

**Seed Governance in Tanzania: Seed Capitalism, Pluralism, and Sovereignty
Discourses Compared, and the Value of Nuance**

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Abstract

This thesis explores debates around seed governance in the context of Tanzania's recent changes to its seed policies and laws, in order to critically examine the framings and discourses employed. Three narratives emerge, Seed Capitalism, Seed Pluralism, and Seed Sovereignty. Consistent with Westengen (2017), Seed Capitalism and Seed Sovereignty rely on, and are entrenched in, binary opposition, despite the complexity of the problems involved, and put forward singular solutions that risk harming smallholder resilience. Seed Capitalism portrays scientist-bred certified seed as superior to farmer varieties, and as optimal for smallholders, despite evidence to the contrary. Seed Sovereignty constructs rigid distinctions between peasant seeds and industrial seeds, failing to engage with the phenomenon of creolized seed, the intermixing of farmer varieties with scientist-bred varieties. Creolized seed presents a narrative threat to Seed Sovereignty's rejection of industrial seed. Both Seed Capitalism and Seed Sovereignty narratives obscure evidence relating to seed quality and yield that is in tension with their underlying agendas. A third discourse, Seed Pluralism, not previously identified as such by the literature, resists binary framings and recommends a multiplicity of approaches informed by the nuance of relevant facts. Tanzania's seed governance framework predominantly reflects the Seed Capitalism discourse. While Seed Pluralism has a small foothold in Tanzania's seed governance, through the Quality Declared Seed (QDS) system, overall Tanzania's seed laws are threatening smallholder resilience. Positive reform under Tanzania's current political settlement is unlikely. Pro-poor donors should withdraw support for governance frameworks rooted in Seed Capitalism, and instead promote seed governance reforms grounded in Seed Pluralism, including eliminating restrictions on smallholder seed exchange in low income countries.

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I take full responsibility for the views expressed in this thesis as they are mine alone. Nothing expressed herein constitutes legal opinion or advice.

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ACRONYMS

AGRA	Alliance for a Green Revolution in Africa
ARIPO	African Regional Intellectual Property Organization
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
CBD	<i>Convention on Biological Diversity</i>
CCM	Chama Cha Mapinduzi
CGIAR	Consultative Group for International Agricultural Research
CIMMYT	International Maize and Wheat Improvement Center
COMESA	Common Market for Eastern and Southern Africa
CSA	Climate-Smart Agriculture
EAC	East African Community
FAO	Food and Agriculture Organization of the United Nations
FMSS	Farmer managed seed systems
GMO	Genetically modified organism
IRRI	International Rice Research Institute
ISSD	Integrated seed sector development
ITPGRFA	<i>International Treaty on Plant Genetic Resources for Food and Agriculture</i>
IU	<i>International Undertaking on Plant Genetic Resources</i>
LVC	La Via Campesina
LVC SEAf	La Via Campesina Southern and Eastern Africa
MVIWATA	Mtandao wa Vikundi vya Wakulima Tanzania (National Network of Farmers Groups of Tanzania)
OPV	Open-pollinated variety
OSSI	Open Source Seed Initiative
PGRFA	Plant genetic resources for food and agriculture
PBR	Plant breeders' rights
PBRA 2012	<i>Plant Breeders' Rights Act, 2012</i> , United Republic of Tanzania
PPP	Public-private partnership
PVP	Plant variety protection
QDS	Quality declared seed
SADC	South African Development Community
SAGCOT	Southern Agricultural Growth Corridor
TRIPS	World Trade Organization <i>Agreement on Trade-Related Aspects of Intellectual Property</i>
UPOV	International Union for the Protection of New Varieties of Plants; the acronym is also frequently used in the literature to refer to the UPOV Convention: <i>International Convention on the Protection of New Plant Varieties</i>
URT	United Republic of Tanzania
WIPO	World Intellectual Property Organization

GLOSSARY

African Model Law: African leaders initially resisted the **UPOV** approach to plant variety protection and **plant breeders' rights** (Helfer, 2004). The African Union (including Tanzania) drafted the *Model Law for the Recognition and Protection of the Rights of Local Communities, Farmers and Breeders, and for the Regulation of Access to Biological Resources* (Model Law) (Zerbe, 2005). **Farmers' rights** were defined broadly, including, *inter alia*, the right to save, use, exchange, and sell farm-saved seed/propagating material of farmers' varieties, to use protected varieties to develop farmers' varieties, and to save, use and multiply farm saved seed of protected varieties (Article 26.1). Farmers' varieties can be protected without meeting the criteria of **distinctness, uniformity and stability** (Tuhairwe, 2017).

Agroecology: There is no single agreed-upon definition (Saj, Torquebiau, Hainzelin, Pages, & Maraux, 2017). It may refer to a science; a set of practices; or a social movement focusing on the political ecology of food systems, (Bernard & Lux, 2017). The knowledge base regarding the productivity and scaleability of agroecological farming systems is relatively sparse and uncertain (*ibid*).

Climate-smart agriculture (CSA): Initiated by the World Bank in 2009 and promoted by the FAO, CSA involves agricultural methods and technologies that increase crop productivity while also building climate change resilience and reducing greenhouse gas emissions (Taylor, 2018; Saj et al., 2017). Opponents argue that CSA is no more than “business as usual”, including reliance on industrial inputs, patented seeds, and commoditized carbon.

Common heritage: Historically, crop genetic resources were managed as a “common heritage”, belonging to the public domain (Raustiala & Victor, 2004; Brush, 2007).

Contractual terms: In addition to patents and plant variety protection, multinational seed companies often protect their varieties with contractual terms that prohibit farmers from saving seeds (Biddle, 2014; De Schutter, 2011; Kuyek, 2007).

Convention on Biological Diversity (CBD): The CBD is a legally binding multilateral treaty relating to the conservation and sustainable use of biodiversity, and fair and equitable sharing of benefits arising from the use of genetic resources (CBD, n.d.). The CBD governs requests for access to PGRFA not within the scope of the ITPGRFA (Halewood et al., 2013). Implementation of both the ITPGRFA and the CBD into national laws has been slow, in part owing to uncertainty regarding the interface of the two different access and benefit sharing systems (Halewood et al., 2013).

DUS or NDUS (New, distinct, uniform and stable): When seeking protection under **UPOV**, a breeder must demonstrate that the variety is new, distinct, uniform and stable (Fleck & Baldock, 2003). If these 4 criteria are met, then the variety will be protected for 15 to 20 years meaning that anyone who wishes to produce the protected variety must obtain the breeder's prior authorization (Andersen, 2008). These criteria are not easily met by traditional farmer varieties, which are inherently “highly diverse and keep evolving in the field” (Nijar, 2011, p. 110; Aksoy, 2014; Kloppenburg, 2014).

Early Generation Seed (EGS): Refers to seed at the earliest stages of scientist-bred seed, and includes breeder seed (sometimes called pre-basic seed) and foundation seed (sometimes called

basic seed). The former is developed through harvest from individually selected plants with the desired characteristics, using a high degree of genetic control to ensure purity. Several generations are multiplied from the harvested seed, leading to foundation seed. Genetic impurities (“off types”) are eliminated during production of foundation seed, based on detailed varietal descriptions (Mastenbroek & Ntare, 2016).

Farmers’ Privilege: An exception to **plant breeders’ rights**, relating to the right of farmers to use seeds of protected varieties from their own harvest. Under **UPOV 1978**, farmers may save, use and exchange seeds of protected varieties, but may not sell them (Correa, 2017; Jefferson, 2014). Farmers, like any breeder, also did not need the rights holder’s permission to use protected germplasm in the creation of a new variety (Andersen, 2008). Under **UPOV 1991**, farmers may only save their own seed of protected varieties (including creole seed if essentially derived or similar) grown on their own holding for the purpose of planting the seed on their own holding, and only if the national government chooses to include the farmers’ privilege in its legislation (Correa, 2017; Andersen, 2008). The rights holder’s prior authorization is also required to create essentially derived or not clearly distinguishable varieties (Andersen, 2008).

Farmers’ Rights: Farmers’ rights are included, but not defined, in the **ITPGRFA**. National governments should protect and promote them, “as appropriate”, and “in accordance with national needs and priorities” (A. 9, IGTPRFA – FAO, 2009). Farmers’ rights were defined expansively in the **African Model Law**. In 1996, La Via Campesina (LVC) began to advocate for an even broader definition, arguing that farmers’ rights include, *inter alia*, the rights to conserve biodiversity, to achieve food security, to participate in policies linked to genetic resources, to define the control and handling of benefits derived from the use of genetic resources, and the right to use, choose, store, and freely exchange genetic resources (Borowiak, 2004, p. 529).

International Convention for the Protection of New Plant Varieties (UPOV): UPOV was established in 1961 by a group of corporations and European states to protect **plant breeders’ rights**. Two versions of UPOV are currently extant, **UPOV 1978** and **UPOV 1991**. All members of the G7 adhere to UPOV 1991, while China, Brazil, and Argentina for example, follow UPOV 1978 (UPOV, 2017; Bjornstad, 2016). UPOV 1978, which imposes fewer restrictions on **farmers’ privilege**, was closed to new members on April 24, 1998, when UPOV 1991 came into force.

International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). The ITPGRFA is the first legally binding international agreement dealing exclusively with PGRFA (Andersen, 2008). It was adopted in 2001 and entered into force in 2004. It applies to 64 crops (35 food and 29 forage crops) that are in the public domain.

ITPGRFA, Article 12(3)(d): Requires PGRFA obtained through the treaty to remain in the public domain, in other words, recipients are prohibited from claiming intellectual property rights in the PGRFA received (Singh, Prasad, & Reddy, 2015). Article 12(3)(d) of the ITPGRFA is too narrow to preclude a recipient from seeking IPR in relation to lines derived from the PGRFA received (Kloppenburger, 2014).

Patent thickets: Patent thickets arise through increasing number and breadth of patents, and patents on more basic discoveries; this leads to overlapping sets of patent rights, leading to a need to obtain licenses from multiple patentees. Biotechnology is prone to patent thickets (Luby et al., 2016; Taylor & Cayford, 2004; Biddle, 2014; Bragdon, 2016).

Plant breeders' rights: Exclusive rights to market a new plant variety for 15 to 20 years granted to its breeder pursuant to **UPOV** - anyone who wishes to produce the protected variety must obtain the breeder's prior authorization (Andersen, 2008; Bjornstad, 2016). Breeders granting such authorization usually do so through licensing, which includes the obligation to pay royalties to the breeder (Nilsson, 2007). The germplasm remains available to all breeders for crossing (the "breeders' exception" (Bjornstad, 2016).

TRIPS, Article 27(3)(b): TRIPS (the 1994 Agreement on Trade-Related Aspects of Intellectual Property Rights) is relevant for those states participating in the World Trade Organization system, including Tanzania. Article 27(3)(b) permits member states to exclude plants and animals from patentability, but also requires them to "provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof". While some TRIPS drafters had the **UPOV** system in mind as an "effective *sui generis* system", not all states agreed; accordingly the provision makes no reference to UPOV, leaving the door open for states to draft alternative approaches (Raustiala & Victor, 2004; Andersen, 2008).

INTRODUCTION

Efforts are underway to spur a “New Green Revolution for Africa”, that is, to modernize agriculture, including through the development and dissemination of high-yield hybrid staple crops, to alleviate food insecurity and develop so-called Climate Smart Agriculture (Dawson, Martin, & Sikor, 2016; Westengen, Ring, Berg, & Brysting, 2014; Bulte, Beekman, DiFalco, Hella, & Lei, 2014; Scoones & Thompson, 2011; Asfaw, Shiferaw, Simtowe, & Lipper, 2012; Westengen, 2017). Earlier Green Revolutions involved significant levels of public investment including price guarantees to raise smallholder income (Dawson et al., 2016; Patel, Bezner Kerr, Shumba, & Dakishoni, 2015). In contrast, the New Green Revolution is largely driven by the private sector and philanthrocapitalists (Green, 2015). The Alliance for a Green Revolution in Africa (AGRA), funded by the Bill & Melinda Gates Foundation and the Rockefeller Foundation, and established in mid-2006, is an important actor in this endeavour and has “dedicated more than US\$1.7 billion to assisting small family farmers in sub-Saharan Africa” (Morvaridi, 2016, p. 153; Mushita & Thompson, 2013; Braimah, Atuoye, Vercillo, Warring, & Luginaah, 2017; AGRA, 2009). AGRA promotes “sustainable intensification” of smallholder farms in order to increase yields, through the use of hybrid seed, intercropping, fertilization, and mechanization (AGRA, n.d.; Mushita & Thompson, 2013). At the same time, the G-8’s neoliberal New Alliance for Food Security and Nutrition (the “New Alliance”), launched in 2012, seeks to transition smallholder farmers from ‘traditional’ to ‘modern’ agriculture in order to increase smallholder production and income (Vercillo, Kuuire, Armah, & Luginaah, 2015). France withdrew from the New Alliance on February 8, 2018, after an independent evaluation of a New Alliance project in Burkina Faso showed mixed results, and a risk of land grabbing harmful to smallholders (Global Agriculture, 2018).

In its 2012 New Alliance commitments, Tanzania promised to implement the most robust international plant breeders’ rights regime available (“UPOV 1991”), leading to claims in international media that “Tanzania farmers face 12 years in prison for trading seeds thanks to foreign aid” (G8 Cooperation Framework, 2012; Qiu, 2017, 2nd para; Daems & Iqiniso, 2016). In March, 2013, a coalition of farmers’ and civil society organizations “working on farmers’ rights, agricultural biodiversity and agroecology” published a statement in opposition to Tanzania’s imminent accession to UPOV 1991 (IP-Watch, 2013, para 1). The document states that accession

to UPOV 1991 has “wide-ranging and far-reaching” implications “for the farmers of Tanzania, who are largely smallholder farmers and women farmers” (para. 4). The coalition argues that the interests and livelihoods of small-scale farmers are adversely affected by UPOV 1991 “as it severely restricts farmers from engaging in their customary practices”, including seed saving and exchange (para. 5). Accordingly, the coalition called on the government “to immediately halt all processes leading to the ratification of UPOV 1991, until all relevant stakeholders – including farmers – have been adequately consulted and their concerns sufficiently addressed” (para. 7). Tanzania joined UPOV 1991 in November 2015 (UPOV 2016).

