data should be presented.

Rationale: This will prevent the rejection of new varieties on purely technical grounds.

23. Develop performance-based incentive structures focused on producing early generation seed for under-resourced crops (for example, cassava, sweet potatoes and bananas rather than maize, rice and beans), to better respond to local demands. Also develop an easy-to-use electronic pre-season order and payment system to allow for much faster response to demands.

Rationale: At present there is not enough motivation in the public sector to make the bulking and delivery of certified seed more efficient after registration to smallholder farmers.

To all Seed Sector Participants:

24. Develop a broader regional forum covering either EAC or SADC or both to provide focus and impetus to the harmonisation agenda. This forum must include both private companies and government agencies from all countries.

To fertiliser sector regulators

To the Tanzania Fertiliser Regulatory Agency

25. Provide public clarification on whether an application has been made to the Minister of Agriculture to grant waivers for all NPK fertiliser blends.

26. Shift as quickly as possible to regulating and registering fertiliser ingredients/components rather than individual blends.

Rationale: There is no requirement to register fertiliser blends, of which there are an unlimited number, provided that blends are made using approved and registered ingredients. Making this change would allow specialist and customised fertilisers into the market. This in turn would increase the level of competition, to the benefit of consumers.

27. Introduce exemptions for specialised fertiliser products such as those required by the flower market, based – for example – on a tiered approach that links the registration cost to the market size for each product.

28. Consult with private sector stakeholders to gather their input on the 2009 Fertiliser Act with a view to issuing supplementary guidance. Consider suspending the strict implementation of the Act until a period of consultation has been held.

29. Publish online (A) clear criteria for the registration process; (B) an up-to-date list of all fertilisers that have already been registered in Tanzania; and (C) a list of all waivers granted.

30. Re-focus the agency’s activities and resources on (A) counteracting the presence of fake fertiliser in the market; and (B) providing a public service by recommending the best fertiliser types for specific regions and localities.¹⁶⁴

Rationale: TFRA lacks the capacity to fulfil its entire mandate, so it must prioritise. One approach to reducing the regulatory burden while guarding against the introduction of fraudulent and substandard products would be to introduce a two-track registration system in which companies that wish to register new fertilisers must either (i) obtain a certain number of testimonials from established commercial farmers and professional growers, in which case they may proceed to market without testing; or (ii) if the input provider can’t obtain and prove professional testimonials, the new product should be tested through the usual channels.

¹⁶³ See USAID/SeedCLIR (2013).

¹⁶⁴ This section draws extensively on an interview in Arusha in March 2014.

This system would root out any suppliers of fraudulent products seeking to take advantage of unknowledgeable consumers, while at the same time avoiding the risk of blanket over-regulation. The crucial test for a supplier is whether they are able to sell the product to commercial farmers who have the capacity to evaluate it and, if the products works well, are willing to provide verifiable testimonies.¹⁶⁵

31. Amend the 2009 Fertiliser Act and/or 2011 Fertiliser Regulations to make specific provisions and guidelines for organic and bio fertilizers. Also increase capacity at TFRA so that staff have the skills an laboratory equipment necessary to handling bio-fertilisers.

Rationale: There is currently no written policy or law governing the production and distribution of bio-fertilizers in Tanzania.

To agrochemical sector regulators

To the Tropical Pesticides Research Institute

32. Convene stakeholders to agree on national biosafety regulations, drawing on the preliminary work done by TAHA.

33. Engage with and support TAHA's efforts to establish a new fast-track registration process for pesticides.

34. Publish an up-to-date list of approved pesticides online (the latest available list is from 2011) and ensure that this is actively circulated to by email to companies.

To the Ministry of Communication, Science and Technology

35. End the requirement for the Tanzania Atomic Energy Commission (TAEC) to conduct mandatory radiation testing.

Rationale: The Plant Health Services (PHS) and the Directory for Veterinary Services (DVS) already inspect imported and exported products. The TAEC's role is a clear duplication of effort and leads to unnecessary bureaucracy.

¹⁶⁵ The category most at risk of fraudulent or exaggerated branding is the so-called 'bio-fertilisers' sub-sector, which provides microbial products, often at low cost with promises of transformational effects on crops. The International Centre for Tropical Agriculture – Tropical Soil Biology and Fertility (CIAT-TSBF) reportedly collected and tested hundreds of these products on the Kenyan market and found that only two or three produced any substantive benefit to farmers.

8.2 Recommendations: to Tanzania-based advocacy organisations

36. Conduct targeted workshops and forums involving both private and public sector representatives to develop and agree on reform of registration and certification processes.

37. Coordinate and increase advocacy and media activities to influence government policy on the registration of agro inputs

38. Input companies should unite to engage with the government with one voice, through industry associations

Rationale: In the seed and fertiliser sector in particular, there is a tendency among large international companies to speak directly with government regarding policy issues, rather than through associations such as TASTA or TAHA. This unilateral engagement creates several conflicting narratives and presents a barrier to reform.

8.3 Recommendations: to donors and international non-governmental organisations

39. Coordinate and increase advocacy activities to influence government policy on the registration and certification of agro inputs, making use of existing channels of government engagement on agricultural sector issues.

40. Commission studies to collect data and provide an empirical basis for the need for key reforms to registration and certification processes in the agro input sector.

41. Conduct political economy analysis to identify the key individuals in politics and business who benefit from the status quo in agro input regulation – or who stand to lose from a change to existing regulations – and map their relationships to one another.

42. Identify and engage with potential reform 'champions' in government.

Rationale: With general elections completed in October 2015, the new Magufuli administration has a chance to pursue long-term reforms. The main emphasis for proponents of reform should be on framing 'low-level' targeted, pragmatic changes and engaging the individual or regulator empowered to make them.

43. Place agro input regulation on the agenda of the Big Results Now 'private sector lab' initiative.

44. Develop proposals for a new government agency with the mandate to experiment and undertake structural reforms to the agricultural market system.

Rationale: To overcome the political economy constraints that hold back many government agencies in Tanzania, there is a need for a body that is autonomous of line ministry control and enjoys a diverse funding structure. For example in Ethiopia a new body, the Ethiopian Agricultural Transformation Agency (EATA), has been established with support from the Bill and Melinda Gates Foundation, IFPRI and others. Several EATA staff are highly skilled members of the Ethiopian diaspora. The agency reports directly to high-level ministers and meets the Prime Minister every three months. This combination of robust capacity, high-level sponsorship and freedom from line ministry control (with the attendant uncertainties over funding) has reportedly allowed the EATA to act as a catalyst for innovation.

45. Commit further resources to developing an enabling environment in Tanzania for a joint public-private rollout a Coin Scratch Verification Technology and mobile authentication scheme to help combat counterfeiting in agro inputs.

46. Avoid focusing too much donor technical and financial support on public sector institutes such as agricultural research institutes. These organisations are not market-orientated and often they serve to suffocate private sector investment and activity.

Rationale: One example is the subsidising of seed prices by donor-funded public institutes through projects that undermine the private sector's ability to establish a market-based seed sector through direct competition. Rather than risking 'crowding out' of private sector activity, donor grants to NGOs, associations and public sector bodies should focus on increasing their capacity to conduct evidence-based research that can be used to further the reform agenda outlined.



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