The majority of Tanzanian smallholders are “subsistence farmers and poor” (Rapsomanikis, 2015 p. 3; Anderson, Marita, & Musiime, 2016). There are about 3.7 million smallholdings (2.2 hectares or less) with approximately 19 million inhabitants - about 80% of all farms (Rapsomanikis, 2015). While Tanzania is food secure at the national level, 34% of the population is undernourished (44.5% in rural areas and 31.5% in urban areas) (Haug & Hella, 2013). Approximately 17% of children in Tanzania are underweight and four of ten children are stunted (World Bank, n.d.). Smallholders typically deal with unreliable income from their agricultural production, a need for substantial investments at particular times of the year, and face significant livelihood risks that are not easily mitigated in the absence of credit and insurance, including the possibility of crop failure (Anderson & Ahmed, 2016; Mukasa, 2016). A specialized labour market survey confirms that casual wage labour is the main source of livelihood among poorer Tanzanian ‘farming’ families (Mueller, 2012). Most of the seeds planted in Tanzania, as is the case throughout sub-Saharan Africa, “are uncertified and sourced through informal seed system channels” (Westengen & Brysting, 2014, p. 10; ASARECA, 2014; Louwaars, de Boef, & Edeme, 2013). In traditional agricultural systems, including those in Tanzania, scientist-bred crop varieties don’t replace farmers’ varieties; rather, they are often integrated in the seed pool, maintaining and even enriching genetic diversity (Wood & Lenné, 1997, citing numerous case studies; Brush, 1991; Berg, 2009; van de Wouw, Kik, van Hintum, van Treurem, & Visser, 2009; Westengen & Brysting, 2014; Westengen et al., 2014; Watts & Scales, 2015; Coomes et al., 2015).

Elected in 2015, President Magufuli and his government are continuing his predecessor’s program of agricultural modernization through public-private partnerships, foreign investment, and commercial partnerships between small- and large-scale farmers (Bergius, Benjaminsen, &

Widgren, 2017; West & Haug, 2017; URT, 2016; Green, 2015; New Alliance, 2014; Oakland Institute, 2011; Simbakalia, 2015; URT 2000). Critics are concerned that AGRA and New Alliance projects will diminish seed and crop biodiversity, and push impoverished smallholders into a vicious circle of debt as they seek to access expensive agricultural inputs controlled by increasingly concentrated multinational agribusinesses (Mbilinyi, 2016; Manu, 2015; Mushita & Thompson, 2013). Agricultural growth is less likely to reduce poverty in contexts of high inequality (as is the case in Tanzania), and may worsen poverty or marginalization among disadvantaged groups (Dawson et al., 2016; Berguis et al. 2017; West & Haug, 2017; Sulle, 2017). Factors known to support pro-poor agricultural growth, including incorporation of farmer knowledge, customization to local context, and social protection are not apparent in Tanzania's agricultural policies (Dawson et al., 2016).

Critics note that past efforts to transfer Green Revolution strategies to Sub-Saharan Africa did not lead to sustained improvements in productivity, for numerous reasons, including poor market infrastructure; low intensification pressure resulting from a relative abundance of land; reduced institutional capacity flowing from structural adjustment; a diversity of cropping systems and agroecologies; and the use of locally unsuitable seed varieties (Dawson et al., 2016; Pingali, 2012; Scoones & Thompson, 2011; Denning et al., 2009). The Green Revolution itself (in Mexico, the Philippines and India) had mixed results – while reducing poverty and hunger for millions of people, many poor farmers, including a proportionately higher number of women, could not access the improved inputs, owing to barriers such as inequitable land distribution and inadequate credit, exacerbating inequality in some cases (Pingali, 2012; Fraser, 2017). The Green Revolution also led to soil degradation and contamination of water, owing to an absence of adequate environmental protection policies, as well as input subsidies that reduced incentives for judicious use of inputs (Santos, 2011; Pingali, 2012; Brainerd, & Menon, 2014; Sahodaran & Ray, 2018).

Actors from across the political spectrum agree that vulnerable smallholders are in need of support to adapt to climate change (*cf.* GRAIN, 2017; Kalibata for AGRA, 2017; FAO, 2016; Winge, 2014). Frequent and severe droughts related to climate change have exacerbated water scarcity, food insecurity and severe food shortages in Tanzania (UNDP, n.d.; Pauline, Vogel, Grab, & Liwenga, 2017). A 2°C seasonal temperature increase has been projected to result in an 8.8% reduction in sorghum yield, a 13% reduction in maize yield nationally, and reductions of

20% or more in maize yield in the country's semi-arid region (Westengen & Brysting, 2014).

There are differing views as to how smallholder adaptation should be achieved, and a range of suggested solutions, involving different combinations of various types of inputs and forms of labour. These include Climate-Smart Agriculture, small-scale organic agriculture using farm-saved seed, and highly mechanized agriculture using only hybrid seed and synthetic inputs, for example (*cf.* Saj et al., 2017; GRAIN, 2008; Ahmed, 2015; AGRA, 2016). Some development scholars advocate the repossession of seeds from capitalist modes of agricultural production through open source models and protected commons (Patnaik, Jongerden, & Ruivenkamp, 2017 & 2018; Montenegro de Wit, 2017; Kloppenburg, 2014; Deibel, 2013). Others recommend seed policy that links informal and formal seed sectors, with a better balance between private and public sector involvement, rather than efforts to eliminate the informal sector (McGuire & Sperling, 2016; Westengen & Brysting, 2014; Mushita & Thompson, 2013; Louwaars et al., 2013; Louwaars & de Boef, 2012; Tansey, 2011; Scoones & Thompson, 2011;), integration of farmers as equal collaborators in germplasm innovation activities (Halewood et al. 2018), and significant amendment to the international seed treaty (the ITPGRFA) (Halewood, 2013).

Westengen (2017) suggests that seed system discourses have polarized into a binary framework, with one group of actors promoting formalisation (a modernisation framing) and another promoting maintenance of the informal system (a localisation framing). AGRA and the New Alliance exemplify the modernisation framing, with formalisation of the seed supply seen as necessary for farmers' access to improved seed (whether they operate on a large or small scale). The localisation framing, associated with La Via Campesina (LVC), for example, contests the assumed scale neutrality of modern technologies and the idea that modernisation will lead to improved food security at the household level or to social and economic development at the national level – in this framing, formalisation of seed systems “represents a potential threat to local sovereignty” (Westengen, 2017, p. 125). Sanderson (2017) raises concerns about the reliance on dichotomies, such as “farmers vs. breeders; developed countries vs. developing countries”, in debates about farm-saved seed, as this obscures nuance and is often based on speculation rather than evidence (p. 232). Borowiak (2004) points out that while farmers were breeding plants long before seed industries existed, they are referred to only elliptically and excluded from the definition of “breeders' rights”, which are defined in terms of

commerce, industry, and scientific invention” (p. 518). Westengen (2017) suggests that “a common reaction to a framing we disagree with is to turn to its binary opposite (Lévi-Strauss 1955). The real stories are usually more complex and messy than this” (p. 131).

The narratives associated with seed governance matter – policies based on certain knowledge and narratives to the exclusion of others can lead to marginalisation (Whitfield, 2016). While it may be very difficult to design policy that does not bring socially differentiating effects (Fraser, 2017), prevailing development narratives can unintentionally undermine the effectiveness of seed-related interventions, and dichotomous framings can obscure nuances that have important policy implications (Reisman, 2017; Westengen, 2017; Sanderson, 2017; Cornwall & Brock, 2005). The framing of policy, including how “certain issues, policy options, technologies or pathways” are placed in the foreground, while others are pushed to the background, “can impact dynamics and outcomes of policy processes” (Sumberg, 2012, p. 509).

In this thesis I explore how competing discourses regarding seed governance in Tanzania are framed, and how these framings affect Tanzanian smallholders. In Chapter One I explain the methodology used to gather the evidence, and review the literature relating to seed systems; seed governance in Tanzania; and the nature of Tanzania’s political settlement. In Chapter Two I present evidence of three distinct seed narratives at play in the debates. Informed by a pro-poor perspective, I analyze 30 public records produced by 16 actors between 2009 and 2017, during which time Tanzania’s seed legislation was significantly amended. The similarities and differences of the three discourses are considered, as are their hallmarks and weaknesses. The final chapter begins with a summary, and based on a comprehensive review of the literature (including case studies, quantitative studies, and various reviews of the Tanzanian seed sector – such as Haug, Hella, Nchimbi-msolla, Mwaseba, & Synnevag, 2016; Vernooy, 2016; and TOAM, 2015) concludes that the seed governance framework currently in place in Tanzania is failing smallholders, and should be amended. As Tanzania’s political settlement makes this unlikely in the near future, suggestions are made regarding policy positions pro-poor donors should adopt in support of smallholder resilience, along with a proposal for reform of A. 12(3)(d) of the *International Treaty on Plant Genetic Resources for Food and Agriculture*. Finally, questions for future research are presented.

CHAPTER 1: METHODOLOGY and LITERATURE REVIEW

Methodology

Document analysis is a common qualitative methodology associated with critical discourse analysis (Gee, 2011 & 2014; van Dijk, 2008). In choosing documents, I considered the concept of advocacy coalition frameworks, which emerged from study of complex public policy systems. A policy system is conceived of as a combination of actors from different institutions interacting to influence governmental decisions on a policy (Sabatier, 1993; Sabatier & Weible, 2007, as cited in Kingiri, 2011). Complex sets of beliefs construct the perceptions and behaviours of any given actor, including governments (Sabatier, 1988; Jenkins-Smith, Nohrstedt, Weible, & Sabatier 2014). In addition to values and priorities, belief systems include perceptions of causal patterns and relationships (Jenkins-Smith et al., 2014). As a simplifying strategy, advocacy coalition scholars organize actors into one or more coalitions based on shared beliefs about normative goals, causes of problems and solutions (Pierce et al., 2017; Jenkins-Smith et al., 2014; Kingiri, 2014). Some have suggested that advocacy coalition theory is only relevant to non-authoritarian pluralistic political contexts and/or to the Global North, but it is seeing increasing application in multiple contexts, including Kenya, Ghana, India, the Philippines, and China, for example (Henry, Ingold, Nohrstedt, & Weible 2014; Marfo & McKeown, 2013; Pierce et al., 2017). Kingiri (2014) applied advocacy coalition theory to Kenya's biosafety regulatory policy. Scholarship in non-Northern contexts has challenged the tendency to assume that governments are neutral arbiters of policy (Pierce et al., 2017).

Through desk-based Internet research and literature review I identified key actors engaged in the Tanzanian seed governance debate and gathered public records generated by them. I initially identified 88 potentially relevant actors (31 based in Tanzania; 10 based in the region; and 47 international actors), based on evidence of some connection to or involvement in smallholder agriculture in Tanzania and seed policy. I was unable to find public records that met these criteria for a number of potentially relevant actors, including, for example, Zimbabwe's Seed Co Ltd (which holds a large share of the commercial market in Tanzania); Dow Dupont (which now owns Pannar Seed, a South African-based company that is also a significant commercial player in Tanzania); the Maharashtra Hybrid Seeds Company Limited (often referred to as "Mahyco"), an Indian seed company that has acquired a controlling interest in

Quton Seed Company, based in Zimbabwe and the largest cotton seed company in Africa; and Asian parapublic actors (a relatively recent document exploring the perspectives of Chinese agronomists on African agricultural aid mentioned neither seeds nor Tanzania – Buckley, Ruijian, Yanfei, & Zidong, 2017). I reduced the number to 39 potential actors by retaining those for which I was able to locate at least one public record with a substantive connection to or implications for smallholder seed exchange in Tanzania, while excluding those for which I could not find relevant public records, or whose public records did not relate specifically to Tanzania. I further reduced this number to 30 potential actors and 54 public records, by excluding actors whose record(s) amounted to no more than a few lines (examples of actors excluded at this stage are: the African Seed Trade Association; the East African Seed Alliance; Kilimo Trust; MVIWATA (this actor’s positions are included to an extent, as an MVIWATA official is interviewed in the TOAM (Tanzania Organic Agriculture Movement) film discussed below, and through the organization’s membership in LVC SEAf (La Via Campesina Southern and Eastern Africa), and actor that is included); Njombe Development Office, and the Tanzanian Official Seed Certification Institute).

I then identified three notional advocacy coalitions based on a preliminary review of the records: (i) Seed Capitalists; (ii) Seed Sovereignists (iii) Seed Pluralists. This particular categorization is of my own devising. The categories emerged from my initial analysis and seemed to better reflect the content of the records than the “modernization/localization” categorization commonly used in the academic seed literature. The term “Seed Sovereignty” is used by a growing number of activist organizations (for example, Navdanya (Navdanya, n.d.); the NGO Seed Sovereignty (Seed Sovereignty, 2018); and has some usage in the academic literature (for example, Kloppenburg, 2010 & 2014; Bezner Kerr, 2013). References to fostering pluralism in seed sectors by the Integrated Seed Sector Development literature inspired the third label. I am aware of one usage of the term “seed pluralism” in the literature, by Papavasiliou (2015), but the term is not defined and seems to refer to the existence of more than one kind of seed (commercial and traditional); it is not used to identify a movement, policy position or discourse (Papavasiliou, 2015, p. 1252). Actors whose discourse seemed to promote exclusively market-based solutions for dissemination of improved seeds to smallholders were assigned to the first category. Actors whose discourse strongly opposed regulation of farmer managed seed systems and expanded seed commercialization were placed in the second category. Actors whose

discourse supported some market-based interventions for dissemination of improved seeds to smallholders, as well as advocating for the continuance of farmer managed seed systems were placed in the last category.

I then organized the records by coalition for in-depth review. I reviewed each record individually, extracting the actor’s own words, organized by core themes, problem-definition, proposed solutions, and issue framings, using a table format (see extract below, Table x). The resulting document was 578 pages, single-sided. As I proceeded through the records, the placement of some actors was changed to a more fitting coalition as more detail emerged from the review. A greater number of actors and records were identified than could be included,

Organization	Core Themes	Problem-definition	Proposed/Implied Solutions	Issue Framings
Coalition A: Seed Capitalists				
1. AGRA: Tanzania Early Generation Seed Study July 2016 Foreword (p. iii)	p. iii, para. 1: “bottlenecks” “unsustainable supply” “poor functioning” “outdated” “misplaced” “obsolete” “counterfeit” para. 2: “constraints” “technical experts” “development partners” para. 5: “appropriate ... roles in seed distribution to end-users” para. 6: “incentives” “increased scale-up and	p. iii, para.1: “bottlenecks hinder projects targeting smallholder farmers in sub-Saharan Africa”; “unsustainable supply of early generation seed”; “poor functioning of national variety release systems”; “ outdated seed policies, laws and regulations ”; “ misplaced subsidies that limit access to	p. iii, para. 2: “analyze seed value chains by specific market, crop, and economic dimensions”; “to identifying the actors and actions along the seed value chain that are required to produce adequate EGS on a sustainable basis.” para. 5: “appropriate private, public, donor, NGO, and informal sector roles in seed distribution to end-	Seed governance is identified as the third of 4 bottlenecks “that hinder projects targeting smallholder farmers in [SSA]”, with the key problematic results framed as “continuing presence of obsolete varieties in seed markets as well as counterfeit seeds” (p. iii, para. 1) Economic and market-based framing (p. iii, para. 2) p. iii, para. 5: “seed distribution to end-users” [not, for example, farmers as starting point; market model is the driver “distribution”;

Table 1: In-depth review

owing to limitations of space. Those that were included contained the greatest amount of recent content relating to seed systems and governance in Tanzania.

I critically examined the discourses employed, to explore how competing positions are framed. This included consideration of whether certain discourses may be contributing “to sustaining particular relations of power and domination” (Fairclough, 2001, p. 126), including through “preferential access to, or control over, public discourse” (Van Dijk, 2008, p. 14), or denials of knowledge gaps often associated with assertions that a particular narrative “reflects an objective reading of the evidence” (Leach et al., 2010, as cited in Whitfield, 2016, p. 16). I also considered whether actors with less power may be adopting “a strategic pose in the presence of the powerful” (Scott, 1990, p. xii). While many of the actors do collaborate on projects, including advocacy regarding policy, my aim is not to demonstrate that the actors form actual

advocacy coalitions. Rather, my purpose is to explore discourse – reference to coalitions is a heuristic device.

As a desk-based discourse analysis, this study relates to a small part of a much larger context relevant in political economy analysis. Field work would be of great assistance in developing a more complete analysis. Further, while it was possible to access a large number of records generated by international actors (such as AGRA, USAID and ACBIO), there are relatively few publicly accessible records from Tanzanian actors. Key stakeholder interviews would be helpful in this regard. Some relevant Tanzanian actors do not have a website or Facebook page, including, for example, the Tanzanian Seed Trade Association, and Tansed.

In addition, a significant proportion of potentially relevant records are in Kiswahili. I identified a number of these through bilingual websites or by searching the Tanzanian Ministry of Agriculture website using basic Kiswahili terms such as *mbegu* (seed) followed by use of Google Translate for triage purposes. Owing to financial limitations I was only able to have a relatively small number of records professionally translated from Kiswahili to English. Cross-linguistic discourse analysis relying on translation also gives rise to limitations, including the possibility of errors in translation (Squires, 2008). While accordingly not lending themselves to close readings of nuance, the translated records are nevertheless reliable in terms of less granular discourse analysis, including consideration of main themes and topical focus.

Literature Review

Approaches to Seed System Development

Traditional characterizations of seed sectors refer to “formal” and “informal” seed systems (Westengen, 2017; Coomes et al., 2015). A seed system can be defined as “an interrelated set of components including breeding, management, replacement and distribution of seeds” (Rajendren et al., 2016, p. 5). In the 1970s and 80s, national seed sector development projects were funded in many low income countries in the belief that the formal seed sector would overtake the informal sector, and local varieties rapidly replace “modern” varieties, once farmers experienced the benefits of improved seed (FAO, 2006; Louwaars et al., 2013; Louwaars & De Boef, 2012; Coomes et al., 2015). This did not occur. Notwithstanding the shift towards liberalization of the seed sector in the 1990s, the informal seed sector has remained dominant (Louwaars & De Boef, 2012; Louwaars et al., 2013; De Jonge & Munyi, 2016).

An alternative approach, integrated seed sector development (ISSD), emerged earlier this

decade. ISSD adds a third cluster, the “intermediary” (relief seed and local seed enterprises), to the formal (public and private seed companies) and informal (farmer-saved and community-based) clusters (ISSD, n.d.). ISSD starts with the premise that “no single public-, private-, community-, or NGO-based intervention can support seed sector development”, as farmers use a plurality of seed systems (for example, farm-saved seed for staple food crops; improved maize seed purchased commercially but developed by public research; and commercial exotic vegetable seed) (Louwaars & De Boef, 2012, p. 42). Seed sector development (including policy and law) should take a pluralistic approach, with public, private, community and NGO stakeholders each assuming particular roles in dissimilar seed value chains, according to ISSD (Louwaars et al., 2013; David, 2004). The ISSD model has been adopted in Ethiopia, including an exemption for smallholder seed producers from seed quality regulations (Louwaars et al., 2013; Kell, Marino, & Maxted, 2017; Vernooy, 2016). Proponents of ISSD argue that a poorly implemented certification system can be worse than no certification, creating an incentive for counterfeit seed (Louwaars, 2017).

Integrated seed systems can include QDS (quality declared seed) standards, an approach developed by the FAO to improve the quality of seed sold in countries with limited institutional capacity (FAO, 2006). Under QDS, the national authority conducts random testing of a small proportion of seed fields and marketed seed, reducing the inspection burden (Tripp, 1997; Rohrbach et al 2002; Rohrbach, Minde & Howard, 2003). Most smallholders would rather pay a lower price for adequate seed than a high price for premium seed; accordingly, if the objective is to improve smallholder access to new varieties, production of cheaper common grade seed is justified (Rohrbach et al. 2002). Further, an expectation of commercial seed supply in remote areas is not realistic given the costs of an adequate supply chain infrastructure (Martens, Scheibe & Bergey, 2012).

Seed Security & Seed Sovereignty

An important element of functional seed systems is seed security. The notion of seed security includes three components: availability; accessibility; and quality (Sperling & McGuire, 2012). Availability means that seed is available in sufficient quantity, at a reasonable distance, and “in time for critical sowing periods” (Sperling & McGuire, 2012, p. 570); accessibility means that seed users are able to produce seed themselves or to acquire it through gift, barter or cash; and quality means the seeds meet use needs and preferences (*ibid*). Four common

imbalances emerge in seed programs aimed at smallholders: (i) seed quantities are increased, but sustainable delivery and marketing systems are not created; (ii) high quality seeds are produced but are too expensive for smallholders (iii) reliance on agro-input dealers for distribution limits access for poorer smallholders; and (iv) the informational needs of users (where to find the seed, how to compare costs, where to see demonstration plots, feedback systems) are not met (*ibid*). Failure to consider access and sustainable delivery is common, including in Tanzania (Sperling & McGuire, 2012; Rohrbach et al., 2002).

Kloppenborg (1988, 2004) was the first scholar to write a comprehensive analysis of seeds in terms of political economy, elaborating on three themes – commodification of seed; constraints on public plant breeding; and inequitable configurations between the Global North and South. He observed that a seed presents a unique barrier to penetration by capital, in that it is both the product and the means of production, so is not easily commodified. He illustrated how, under pressure from private seed companies, public agricultural science was restricted to basic research, thereby eliminating the dampening effect public varieties had on seed markets. Kloppenborg argues that having appropriated germplasm from around the world to build its agricultural base, the United States now supports international legal regimes imposing private property rights on germplasm.

Kloppenborg, along with like-minded farmers and plant breeders recently established the Open Source Seed Initiative (OSSI) (Kloppenborg, 2014; Luby, Kloppenborg, & Goldman, 2016; Montenegro de Wit, 2017; OSSI, n.d.). While seeking to protect farmer seed saving and exchange, the group was equally motivated to reclaim a freedom to operate for plant breeders, increasingly constrained by patent thickets (Luby et al., 2016; Taylor & Cayford, 2004; Biddle, 2014; Bragdon, 2016). In OSSI's view, the challenges of climate change require an expansion, not a restriction, of the range of plant breeding participants and the diversity of cultivars available for breeding (Luby et al., 2016). This dovetails with growing recognition that participatory breeding, which integrates farmers' preferences, is more likely than centralized top-down breeding to produce varieties meeting local needs (De Jonge & Korthals, 2006; Aksoy, 2014; Pautusso, et al., 2013; Mancini et al., 2017).

OSSI developed a “free seed” license and a “royalty-bearing” license (Montenegro de Wit, 2017). The goal was to develop a legally defensible way to protect seed varieties released into the public domain from being misappropriated (*ibid*). OSSI does not oppose profitable seed

markets or rewarding breeders (Luby et al., 2016). Some members left the group, considering the use of any form of legal ownership to be antithetical to the concept of open source seed (Montenegro de Wit, 2017).

In 2013, OSSI abandoned licensing, turning to a written pledge on every packet of OSSI seed: “You have the freedom to use these OSSI-Pledged seeds in any way you choose. In return, you pledge not to restrict others’ use of these seeds or their derivatives by patents or other means, and to include this pledge with any transfer of these seeds or their derivatives” (Montenegro de Wit, 2017; OSSI, n.d.; McManis & Seo, 2009). Irwin Goldman, an OSSI breeder, acknowledges that seeds under the pledge are at risk of appropriation (MVIWATA, n.d.). At the time of writing, there are 62 OSSI partner seed companies – 52 in North America, 6 in Europe and 4 in Australia (OSSI, n.d.a); 38 OSSI member plant breeders (OSSI, n.d.b) and 415 OSSI pledged seed varieties (OSSI, n.d.c).

Seed governance in Tanzania

In 1998, the Tanzanian government initiated a ten-year program to develop on-farm seed production based on the FAO’s QDS guidelines, supported by the international development branch of the Danish Ministry of Foreign Affairs (Granqvist, 2009; Monyo, Mgonja, & Rohrbach, 2004). In 2003, Tanzania amended its seed laws to permit QDS production by small-scale farmers (five acres or less), the first country in the world to do so (Rohrbach et al. 2002; URT, 2009a; NML/SAGCOT 2015; Rajendren et al., 2016; Nagarajan, 2017; Halewood & Lapena, 2016).¹ A number of different types of organization play a role in the production of QDS, in addition to individual farmers and farmers’ groups; these include church-based organizations (such as the Christian Council of Tanzania, the Diocese of Central Tanganyika, and the Anglican Church of Tanzania), non-governmental organizations such as the Italian organization Lay Volunteers International Association; donors, such as Denmark through its Hifadhi ya Mazingira program; international intergovernmental organizations such as the United Nations International Fund for Agricultural Development; and the Sokoine University of Agriculture (Lyimo, Mduruma, & De Groote, 2014). Sales of QDS are restricted to the administrative region where it was produced, and to registered open-pollinated varieties, thereby minimizing tension with UPOV 1991 (NML/SAGCOT 2015; Mkindi, 2015). The 2014 amendments to the Act, which increased various penalties (discussed further below), do not

¹ Six additional countries have now adopted QDS in their seed legislation: Ecuador, Ethiopia, Peru, Rwanda, Uganda, and Zambia.

affect sections 2 and 19 of the *Seeds Act 2003* which establish QDS.

Both public and private actors play roles in the formal sector, including state entities, private companies, farmer associations, and farmers – see Figure 1. The number of private seed companies is increasing with a total of 90 in 2014 (Haug et al., 2016; Rajendren et al., 2016). Competition is limited, however; market shares by crop for the top four companies in Tanzania (based on seed sales reported by the companies

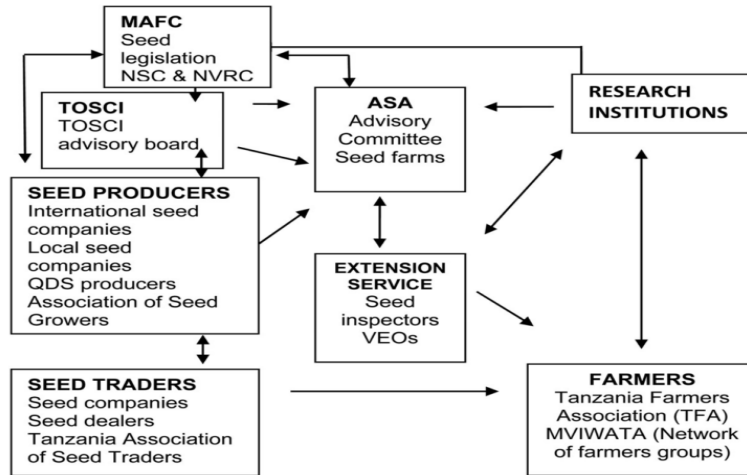


Figure 1: Key actors and relationships in Tanzania’s formal seed sector (Haug et al., 2016, p. 382)

themselves) are “76% (maize), 94% (bean), 100% (soya bean), and 100% (pigeon pea)” (TASAI, 2017, p. 3; Figure 2). Market concentration in soya is “extremely poor”, and “only seven companies make up the top four seed producers for the four crops, indicating limited crop specialization” (*ibid*). Tanzanian-owned seed companies are having difficulty competing against international companies which enjoy “more resources for marketing and for handling possible

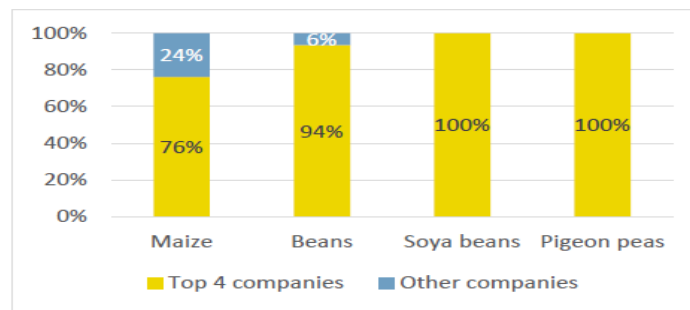


Figure 2: Top four companies in Tanzania – market shares by crop (TASAI, 2017, p. 3)

losses” (Haug et al., 2016, p. 383). In 2011, 70% of the commercial seed market was held by non-Tanzanian companies: Zimbabwe Seed Co Limited with 46% (this company’s largest shareholder, Vie & Cie, is a subsidiary of Limagrain, the 4th largest seed company globally); Pannar (now owned by Dow Dupont) and Monsanto, each with 9%, and DuPont Pioneer with 6% (AGRA, 2016; Seed Co., 2018; Access to Seeds, 2018). Only five percent of the seed planted in Tanzania is certified, and only about five percent is obtained from the formal sector (including QDS) (Haug et al., 2016; ASARECA, 2014).

At least part of the national government’s motivation to amend its seed governance has been to address counterfeit seed, commonly referred to as “fake seed”. In 2014, the *Seeds Act* was amended to increase the penalties for violations of its requirements, such as selling uncertified seed or dealing in seed without registering as a seed dealer. For the former the penalties are now a fine of 100M to 500M shillings (\$40K-200K USD), or 5 – 12 years of imprisonment, or both; for the latter the penalties are a fine of 5M to 10M shillings (\$2K-4K USD), or 3 – 5 years imprisonment, or both (s. 14(5) & s. 15(8)). Small-scale farmers have also been concerned about whether they can trust the quality of improved seeds, as “some seed dealers [...] deliberately sell seed that is fake or not up to standard” (Haug et al. 2016, p. 379; Dixon, 2016). The types of problems experienced include non-improved seed being passed off as improved; fake labels with false expiration dates; grain being mixed in with improved seed, resulting in low germination rates; and unclean seed (Haug et al. 2016). As discussed further below, however, some smallholder organizations, such as MVIWATA (the main Tanzanian farmers organization representing smallholders, the National Network of Farmers Groups of Tanzania, known by its Swahili acronym) and La Via Campesina Southern and Eastern Africa (LVC SEAf), opposed these amendments, fearing application to farmer seed in addition to counterfeit seed. The government has insufficient resources to fully enforce its seed law – numerous aspects are only sporadically enforced, or not at all, including inspections, testing, registration of seed growers, and seed packaging requirements (NML/SAGCOT, 2015; Haug et al., 2016).

Tanzania’s Cooperation Framework with the New Alliance included commitments to “develop and implement domestic and regional seed and other inputs policies that encourage greater private sector participation”, and to implement a “revised Seed Act that aligns plant breeder’s rights with the International Union for the Protection of New Varieties of Plants

(UPOV) system”, by November 2012 (G8 Cooperation Framework, 2012, p. 5). This was effectively a commitment to adhere to UPOV 1991 rather than UPOV 1978, as the latter had closed to new members in April 1998 (Llewelyn & Adcock, 2006). In July 2015 ARIPO (the African Regional Intellectual Property Organization) adopted the Arusha Protocol, the draft of which had been found to be in conformity with UPOV 1991 in 2014 (Haugen, 2015; Muheebwa, 2015; De Jonge & Munyi, 2016). Tanzania, an ARIPO member since 1999, signed the Arusha Protocol in September, 2015, having enacted its UPOV 1991-compliant *Plant Breeders’ Rights Act 2012 (PBRA 2012)* on November 5, 2012, which entered into force on June 1, 2013, and joined UPOV 1991 in November 2015 (WIPO, 1999; ARIPO, 2015; UPOV 2016; WIPO, n.d.). The Arusha Protocol does not come into force until four member states deposit instruments of ratification with ARIPO, which has not yet occurred.

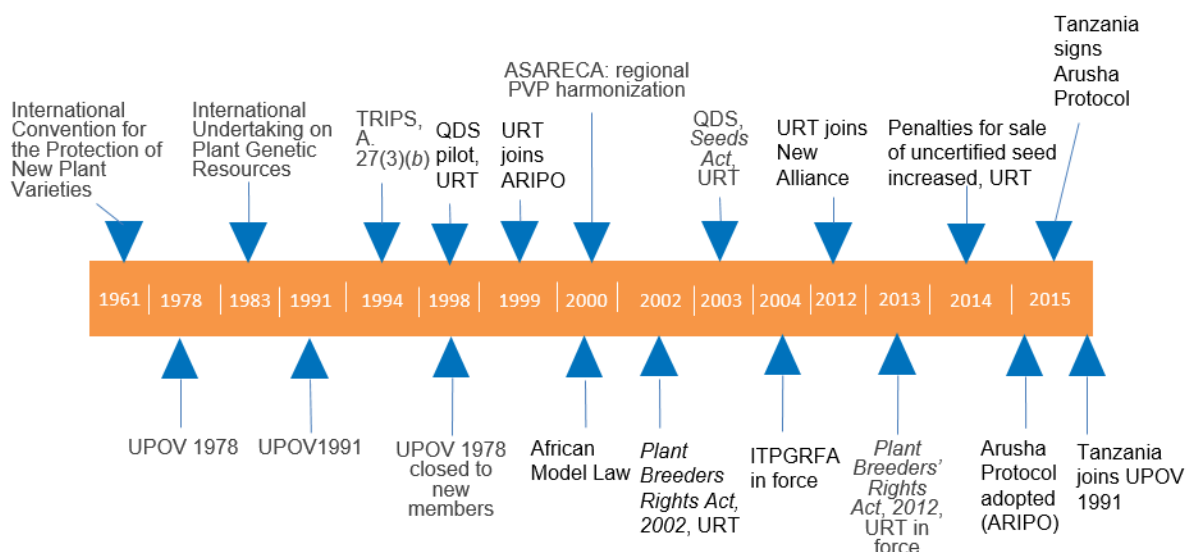


Figure 3: Timeline of seed governance-related events

The farmers’ privilege contained in the Arusha Protocol is limited to specific agricultural crops with a history of seed saving, which is narrower than UPOV 1991, but in accordance with non-binding UPOV guidelines (NML/SAGCOT 2015; De Jonge & Munyi, 2016). There is growing civil society opposition to the Arusha Protocol, both in terms of concerns about the exclusion of civil society, and concern about its impact on farmers’ rights; the UN Special Rapporteur on the Right to Food has written an open letter to ARIPO members expressing concern (Haugen, 2015; Saez, 2016; Mupangavanhu, 2015). The farmers’ privilege contained in the Tanzanian *PBRA 2012*, like the provision in the Arusha Protocol, is limited to specific

agricultural crops and does not include fruits, ornamentals, vegetables and forest trees (s. 31(2)), as designated by the Minister of Agriculture (Munyi, De Jonge, & Visser, 2016)². Westengen (2017) correctly emphasizes that “varieties that are not registered for PVP [plant variety protection], such as landraces [...] should remain free of restrictions on their use, exchange and trade”, but is incorrect in asserting this to also be the case with respect to “modern varieties released earlier” (p 132). As Haugen (2015) observes, s. 53 permits the retrospective application of the Act to existing varieties, which goes beyond UPOV 1991 and the Arusha Protocol. However, to date, it has not been practically or economically feasible for a company to enforce PBR against subsistence smallholders (De Jonge & Munyi, 2016).

The penalties under the *PBR 2012* for knowingly violating a breeder’s right include a fine not exceeding 10M shillings (\$4,000 USD) or a term of imprisonment not exceeding one year, or both (s. 49(1) & (2)). Article 30(1)(i) of UPOV 1991 requires “appropriate legal remedies” but does not set out any specific requirements in this regard. Non-binding UPOV guidance provides a “non-exhaustive list of enforcement measures [that] might be considered, as appropriate”, including criminal penalties (UPOV, 2011, pp. 107). There are at least two states outside the UPOV 1991 system that include criminal sanctions, including the possibility of jail terms as long or longer than those in Tanzanian law, for breaches of breeders’ rights in their domestic plant variety protection legislation – India, with its *sui generis* law, and Colombia, which adheres to UPOV 1978 (Sahai, 2003; Goyes, 2017). The high transaction costs of enforcement against “small and localized farmer transfers” may provide some protection (Coomes et al., 2015, p. 46). Vernooij (2016) suggests that while a number of countries, including Tanzania, are moving towards restrictive seed regulatory systems, “smallholder farmers are far more affected by low levels of recognition and support for their seed management practices”, including an absence of participatory crop/seed improvement projects (p. 23).

[Tanzania’s Political Settlement](#)

The discourses employed in debates around Tanzanian seed governance exist within a political and economic context. Two dominant approaches to African political economy are neo-patrimonialism and anti-neoliberalism (Languille, 2015; Whitfield & Therkildsen, 2011). Neopatrimonialism claims that African political authority is based on patronage, rent-seeking and prebendalism, and points to clientelism as the cause of economic stagnation (Whitfield &

² I have not been able to find a listing of designated crops from Internet-based public sources.

Therkildsen, 2011; Behuria, Buur, & Gray, 2017). Some strands portray clientelism as uniquely African or as uniform across all African states, while developmental patrimonialism argues that the rents resulting from clientelism can be used in productive ways (Behuria, Buur, & Gray, 2017). However, both distribution of power and economic performance vary significantly across the continent, and within sectors of a given state – neopatrimonialism fails to explain such variation (Whitfield & Therkildsen, 2011; Behuria, Buur, & Gray, 2017). The anti-neoliberalism approach ascribes economic stagnation in African states primarily to the structural adjustment policies promoted by the international financial institutions and aid agencies of the Global North in the 1980s and 1990s (Whitfield & Therkildsen, 2011). The approach fails to address the role of “domestic politics in shaping the incentives facing state elites”, and the ways in which domestic politics interact with foreign aid policies (Whitfield & Therkildsen, 2011, p. 9; Languille, 2015).

Khan (1995) developed an alternative framework for analyzing political economy based on the concept of political settlements. A political settlement is “the combination of institutions and the underlying distribution of power in a society” (Gray, 2015, p. 385). Clientelism is seen as emerging from specific colonial histories leading to “the challenge of consolidating power within formal institutions that are supported neither by a significant capitalist surplus nor by traditional sources of authority” (Gray, 2015, p. 385; Behuria, Buur, & Gray, 2017). The political settlement framework is helpful for understanding contexts where “the distribution of political power between contending social groups is not aligned with the formal structure of institutions” and where “power [...] resides in clientelist networks that operate within and outside formal state institutions” (Gray, 2015, p. 385). The characteristics of a given political settlement (including its institutional configurations and patterns of power) will affect the viability of various strategies of accumulation and whether the state is able to implement policy (Gray, 2015).

Eriksen (2018) characterizes the Tanzanian state as a competitive-authoritarian regime, meaning that while “formal democratic institutions are widely viewed as the principal means of obtaining and exercising political authority”, incumbents violate the rules so pervasively “that the regime fails to meet conventional minimum standards for democracy” (p. 3). In power continuously since independence in 1961, the Chama Cha Mapinduzi (CCM) party itself introduced multi-party politics in 1992, while “maintaining the basic political settlement built around the party, the civil service and the military [and] allowing for greater tolerance of re-

emerging capitalism” (Eriksen, 2018, p. 5; Tilley, 2014). CCM structures are bureaucratized to the village level and the state bureaucracy is controlled by the party (Gray, 2015; Tilley, 2014). The CCM has been and continues to be dominated by a narrow ruling elite, comprised of the president and a small group of ministers (Eriksen, 2018; Gray, 2015; Languille, 2015). Beneath this, rival internal factions compete for power and influence; these factions are not based on regional or ethnic differences, but rather flow from personal ties (Languille, 2015; Gray, 2015).

Multi-party elections combined with the decentralization policy of 1998 led to a localization of politics, with “national elites [...] increasingly entangled in struggles for resources and political offices at local levels” (Languille, 2015; Booth, Cooksey, Golooba-Mutebi, & Kanyinga, 2014; Cooksey, 2012; Harrison, 2008). This also strengthened the internal rival factions. Critically, however, power has been distributed evenly between the internal factions, challenging the top leadership’s ability to impose discipline, including in respect of four cases of grand corruption between 2000 and 2014 (Gray, 2015).³ Petty corruption, including small-scale bribes as part of ordinary people’s interactions with local state institutions, is also omnipresent (Harrison, 2008; Eriksen, 2018).

Relationships between the Tanzanian ruling elite and Western international donors during the 1980s and 1990s were difficult – the degree of foreign involvement in Tanzanian policy-making was resented (Death, 2014). After a period of negotiation, relationships improved to the point that for a time, Tanzania was seen as a model partner in terms of effectiveness and transparency (Death, 2014; Tilley, 2014). President Mkapa fostered close relationships with donors during his second term (2000-2005) but his assurance of a commitment to good governance did not lead to any change in the political settlement (Tilley, 2014). President Kikwete retreated from the Mkapa approach, refocusing on domestic coalitions and enjoying the increasing availability of unconditional financing from Global South States, and China’s rising influence (Tilley, 2014; Eriksen, 2018). The relationship with Western donors began to decline, particularly after the Bank of Tanzania scandal involving fraudulent payments in 2009 (Eriksen, 2018). President Magufuli has not made a commitment to international (Western) norms of

³ Some scholars use the term “primitive accumulation” in order to avoid “the normative charge of the word ‘corruption’ in global discourses on Africa”, following Bayart’s use of the term to describe elite accumulation based on a straddling of business and politics (and in divergence with orthodox Marxist meaning) (Languille, 2015, p. 80). Bayart rejected dependency theory and suggested that historical African inequality (with respect to international agents and structures) has been a major resource leveraged by African elites in a “process of political centralisation and economic accumulation” (Death, 2011, p. 6). Conversely, neo-classical approaches argue that corruption flows from centralized power, but do not account for internal fissures within ruling elites (Gray, 2015).

governance and accountability (Eriksen, 2018). The United States has begun to suspend or withdraw aid, including dropping Tanzania from phase two of the USAID Feed the Future program and its related supports to SAGCOT (USAID, 2017; Feed the Future, 2017; DAI, n.d.; MCC 2016).

Gray (2015) elaborates on the entrenched informal relations between the CCM and Asian Tanzanian businesses (also described as businesses belonging to East Africans of South Asian descent – Booth et al., 2014), first established in the early 1960s and enduring to this day (see also Tilley, 2014). Economic liberalization brought greater benefits to foreign and non-African local capitalists, including Arab family businesses, leading to increasing nationalism in public policy (Booth et al., 2014). The commercial sector is weakly organized, with commercial actors interacting individually rather than collectively with the ruling elite (Tilley, 2014).

Agricultural policy is increasingly influenced by these domestic private business interests, characterized by competitive patronage and rent and criminal opportunities, in, *inter alia*, the fertilizer and sugar sectors (Eriksen, 2018; Death, 2014; Tilley, 2014; Cooksey, 2012). State agricultural boards and cooperatives are marred by inefficiency, patronage and corruption (Booth et al., 2014). Nijbroek & Andelman (2015) find that critical socio-economic success factors for agricultural intensification were not taken into account when identifying the priority SAGCOT clusters. Three studies of the SAGCOT Kilombero Rice Plantation Project found that smallholders involved in the project have not experienced any positive development benefit, with many of them going further into debt (Berguis et al. 2017; West & Haug, 2017; Sulle, 2017). Food crop production, particularly among poorer smallholders, is being displaced by sugar cane contract farming in Tanzania (Sulle, 2017). As Booth et al. (2014) conclude, “prospects do not appear good for broad-based economic growth bringing benefits to large numbers of poor Tanzanians” (p. 55).

While an unprecedented urban mass protest occurred in Matwara in 2012 when plans to build a Chinese-funded pipeline were announced (Booth et al., 2014), the CCM has not had to deal with widespread political activism to date (Gray, 2015; Tilley, 2014). Mass organization and representation has been controlled by the party since independence - “civil society space has always been granted, not taken” (Eriksen, 2018, p. 27). The rural population in Tanzania has turned to avoidance rather than resistance or protest when confronted by state power (Cooksey, 2012; Tilley, 2014), likely at least partly as a result of the disenfranchising effects of poverty

(Ribot, 2014). Many rural Tanzanians did not vote in the 2010 election (Booth et al., 2014). Providing direct benefits to smallholders to win their political support “is not a major motivation of the Tanzanian ruling elite” (Cooksey, 2012, p. 21; Booth et al., 2014). Efforts to “empower” Tanzanian civil society by international donors have led to the development of an “urban NGO elite connected to the aid process”, rather than any grassroots effect (Joseph, 2010, p. 39).

Support for the CCM fell below 60% for the first time in the 2015 presidential election, reflecting a divisive internal leadership struggle which led to former Prime Minister Edward Lowassa leaving the CCM and contesting the presidency through an opposition alliance (Eriksen, 2018). The ruling elite has responded with increased repression – in 2016 President Magufuli imposed an indefinite ban on public assemblies, as well as terminating public broadcasting of parliamentary sessions (Hyden, 2016; Freedom House, 2017). While the President upheld his campaign promise to reduce corruption, he is “simultaneously clamping down on dissent and any opposition to his reforms: in short, he is emphasising his control rather than the consent of the governed” (East, 2016).

The well-known opposition MP Zitto Kabwe openly criticized Tanzania’s decision to join the New Alliance, stating that “he was ‘completely against’ the commitments the government made to bolster private investment in seed” (Provost, Ford, & Tran, 2014). He said it would lead to dependence on imported seeds, affecting small farmers, killing local innovation, and benefitting only big companies (*ibid*). Mr. Kabwe was arrested twice, and subsequently released without charge, in 2017 (Amnesty International, 2017); he was arrested and charged in February, 2018 for holding a public meeting without a permit (and released on bail), and the Home Affairs Minister called for his arrest on incitement charges in July 2018 (Ndal, 2018; *The Citizen*, 2018).

CHAPTER 2: SEED GOVERNANCE DISCOURSES IN TANZANIA

In the following chapter I critically examine the narratives used by key actors in Tanzanian seed governance debates, and present evidence of three distinct discourses: Seed Capitalism, Seed Sovereignty, and Seed Pluralism. Each discourse contains characteristic themes and narrative strategies that advance a particular agenda. Contradictions and tensions within a discourse can indicate hidden aspects of an agenda, or efforts to obscure facts or issues that sit uncomfortably with that agenda. Simplifying binary dichotomies are a common strategy in this regard, and are evident in the Seed Capitalist and Seed Sovereignist discourses. These two coalitions take positions on seed governance policy that obscure or ignore evidence relevant to smallholder well-being and resilience. Narratives in the Seed Pluralist coalition resist binary dichotomies, and grapple with some of these disregarded issues.

Coalition 1: Seed Capitalists

Alliance for a Green Revolution for Africa (AGRA)

AGRA promotes itself “as a leader in agricultural development thought and action” (2010, p. 10). As of 2017, AGRA had invested approximately \$50 million in Tanzanian agriculture (AGRA, 2017a). It is a powerful actor with significant influence on Tanzania’s seed governance, given the size of its financial donations, and its highly organized agenda, which explicitly includes “partnering” with the Tanzanian government to “create an enabling policy environment that attracts increased private sector investments” (*ibid*, para. 3).

AGRA’s central philosophy is that “economic growth hinges on agricultural transformation” and that “small and medium-sized agricultural enterprises can drive Africa’s economic growth” (AGRA, 2017, homepage). Smallholder farming is framed as a “solitary struggle to survive” that needs to be “transformed” into “a business that thrives” (*ibid*). This erases the family and community aspects of many smallholder lives and ignores structural factors that contribute to social and economic vulnerability. AGRA holds out a promise of “big money” to “small farms” (Figure 3). Explicit reference is made to an “agribusiness” model, eg. “enabling new pathways to turn smallholders into agribusinesses” (AGRA, 2017, homepage; Figure 4). In this formulation, people (“smallholders”) become things (“agribusinesses”) and the latter have replaced the former as the central focus.

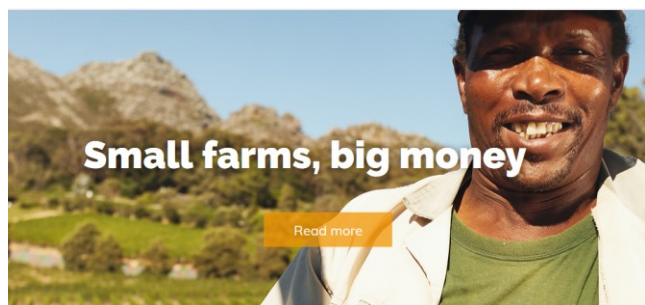


Figure 4: AGRA’s philosophy (AGRA, 2017, homepage)



Figure 5: Turning “smallholders into agribusinesses” (AGRA, 2017, homepage)

A sub-theme brings in food security and adaptation to climate change: “building Africa’s smallholder farmers [sic] resilience for a food secure future”, with the AGRA approach being framed as “the smart way to help African farmers tackle climate change” (AGRA, 2017, homepage). The AGRA agribusiness model, however, is unlikely to lead to secure formal agricultural employment for the majority of smallholders (Wuyts & Kilama, 2016) and may lead to reduced food security for smallholders displaced by increasing land consolidation. Presenting the AGRA model as “the” smart way, i.e. the “only” smart way, positions any alternatives as ill-conceived.

In its 2010 Annual Report, AGRA presents its highest priority as “our breadbasket strategy in [...] Ghana, Mali, Tanzania and Mozambique” (p. 7). This involves increasing yields and expanding cultivation in fertile areas that have at least minimal essential infrastructure (p. 5). In addition to the breadbasket strategy AGRA seeks to improve the productivity and livelihoods of “the poorest of the poor” in “poorer areas” (not suited to a breadbasket approach) by providing “access to new seeds [...] methods and markets” (p. 5). Framing the root problem as low productivity is a version of the “yield gap” device that is commonly used, without adequate context-specificity, to “motivate further investment in African agriculture” (Sumberg, 2012, p. 517).

AGRA's Program for Africa's Seed Systems (PASS), ~~which~~ "supports the breeding of improved seed and works to ensure that seeds of improved crop varieties get to farmers" (p. 10). Forty-one percent of AGRA grants from 2007 – 2010 were under the PASS program, for a total of US\$ 84.5 million (p. 43). The 2010 report states that "less than one-quarter of African farmers use high-yielding, locally adapted seed" (p. 10) – a curious turn of phrase as hybrid uniformity usually means "less resilience to adverse conditions" (CABI, 2014, p. 4). The seed used by "African farmers" is characterized as "poor" (p. 10).

The report states that "our most critical seed-related goal for 2010 – to produce an additional 20,000 metric tons of certified seed – was more than met" (p. 17). Aside from stating that "African smallholder farmers must have the best seed available for their farming conditions" (p. 17), the report does not explain the rationale for the goal, or whether and how it benefits smallholder farmers specifically. PASS assumes that "improved" seed will always be the optimal seed for smallholders.

AGRA disbursed just under US\$6 Million to eight African seed companies, including in Tanzania, "in the form of loans and equity investments" (p. 17). AGRA, therefore, has a financial stake in the performance of these seed companies, raising questions about whether its "policy" recommendations can be taken to be in the public interest. The document states that "AGRA does not, of course, set policies for countries. Our role is to organize and support appropriate networks to effect change at the national level and support those networks through the best available evidence on which governments can base policy decisions" (p. 21). Transparency and accountability issues are at play – where and how does AGRA lay out "the best available evidence"? A later section of the document, entitled "Mobilizing Parliamentarians for Action", speaks of AGRA and its partners actively influencing and managing the activities of Parliamentarians with respect to agriculture: "AWEPA [Association of European Parliamentarians with Africa] and AGRA will finalize the design of viable programs to enhance parliament's role in agriculture" (p. 32). While the document asserts that "farmers must be brought into corridor blueprint decisions as local-level experts and active participants in stimulating and driving growth" (p. 32), no details are offered as to how this can or will be done, and no efforts to develop programs to "mobilize farmers for action" are envisioned.

The 2010 Annual Report speaks of AGRA's "first formal dialogue with a wide range of CSOs [civil society organizations]" (AGRA, 2010, p. 13). AGRA was founded in 2006, and yet

its first dialogue with grassroots organizations was not until 2010. Such dialogue is described as “an initial step towards formulating a strategy for enriching our decision-making and advocating together for a transformation of African agriculture” (AGRA, 2010, p. 13). AGRA has no accountability, however, to grassroots organizations, which have no direct recourse if they disagree with AGRA (Mittal, 2009; Pimbert, Barry, Berson, & Tran-Thanh, 2010; Martens & Seitz, 2015). While AGRA claims that “the diverse voices and ideas of [civil society] organizations must be heard and reflected in our work” (AGRA, 2010, p. 22), its own “model for supporting policy change” does not explicitly place civil society in the matrix (Figure 5).

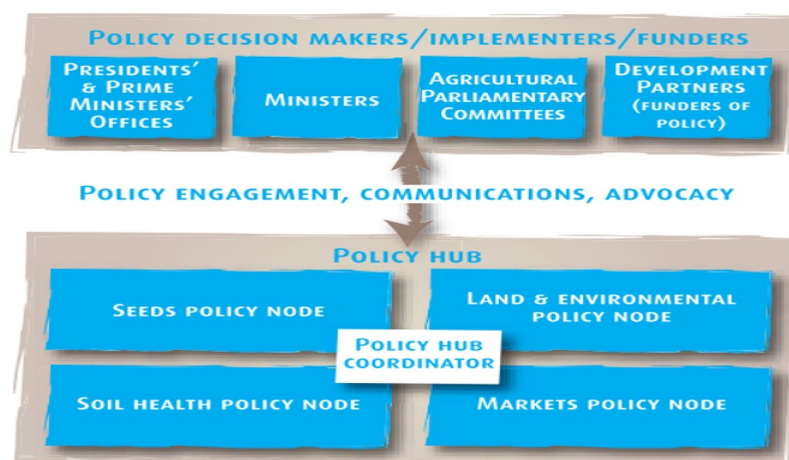


Figure 5: AGRA's model for supporting policy change

Figure 6: Where is civil society? (AGRA, 2010, p. 23)

In the 2016 AGRA document “Tanzania Early Generation Seed Study”, seed governance is identified as one of the bottlenecks hindering “projects targeting smallholder farmers” with the key problematic result being framed as the “continuing presence of obsolete varieties in seed markets, as well as counterfeit seeds” (p. iii). Tanzania’s seed sector is described exclusively in negative terms: “poor functioning”, “outdated”, “misplaced”, “obsolete” and “unsustainable” (p. iii). The AGRA analysis is rooted exclusively in economic framing. The seed sector is analyzed through a lens of “value chains”, and “specific market, crop and economic dimensions” (p. iii, para. 2). Farmers are not referred to as such, but rather, as “end-users” (p. iii, para. 5), obscuring the many roles farmers play with respect to selecting, breeding, storing, and maintaining seed.

The implicit theory of change in this document is that through a “short-term increase in the supply and quality of EGS [early generation seed] a number of policy or investment constraints will come into focus, coalescing stakeholders around downstream changes required to

address the constraints hindering seed quality and supply” (p. iii, para. 6). The verb “to coalesce” means “to unite or come together in one body or mass; merge; fuse; blend” (Collins, 2018). In other words, a time-limited exposure of “stakeholders” to “improved supply and quality of EGS” will somehow have political consensus effects, without the need for political processes of negotiation. The political, social and economic inequalities in Tanzania’s seed sector are erased by this discourse.

Another narrative manoeuvre employed to invalidate farmer-managed seed systems (FMSS) is definitional – the document defines “improved *versus* landrace or local varieties” (my emphasis) as being “the product of formal breeding programs that have gone through testing and a formal release process” (p. vi). The implication is that *only* the products of “formal breeding” (itself undefined but by implication meaning bred by scientists) can be considered “improved”. While likely not in the minds of the document’s authors, the verb “to improve” is etymologically rooted in market concepts: “being from 16th century Anglo-French *emprouer*, ‘to turn a profit’” (Collins, 2018).

“Landrace or local varieties” are defined in the AGRA 2010 Report as “a local variety of a domesticated plant species which has developed over time largely through adaptation to the natural and cultural environment in which it is found. It differs from an improved variety which has been selectively bred to conform to a particular standard of characteristics” (p. vi). The role of farmers in developing local varieties through intentional selection is ~~obscured~~ thoroughly minimized by this definition and the passive construction of the first sentence. The text cannot mention “farmer selection” in this context without undermining efforts to portray “laboratory” varieties as the only kinds of seeds that are “improved” through human agency. The definition of the “formal seed system” also emphasizes a sense of purposive intentionality – it is described, in part, as “a deliberately constructed system that involves a chain of activities leading to genetically improved products: certified seed of verified varieties” (p. vi).

The document contradicts its own suggestion that the informal sector cannot provide sufficient quantities of quality seed: “private sector interest in OPV [open-pollinated varieties] is low since seed of OPV maize can be saved and shared/re-used from season to season *with limited decline in seed quality and variety performance*” (p. 27, my emphasis). Farmers’ practices are described as “saving/recycling” (p. 65). This minimizes the skill and knowledge involved in maintaining farmer seed quality and performance, further illustrating the narrative effort to

maintain a rigid distinction between farmers' seed and commercial seed.

The AGRA analysis focuses on determining “the optimal market archetype” for Tanzania (p. vii) – a one-size-fits-all approach that does not specify according to what criteria, and by whom, optimality is to be measured. While poverty and increasing inequality are mentioned (p. xvi), the singular focus is on “constraints in EGS supply” (p. vii) – without consideration of whether and how such supply can also be made affordable for smallholders. According to AGRA, dominance of the informal seed system is problematic, as is the fact that “a large proportion of resource poor farmers in marginal areas still use local varieties and prefer improved open-pollinated varieties (OPVs) over hybrids” (p. ix). The ways in which those types of seeds may meet farmer needs is not explored - the preference is implicitly attributed to market failures, denying the possibility that it is a rational choice based on economic and agroecological factors.

The reasons given for low demand are “limited promotion and marketing of new varieties” (p. ix), “limited technological knowledge and lack of business skills among members of the farming community”, and “the perceived high cost of seeds” (p. x). The concept of “affordability” is not considered. Further, the characteristics of farmers who do currently use certified seeds are not considered - this would perhaps uncomfortably emphasize that only wealthy large-scale farmers can afford to do so. Finally, the framing rests on the questionable assumption that it is reasonable and practicable to commercialize all staple grain production, even in rain-dependent marginal agro-ecological zones.

A focus on neoliberal market theory is evident in the following: “farmers' *current* practice of saving/recycling seed, which *lowers* demand and reduces profitability” (p. xi, my emphasis). Factually, farmers have been saving seed for millennia – it is not simply a “current” practice. This framing, however, allows for the misleading claim that demand has been lowered, and permits avoidance of the problem (from a market theory perspective) that demand has not emerged in the first place.

The extent to which these “projects targeting smallholders” seem really to be for the benefit of private corporations emerges in a section discussing public-private seed partnerships: “private sector partners would expect to benefit financially from the operations of the EGS-PPPs [public-private partnerships]. This could come in the form of royalties on sales of proprietary varieties or expanded market presence for private sector partners or a growing and assured

supply of raw product for processing partners” (p. 66). In other words, public funds are subsidizing private sector market access and profit. Oddly, having acknowledged that the private sector is not interested in supplying seed for food security crops (p. xi), the major benefit of an EGS-PPP is said to be the significant “reduc[ti]on or even eliminate[ion] [of] government responsibility for the production of EGS for certain crops” (p. xi), ie. the only profitable crops. The neoliberal justification for eliminating government from the activity is that public resources could be redirected towards additional support for research and extension services (p. xi). The possibility that government could instead use its involvement in production of EGS for profitable crops to subsidize seed supply for food security crops is not contemplated. Permanent public funding may be needed for crops with limited potential for commercialization (particularly grain legumes such as cowpeas and pigeon peas, and forages) to support breeding improvements and diffusion to smallholders (Bishaw & Turner, 2008).

The impression given is that the real “problem” AGRA seeks to address is a current lack of profit opportunity for potential “private sector partners”:

The EGS-PPP should be established under a legal and administrative structure that allows it to generate and retain operating profits for use in improving its operations and pay royalties. Private sector partners would expect to benefit financially from the operations of the EGS-PPPs. (p. xii)

The document states that “farmers’ adoption of improved varieties and quality planting materials” needs to be increased (p. xiii). Increasing the adoption rate is tied to a need to ensure profitable EGS production by the private sector – no effort is made, however, to explain whether and how this may benefit smallholders. The focus, tellingly, is on demand and profitability, with no discussion of affordable supply. This is perhaps not surprising, given that the only “stakeholders” consulted were Tanzanian government officials, CGIAR representatives, private seed companies, and officials from SAGCOT (see p. 13). The viability of the proposal is put into question by the document itself: “the cost models for this study were developed based on *best estimates* of production costs provided by key stakeholders [...] triangulated with the *limited official and secondary data available*. *Significant variations in costs were observed in the data provided by various sources. It was also extremely difficult to obtain data from the multiple actors in the seed system*” (p. 53, my emphasis). These significant limitations are not mentioned in the document’s Executive Summary.

The AGRA discourse reflects a seed commodification agenda that obscures power imbalances and inequities in Tanzanian and global society. In this Seed Capitalist narrative,

“improved” seed is assumed always to be the “best” seed, no matter the context. Farmers are not acknowledged as capable breeders, and farmers’ varieties are dismissed as inferior seed. This discourse is used to rationalize a policy agenda that seeks to eliminate FMSS and replace them with a hegemonic corporate-controlled seed sector.

Monsanto & Syngenta

Monsanto, which is in the process of being acquired by Bayer (Sheetz, 2018), is a well-known multinational agribusiness that “participated” in Tanzania’s seed voucher program – in other words, selling seeds at a discount (Monsanto has donated seed, in one instance, to the “Millennium Villages”) (Monsanto, 2009, p. 18; ACBIO, 2016, p. 18; Monsanto, 2007, p. 11). Monsanto’s New Alliance Letter of Intent for Tanzania includes a commitment to “contribute to strengthening maize and vegetable value chains in the SAGCOT corridor by [...] making 3 – 5 new maize hybrids available royalty-free *to seed companies*” (New Alliance, 2014a, p. 17; my emphasis). It is not clear whether smallholders buying such seeds would also be relieved of the obligation to pay royalties – if that were the case, it is likely this would have been made explicit to garner goodwill.

The 2009 Monsanto document “Strategies and Challenges Facing the Private Sector in Africa” was presented at an IFPR (International Food Policy Research Institute) conference on “Delivering agricultural biotechnology to African farmers”. The document presents Monsanto’s “sustainability yield initiative”, which seeks to (i) double the productivity of Monsanto germplasm by 2030 “to increase production to meet [the] needs of a growing population”; (ii) reduce by 1/3rd the amount of resources needed per unit of output, by 2030; and (iii) “to dramatically increase the number of smallholder farmers we serve by 2020” in order to improve “the lives of the world’s farmers” (p. 2). What isn’t said is that Monsanto’s core mission, by law, is to earn profit and increase shareholder value, which can include positioning itself as a takeover target – objectives set for 20 years in the future can be regarded with a degree of scepticism. The third objective amounts to expanding market reach, which is clearly in the company’s interest, but not necessarily that of smallholders.

The document goes on to describe the “Monsanto Strategy for Seed and Biotech Investment”; the first priority is to make “a few countries [...] successful for our business and projects” (p. 7). The key strategy is termed “a segmented approach” (p. 9). Smallholder farmers are expected either to “opt up” to “farming as a business” (consistent with AGRA’s narrative), or

“opt out” of agriculture (see Figures 6 & 7). This latter “option” is not explicitly addressed in the

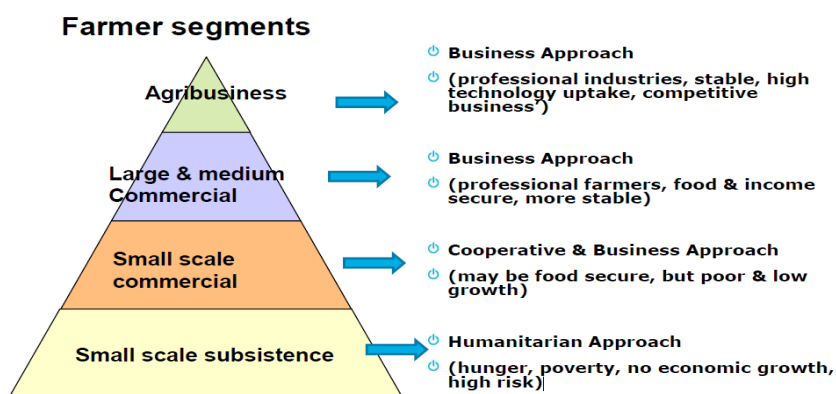


Figure 7: Monsanto's Segmentation Approach (2009, p. 9)

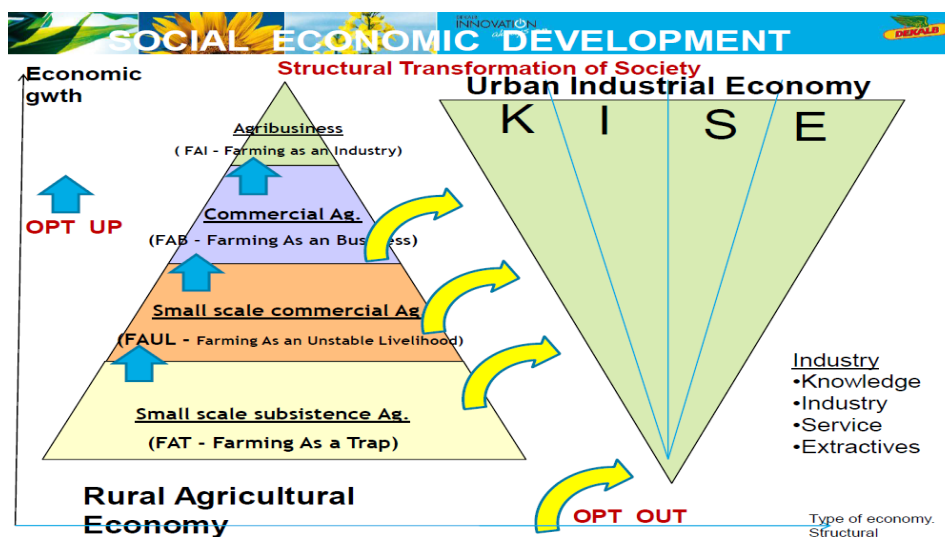


Figure 8: Structural transformation of society according to Monsanto (2009, p. 10)

AGRA narrative. The framing may be an appropriation of Dorward et al.'s (2009) influential conceptualization of three broad rural livelihood strategies: “hanging in”, “stepping up”, and “stepping out” (p. 240), but without its nuance. Monsanto, like AGRA, does not address the reality that agriculture is important for hanging in, and can only provide opportunities for some people to step up or out “in more favoured areas with better natural-resource potential and market access” (Dorward et al., 2009, p. 245).

The Monsanto discourse addresses more directly than AGRA who will and won't benefit from agricultural structural change. It nevertheless masks important political and social equity issues: is “opting out” an attractive choice pursued by empowered agents, or is it imposed on

smallholders who are squeezed out of subsistence agriculture into equally or more precarious livelihoods? How realistic, and for how many, is “opting up”? How many of those “opting up” will become poorly remunerated labourers on large-scale farms, rather than the “professional farmers” referred to in Figure 6? The narrative implies that those “opting out” will gain employment in the “Urban Industrial Economy”, in the knowledge, industry, service or extractives sectors (Figure 7). Wuyts & Kilama (2016) consider that key assumptions in Tanzania’s economic transformation policy, “that labour is locked in agriculture because agricultural productivity is low” and that labour released from agriculture “will find its way into employment generated by the expansion of agro-processing and, more generally, of manufacturing” may be flawed, given evidence that “labour is moving [...] while maintaining its linkages with smallholder production” to “informal production” (p. 339 - 340). There is a growing consensus that African economies generally “are getting growth but not structural change or the accumulation of new productive capacities” (Booth et al, 2015, at p. 1). Further, Monsanto’s post-structural-transformation inverted pyramid in Figure 7 is devoid of horizontal segmentation - giving what is surely only an illusion of a society no longer segmented by class.

Monsanto is only interested in farmers with sufficient income or financing to buy their products: “profitable farmers make good customers” (p. 11). Further, the first characteristic listed for a “good project” is one which involves “licenses to patented technologies” (p. 15). With respect to seed governance, the document calls for “pragmatic seed & biosafety legislation and institutions”, including “adequate IPR protection – PVP, seed laws, patents” (p. 24). Farmers’ rights and seed agrobiodiversity are not discussed.

Monsanto portrays itself as a provider of seed, fertiliser and chemical inputs to “empowered farmers/agripreneurs [sic]” (p. 21, and Figure 8). In contrast to AGRA’s narrative, affordability is mentioned, but no indication is given as to how it will be achieved (Figure 8). Similarly, while the figure sets out many items that would benefit farmers, including social services and off-farm income alternatives, it is not clear who will provide these or how. There is an implication that if farmers can be successfully made either to opt up or opt out, these elements will somehow “naturally” emerge. As with the AGRA narrative, political conflicts are not acknowledged. For example, the reference to “secure title” under the “Land” element in Figure 8 ignores complex land title issues in many areas of Tanzania. It also obscures the extent to

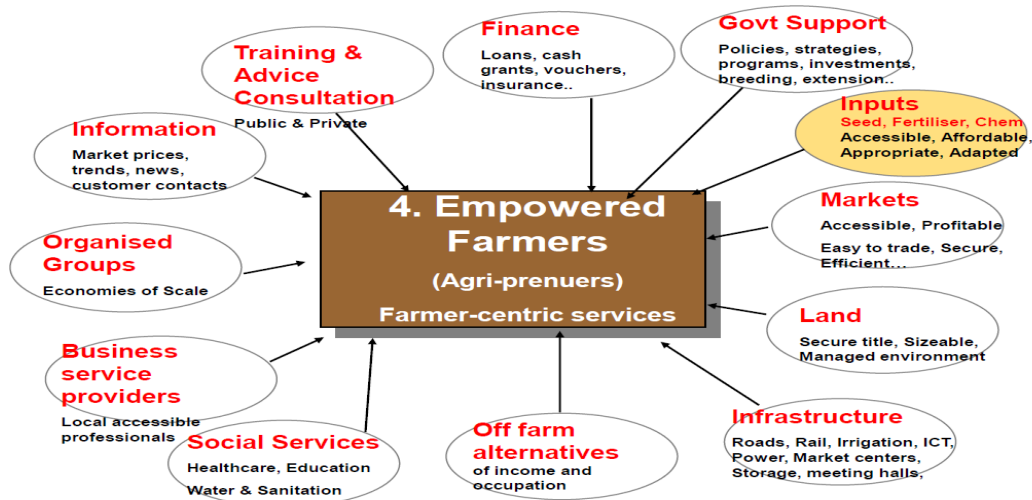


Figure 9: Monsanto as input supplier to “empowered farmers” (Monsanto, 2009, p. 21)

which an agribusiness model will likely rely on landless labourers (i.e. those being asked or compelled to “opt up” and “opt out” of smallholder farming).

Syngenta (owned by ChemChina) is one of three top global agribusinesses in terms of market share, along with Monsanto-Bayer and Dow-Dupont (Xinhua, 2017; Figure 10). The company funds the Syngenta Foundation for Sustainable Agriculture (SFSA), a non-profit organization focusing on “pre-commercial farmers” (SFSA, n.d.). SFSA supports “introduction of new varieties into underserved markets” and “local production of quality seeds” (SFSA, 2016, p. 4). Like AGRA and Monsanto, SFSA sees the involvement of commercial enterprises as “crucial” for “sustainable success” in delivering “technology, skills and services to farmers” (p. 5). SFSA suggests that “adoption at scale” of agricultural technologies “is possible when farmers see the products and technologies as relevant (displaying high, risk-weighted returns on investment)” (p. 3). This narrative portrays smallholders with more nuance than that of other Seed Capitalists, including the extent to which balancing risk-return considerations often plays a key role in smallholder decision-making (Silva & Ramisch, 2018).

However, despite emphasizing a need for locally adapted varieties (SFSA, 2016, p. 8), SFSA’s “Seeds2B” program makes no mention of FMSS. Further, SFSA’s “Connect” program, which makes “the best technology from public and private breeding sources [...] available to smallholders through local seed companies and distributors” (SFSA, 2016, p. 9), relies heavily on non-African sources for germplasm. Only five of the 50 varieties featured in the three Seeds2B Connect variety catalogues originate from Africa; 37 originate from India, nine from

China, and three from Ireland (one hybrid's origin is unidentified) (SFSA, 2018a; 2018b; 2017; 2017a). The tomato varieties are non-African, even though two Tanzanian tomato hybrid lines have been available since 1997 (Appropriate Technology, 2014).

The New Alliance

Like AGRA and Monsanto, the New Alliance assumes that smallholders must adopt improved seed to increase productivity. In 2014, the New Alliance announced grants for six African countries, including Tanzania, of up to 1.7M USD each, to increase adoption of “quality seeds of superior varieties” (USAID, 2014; AgriLinks, 2015, para. 3). The primary objective described in the “*2014-2015 Joint New Alliance and Grow Africa Progress Report: Tanzania*” “is to enable member states realize the potential of [the] agriculture sector in economic growth and job creation among smallholder farmers” (New Alliance, 2015, pp. 1-2). The “opting out/dropping out” to which Monsanto alludes is not discussed; the New Alliance vision speaks optimistically of “job opportunities for the unemployed and improving livelihoods for millions of smallholder farmers” in Tanzania (p. 25), similar to the AGRA assumption that the “poorest of the poor” will benefit tremendously from agricultural transformation. This is in tension with Monsanto’s depiction of the projected structural changes; the agribusiness model seems unlikely to create “millions” of jobs for smallholders, let alone “lift 50 million people [across Africa] out of poverty by end of 2022” (p. 1). The report reveals that during 2014, only 2,209 jobs were created in Tanzania in connection with New Alliance-related private sector investment, itself a 110.6% improvement over 2013 (p. 22). The report also reveals that only a miniscule amount of the investment planned for Tanzania in 2014 by private sector partners was actually invested – US\$13.9 million out of US\$846 million, that is, 1.6% (p. 21).

Unlike Monsanto, the New Alliance acknowledges that “land tenure remains insecure for smallholders” in Tanzania (p. 7). The extent of the land conflicts at play are significantly understated, however: “[I]ssues of land rights are common across the country. Access to land in Tanzania can be a lengthy process for foreign and domestic investors alike” (p. 6-7). There is no mention of the conflict between pastoralist livelihoods and agriculture, or the difficulty that women and younger generations have gaining direct secure access to land. Another passage states that “the GoT has issued land titles to TIC [the Tanzania Investment Centre] totaling 83,000 Ha” rice and sugar production (p. 7). It goes on to reassure investors that the land will be issued “in an open, competitive and meritocratic way”. The process is not “meritocratic” from

the perspective of villagers being displaced from their lands for SAGCOT projects, and pastoralists losing their grazing rights (see ActionAid, 2015). This further bolsters the impression that what really matters, from the New Alliance perspective, are agribusinesses, not smallholders.

The document acknowledges that Tanzania met its New Alliance commitment to align plant breeders' rights with the UPOV system in 2012 (p 8). Consistent with Seed Capitalist narratives, the document does not mention farmers' rights and international commitments pursuant to the ITPGRFA. FMSS similarly receive no mention – the focus is on “the development of [a] sustainable private seed sector” (p. 9) and on reducing the regulatory lag times (p. 8). Affordability of seed is not addressed, even though this is a known concern in Tanzania; in one study, for example, smallholders across 15 districts felt that improved seed, and the fertilizer required to obtain good results from such seed, were unaffordable – even when subsidized (Haug et al., 2016).

USAID

The Scaling Seeds and Technologies Partnership in Africa (SSTP) is a US\$47 million AGRA-USAID program initiated in 2013, working in six countries, including Tanzania (Makanda, 2014, p. 5; AGRA, 2017). The SSTP seeks to “improve the capacity of public and private sector groups to deliver quality seeds and other technologies to smallholder farmers”, and improve related policy and regulatory mechanisms (Makanda, 2014, p. 6). The 2013 USAID “SeedCLIR Tanzania Pilot Report” assessed Tanzania’s seed governance framework.

In promoting improved seed, USAID acknowledges the need for affordability: “Farmers require access to affordable high quality seed to achieve the income and production gains necessary to improve food security and reduce poverty” (USAID, 2013, p. 7). The focus, however, is almost exclusively on commercial seeds. The first of only two references to the informal seed sector states that about 75% of Tanzanian farmers source their seed informally (p. 13). The second reference paints a picture of unscrupulous informal traders, stating that agro-dealers have a limited role “in protecting against fake seed and the so-called ‘briefcase seed dealers’ that dominate the informal seed trade” (p. 13). There is no mention or recognition of the scale and scope of farmer seed exchange in the informal sector. USAID’s aim is “to build a better enabling environment for seed in Tanzania” (p. 5), and “to motivate private investment in the seed industry” (p. 6), rather than, for example, a better enabling environment for smallholder

livelihoods. The document states that “use of quality seed remains lower than expectations” (p. 5); “quality seed” is not defined. There is no mention of what kinds of seed *are* in high usage – thereby erasing the existence of the entire (and dominant) FMSS. The first reason given for low use of so-called “quality seed” is limited private seed sector growth. Absence of smallholder demand for certified seed is not amongst the remaining reasons given, which focus on the ASA [the national Agricultural Seed Agency], fake seed, and failure to implement policy² (p. 5). The analysis is modernist in tone: “seed system development contains a long, rich history of [...] standard stages through which each system must evolve on the road to maturity” (p. 7).

The document states that the “success” of Tanzania’s input subsidy program “is measurable: there are more registered seed enterprises (65) and a significant increase of agrodealers (over 4000)” (p. 5). However, the success of the program is called into question two sentences later: “only 27 seed companies and less than 2,000 agrodealers are actually active today” (p. 5). There is no analysis of the financial viability of active agrodealers (many of whom would collapse without the subsidies, as discussed above) or seed companies. Similarly, no consideration is given to the fact that local elites tend to capture the benefits of agricultural subsidy programs in Tanzania (Pan & Christiaensen, 2012, as cited in Dionne & Horowitz, 2016). Notably, as a result of “widespread corruption”, Tanzanian’s voucher program was terminated in 2014 (ACBIO, 2015, p. xvi).

The analysis expresses serious concern about the Tanzanian Agricultural Seed Agency’s (ASA) role: “the ASA serves as a bottleneck in the supply chain and maintains its own commercial activities in direct competition with the private sector” (p. 5). There is no discussion of the ways in which ASA may play a public interest role with respect to staple crop seed for which commercial markets are unlikely to emerge. The document ~~also~~ takes issue with “the stringent conditions and restrictions” of ASA licenses for access to publicly bred varieties – again, without discussion of what the public interest rationale for such conditions might be, or of the stringent restrictions that private sector seed companies commonly impose in their seed licenses. The narrative also implies that there can be no debate about what the issues are, thereby depoliticizing matters: “These issues in the seed industry are well known to both the public and private sectors” (p. 6).

The Seed Capitalist policy agenda (development of a vigorous, domestic private commercial seed sector in Tanzania) seems unrealistic when seen against this backdrop. This is

particularly so given that the New Alliance required amendment of the seed regime in a manner highly beneficial to multinational seed companies (which already own vast portfolios of breeders' rights) but of little apparent value to fledgling companies. It is difficult to see how Tanzanian seed companies can compete against the multinationals in the near future.

Tanseed International Ltd.

The most well-known Tanzanian seed company, Tanseed International Ltd. (Tanseed), is a New Alliance signatory and an AGRA grantee (ACBIO, 2015, p. xv). It does not have a website. An undated company brochure was posted in 2016 on ISSUU, an online digital publishing platform (Tanseed, n.d.). According to the brochure, Tanseed carries five lines of maize, two of which are hybrid, and three of which are open-pollinated varieties. These five maize varieties “are based on three technologies”: drought resistance, resistance to the weed striga, and quality protein (ACBIO, 2015, p. xix).

The brochure states that Tanseed is “the first and single national private seed company to commercialize own seed varieties in Tanzania” (Tanseed, n.d., para. 2). Tanseed’s maize varieties are proprietary, “based on an exclusivity agreement with the International Maize and Wheat Improvement Center [CIMMYT]” (ACBIO, 2015, p. xx). Tanseed’s CEO, Mr. Isako Mushaur, attributes low productivity in Tanzania to “a lack of GAP [good agricultural practices], the low adoption of improved genetics, low farmer education and poor market prices” (ACBIO, 2015, p. xx). While largely consistent with a Seed Capitalist discourse, he does not promote hybrid seeds for all contexts. Rather, in his view, “hybrid seed is not suitable for all conditions since the genetic potential of the seed will be wasted unless conditions are right, and farmers will end up paying for something they cannot fully use” (*ibid*).

Tanseed receives grants from AGRA for improved maize, pigeon pea and sesame, and to increase production, processing and storage (ACBIO, 2015). It also produces seed for New Alliance projects and works with USAID and YARA on yet other projects (*ibid*; New Alliance, 2014b). Tanseed’s work on striga control in maize, including a new seed treatment processor, is financially supported by USAID’s Feed the Future program (AATF, 2014). It is not clear whether Tanseed would be viable if it had to rely on commercial financing alone. A 2012 evaluation of AGRA grant recipients discussed difficulties initially experienced with Tanseed: “even though we explicitly defined debt lending and [...] operating as a for-profit-company [...] they still behaved like a grantee [...] missing scheduled payment dates [and] avoiding

communications” (Root Capital, 2012, p. 16).

The gap between Tansed and the multinational seed companies seems substantial. How can Tansed and other small Tanzanian companies emerge as robust competitors to the multinational seed companies in the near future, particularly without ongoing donor financing? The agribusiness MNCs are following a clear pattern of mergers and acquisitions, leading to ever-increasing market concentration (Figure 9). The Seed Capitalist discourse does not address this issue, or its implications for the AGRA vision of building a robust private seed industry in Africa.

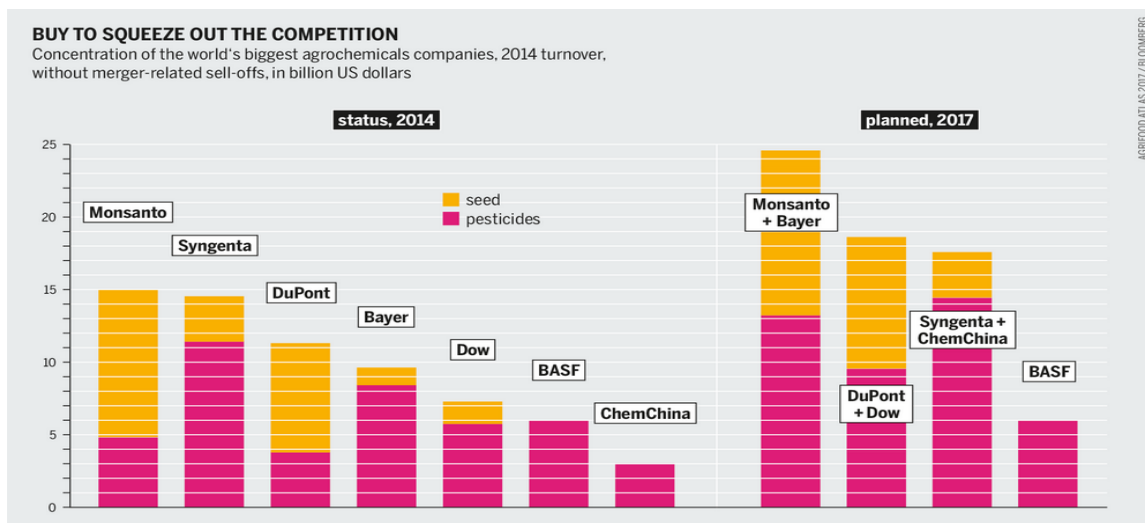


Figure 10: Shifting market share and increasing concentration (Moldenhauer & Hirtz, 2017, p. 2)

United Republic of Tanzania (URT or Tanzania)

The seed-related discourse used by the United Republic of Tanzania (URT) sits on a conceptual boundary, mostly expressing a Seed Capitalist discourse, with some Seed Pluralist undertones. The AGRA-New Alliance discourse likely exerts some narrative pressure on the state Tanzania, in light of significant loans and equity investments flowing from AGRA to Tanzanian corporations, and its active efforts to influence government policy (AGRA, 2010, p. 17 & 21). Tanzania’s membership in UPOV 1991 also likely informs the government’s discourse. That said, Tanzania also adheres to the ITPGRFA and is one of the few countries in the world to have adopted the FAO’s pluralistic QDS policy.

Tanzania’s “Country Report on the State of PGRFA [Plant Genetic Resources for Food and Agriculture]” (URT, 2009) states that while “over 90%” of seeds “are sourced through the

informal sector”, there is a “framework for ultimately entrenching a formal seed sector in the country” (p. 1). It is implicitly accepted that a formal seed sector should be entrenched in the country, reflective of Seed Capitalism. Farmers are characterized as having “a vital implemental role [...] in any *evolution* of the seeds system” (my emphasis, p. 1). The term “evolution” reveals “the myth of progress as a linear path” (Gudynas, 2011, p. 447) and the “‘simple replacement’ view of agricultural change as a linear progression” (Brush, 1991, p. 154). This implies that the “informal” seed system is un-evolved and therefore inferior.

While somewhat more expansive than AGRA descriptions, a distinction is still made between farmers and “plant breeders” capable of developing “improved cultivars”:

Landraces and traditional cultivars [...] are *the result of selection processes carried out by farmers over a long period of time* [...] They are *maintained* by farmers and endowed with remarkable genetic variability, adaptability, unmatched qualitative traits and in some cases medicinal properties. [...] *However at present* this wealthy variability of complex quantitative and qualitative traits *has been only marginally exploited*, leaving a great deal of opportunities for the future development of improved cultivars by national breeding programs. (p. 17, my emphasis).

Seed Pluralism emerges, however, with the acknowledgement that farmers rely on traditional seed owing to a “lack of sufficiently suitable varieties [...] acceptable to small scale farmers” (p. 15). Positive aspects of traditional varieties are also noted: “traditional cultivars are easily accepted and spread” because they “are often given names which emphasize the qualities of the cultivars” (p. 17). Even when discussing the pluralistic QDS system, widespread private sector production remains the touchstone: “Without adequate improvement programmes that enhance the productivity of traditional varieties [...] scale commercial production of such varieties is not likely to occur” (p. 33). The document acknowledges that seed regulations have been based on international standards “which are not always compatible with farmers’ management practices” (p. 17).

Farmers’ rights (embedded but not defined in the *ITPGRFA*), receive short shrift, with one paragraph on the subject. The description of farmers briefly expands beyond that used elsewhere: “farmers through a continuous process have selected cultivars for crop production [...] throughout the years they have been the guardians and promoters of plant genetic diversity and its associated knowledge” (p. 44). The discourse then collapses back to the narrow Seed Capitalist framing, with this knowledge being characterized as useful only for the purposes of “formal” breeding: “several initiatives have been undertaken to promote the use of this

knowledge in the identification of valuable traits and plant genetic materials that breeders could use in improvement programmes” (p. 44).

The Tanzanian Registrar of Plant Breeders’ Rights released the report “Establishment of Plant Breeders’ Rights System in Tanzania: Achievements and Challenges” in 2009 as part of a CGIAR collaboration project (URT, 2009a). This predates the implementation of the UPOV 1991-compliant *Plant Breeders’ Rights Act, 2012*. The report characterizes the *Plant Breeders’ Rights Act, 2002* as a *sui generis* system and assesses Tanzania’s compliance with TRIPS and UPOV 1991.

The narrative assumes that the only way to finance development of new varieties is through a period of monopoly commercialization by the plant breeder: “the development of a new variety is usually a long and costly undertaking [...] enacting and implementing a plant breeders’ rights legislation gives them a chance to recoup costs and profit from their breeding investment” (p. 5). There is no discussion of public plant breeding and the significant role it played in the development of North American agriculture (Kuyek, 2007; Kloppenburg, 2004), or the fact that India’s seed industry was largely driven by public investment policy frameworks (Glover et al., 2016). Breeders and farmers are referred to as distinct categories: “This also motivates breeders to continue developing new varieties for the benefit of farmers and the society in general” (p. 5).

In discussing farmers’ rights, the formal-informal dichotomy is maintained: “In developing countries, seed supply requirements are met through exchanges between farmers, which operate alongside other more formal mechanisms” (p. 6). It is acknowledged that protection of farmers’ rights “carries with it benefits”, including improved livelihoods, conservation, deterring rural migration, as well as “less dependence on foreign countries” and “the prevention of biopiracy” (p. 6). A subtle Seed Capitalist bias against farmers’ rights is revealed in the subsequent paragraph when the document turns to a comparison between farmers’ rights and intellectual property rights (IPRs). Stating that IPRs “offer exclusive rights” while farmers’ rights are “geared toward compensation and benefit sharing”, the document claims that “farmers’ rights do not readily define the title holder or subject matter, while they are clearly established for IPRs” (p. 6). Concern with identification of a title holder is a Seed Capitalist perspective, giving primacy to individual property holding, in contrast to non-capitalist conceptualizations of collective rights.

The passage stands in tension with a later section on “community rights”, defined as “those belonging to members of an identifiable indigenous community, with each member entitled to use of the common property” (pp. 6-7). The text here states that while delineation of community rights “is often difficult given that property rights are individualistic in nature [...] this should not negate” their recognition. (p. 7). The document goes on, however, to raise serious doubt about the likelihood of community rights protection in Tanzania: “[B]ased on the current administrative structure in the country such law may be difficult to implement” (p. 7). The document does not mention the customary land rights held by pastoralists in Tanzania. Protection of collective farmers’ rights may yet emerge in time, akin to the development of collective land rights – since 2011, eight community land certificates for hundreds of thousands of acres in Northern Tanzania have been granted in pastoralist areas (UCRT, n.d.).

The document acknowledges that “in Tanzania, 95 percent of seed management is carried out by farmers” and that “certified seeds sold on the market” are “generally much more expensive and not easily available to many farmers in remote areas” (p. 6). The QDS system is mentioned as having been introduced “to solve the problem of seed availability and affordability to small scale farmers” (p. 6). There is no discussion of whether QDS has solved the problem, or of the ways in which the need for QDS may call into question the suitability of the UPOV 1991 framework for Tanzania. Rather, Seed Capitalism remains the goal: “a well-functioning seed industry” and “seed trade under a free market economy” (p. 10).

A series of articles published on the Tanzanian Ministry of Agriculture’s website discloses a Seed Capitalist orientation. Originally in Kiswahili, the articles have been translated to English by Eunice Njoroge, M.A. (University of Ottawa) for the purposes of this thesis. The first article, “Improved farming practices for dryland rice” (URT, 2017) discusses efforts by the ASA to train farmers how to rely solely on rainfall using “rice seeds suited for drylands” (para. 2). The varieties “distributed” to farmers by the ASA are NERICA 1, 2, 4 and 7 (paras. 4 & 5). It is not clear whether the seeds were provided for free, subsidized, or sold. The Tanzania Fertilizer Company “provided fertilizer to each group” (para. 4), on terms that are also not clarified. Potential risks associated with the intervention are not discussed, including, for example, a greater risk of crop failure and yield variability associated with increased fertilizer use (*cf.* Silva & Ramisch, 2018).

NERICA (“New Rice for Africa”) is taken by some as emblematic of “the narrative for

an African Green Revolution” (Bornstein, 2015, p. 8; Arouna, Lokossou, Wopereis, Bruce-Oliver, & Roy-Macauley, 2017). Critics state that “Nerica is being promoted within a larger drive to expand agribusiness in Africa, which threatens to wipe out —[...] Africa’s small farmers and their local seed systems” (GRAIN, 2009, para. 1). However, a number of studies have found that NERICA seed is only adopted at high rates where credit is available and the harvest can be sold back to extension services (Yokouchi & Saito, 2017). Further, NERICA is sometimes integrated with farmers’ seed, rather than displacing them, as rice is “not particularly vulnerable to genetic degradation” (Bornstein, 2015, p. 9). Tanzanian agricultural officials advise smallholders to save seed of improved varieties like NERICA for four seasons (ACBIO, 2015, p. xviii). Overall, the article reflects a Seed Capitalist narrative, emphasizing improved inputs and practices without the nuance of associated risks and constraints.

The article “Farm classrooms to be used to change farmers in Morogoro” (URT, 2017a), describes a program encouraging farmers to use “high quality seeds” and “modern production practices” (para. 3). Tanzania participates in the Coalition for African Rice Development, a joint AGRA and Japanese International Cooperation Agency (JICA) initiative launched in 2008 with a goal of doubling African rice production by 2018 and transforming subsistence cultivation into commercial production (CGIAR, n.d.; JICA, n.d.). The Morogoro project uses certified public domain varieties: TXD 306 was bred in Tanzania during a ten-year partnership with North Korea (Kafiriti, Dondeyne, Msomba, Deckers, & Raes, 2003; Makundi, 2017); Komboka (IRO5N 221) is an IRRI-bred variety (IRRI, 2013); Supa and Mwangaza were developed at Sokoine University (through selection of irradiated mutants) (IAEA, 2014; Luzi-Kihupi, Shao-Mwalyego, Zakayo, & Mkuya, 2008); and NERICA 1, 4, and 7 were bred by the Africa Rice Centre, funded by 26 African member states and numerous bilateral and multilateral donors (Africa Rice, n.d. & n.d.a). Consistent with Seed Capitalist discourse, the article promotes commercialization and reliance on “improved” seeds, without taking into account the risks faced by smallholders.

The last article, titled “Farmers are attracted to improved rice seeds” (URT, 2017b) promotes NERICA 1, 2, 4 and 7, described as “new rice seeds that thrive in dryland, mature within a short time and have high productivity” (para. 1). ASA’s CEO urges farmers “to choose one or two types of these seed varieties which they like” and asks the lead trial farmers “to continue to provide knowledge to other farmers, so as to increase production and enhance food security” (para. 6). To provide context, a study of rice value chains in the Lake, Eastern and

Southern Highlands zones of Tanzania found that “SARO 5 was the only improved variety widely grown by 27% of farmers out of 32 varieties” (Nkuba et al., 2016, p. 73). None of the farmers were growing NERICA varieties.

Numerous issues raised by Tanzanian smallholders are not acknowledged in the Ministry of Agriculture narrative. During an ActionAid Tanzania training course on agriculture budget advocacy, 26 smallholder farmer representatives analyzed the National Agriculture Policy and the 2015-16 agriculture budget (Teveli, 2016). The participants identified numerous gaps, such as inadequate funding, lack of priority for crops grown in their regions, and lack of agricultural inputs (para. 5 & 10). The farmers were also of the view that the national agricultural policy and related strategies “are not user friendly and not easily accessible to a small holder farmer” (para. 7).

Women’s access to land and financing also remain invisible in the Ministry of Agriculture discourse. In the context of an ActionAid Tanzania agricultural stakeholders’ meeting women farmers explained that they wanted to increase their agricultural production, but can’t access financial support in the absence of land title to use as collateral. (Teveli, 2016a). In an ActionAid community scorecard project, smallholder farmers in Singida “confirmed that men had access and control over land and women had nothing to do about it” (Teveli, 2017, para. 7). Despite Tanzanian land legislation reforms in 1999 (considered among the most gender-aware in sub-Saharan Africa) most women there “still live in a reality in which [...] access to land is primarily mediated by their male relatives.” (Pedersen, 2015, p. 428). Implementation of the reforms has been “slow, uneven and project-driven, rendering the impact of reform patchy in geographically limited areas” (*ibid*, p. 420).

Hallmarks and weaknesses of Seed Capitalist Discourse

The Seed Capitalist discourse is rooted in the larger neoliberal narrative that economic growth is needed in Africa, and that for this to occur subsistence agriculture must be transformed, through “modernization”, into agribusiness (see AGRA, 2017). The “deficit approach” to agricultural development (Sumberg, 2012) is also in evidence. The framing centres on things smallholders are said to lack, which they must be “given”: “We must ensure that smallholders are given the knowledge and support they need to play their full part in the transformation of food production” (AGRA, 2010, p.5). The phrasing “we must ensure” gives an impression of *noblesse oblige*, of a superior “we” fulfilling a moral obligation to smallholders,

who are not part of the “we”. Using the verb “given” adds to this sense of a noble gift – the verb “to give” meaning “to present or deliver voluntarily (something that is one’s own) to the permanent possession of another or others”. Gifts are being given, rather than the fulfillment of smallholder *rights*. An absence of social and economic equity is not mentioned as something that smallholders might need. Socio-economic inequality is rising in Tanzania, with the poorest fifth of the rural population having less than 0.2 acres of commercially viable farm land, on average, and the richest fifth having over nine times this amount, along with an average income that is nearly 33 times larger than the average income of the poorest fifth (Mueller, 2012).

There is an implication that smallholders themselves are to blame for their circumstances (“they need to play their full part”). Even when some acknowledgement of structural issues is made, a narrow market-oriented approach is taken: “the majority of smallholder farmers are women, and we need supportive policies in place that remove the specific barriers they face – for example, access to land and credit” (p. 5). Other barriers that could be mentioned, but are not, include patriarchy and misogyny (including violence against women), the greater household and childcare responsibilities borne by women, employment discrimination, as well as unequal access to education, healthcare, and household assets.

AGRA’s narrative focuses on “transformation” of individual smallholders into “agribusinesses”, without detailed discussion of structural changes involved. Monsanto’s narrative more clearly explains that smallholder farmers are expected either to “opt up” or “opt out” of agriculture. Despite evidence that labour released from agriculture in Tanzania will not necessarily find employment in agro-processing or manufacturing (Wuyts & Kilama, 2016), Monsanto suggests that those “opting out” will gain formal employment. In 2013 and 2014 combined, only 4,206 jobs were created in Tanzania in connection with New Alliance-related private sector investment (New Alliance, 2015). It will be recalled that there are approximately 19 million inhabitants of Tanzania’s 3.7 million smallholdings, the majority of whom are poor, based on a national poverty line of \$1.90USD/day⁴ (Rapsomanikis, 2015; Anderson et al., 2016). The image Monsanto puts forward of the structurally transformed society (Figure 7) no longer segmented by class is a false narrative. This fiction supports an effort to depict “opting out” as an

⁴ Estimates vary depending on data sources (including date) and definitions of poverty and smallholdings. If smallholdings are defined as 5 hectares or less (instead of 2.2 hectares) and the poverty line as \$2.50USD/day, 85% of smallholders in Tanzania are poor, with 55% living in extreme poverty (less than \$1.25USD/day), based on 2015-16 data.

empowered smallholder choice from an array of attractive livelihood options, and to obscure the prospect of smallholders being squeezed out of subsistence agriculture by structural transformation into equally or more precarious livelihoods.

A central element of the Seed Capitalist discourse is framed as a need to improve smallholder productivity. Because it is applied in an overgeneralised manner, the resulting narrative fails to consider that underproduction may be a rational choice for smallholders, if they are facing an “economic ceiling yield gap” (Silva & Ramsich, 2018; Sumberg, 2012, p. 511). This is the gap between the potential maximum yield, and the yield that is economically viable under given input and output prices and market access conditions. In addition, focusing only on yield maximization can lead to the phasing out of crops that are central to the livelihood strategies of some smallholders, at the same time introducing crops that are more fragile environmentally and economically, further increasing the vulnerability of marginalized people (Kijima, Otsuka, & Sserunkuuma, 2011; Dawson et al., 2016; Waldman Ortega, Richardson, & Snapp, 2017). Breeding focused only on yield can also led to deficiencies in micronutrients (Mastretta-Yanes, 2018). Many smallholders privilege yield stability over time, rather than higher overall yields, owing to lower on-hand savings and smaller surplus food stores (Schnurr, 2017), but the need for this kind of calculus is ignored in Seed Capitalist narratives. Smallholders are rarely portrayed in the Seed Capitalist discourse as agents actively balancing risk-return considerations in relation to commercial seed.

While the formal sector is framed in Seed Capitalist discourse as the singular source of seeds needed by smallholders, the “informal” sector is represented as a repository of obsolete, inferior varieties (AGRA, 2016, p. iii; URT, 2009; URT, 2017a). Consistent with Borowiak (2004), farmers are not represented as breeders. They are referred to as “end-users” (AGRA), “customers” & “agripreneurs [sic]” (Monsanto), or as merely “maintaining” their traditional varieties (URT). An internal contradiction arises in AGRA’s definition of “informal seed systems”, including explicit reference to “farmer selection” in connection with landraces, and a contorted effort to portray farmers’ interactions with seeds as very different from that of seed breeders:

The informal seed system also referred to as a local seed system, is based on farmer saved seed or QDS. Varieties in the informal system may be variants of improved varieties originally sourced from the formal system or they may be landrace varieties developed over time through farmer selection. *There is no emphasis on variety identity, genetic purity, or quality seed. The same general steps or processes take place in the local system as in the formal sector (variety*

choice, variety testing, introduction, seed multiplication, selection, dissemination and storage) but they take place as integral parts of farmers' production systems rather than as discrete activities. While some farmers treat "seed" as special, there is not necessarily a distinction between "seed" and "grain". The steps do not flow in a linear sequence and are not monitored or controlled by government policies and regulations. Rather, they are guided by local technical knowledge and standards and by local structures and norms" (AGRA, 2016, p. vii, my emphasis)

If there is no emphasis on variety identity or quality seed, then why, as the next sentence acknowledges, are farmers engaging in the very same steps as "seed breeders"? The implication is that while farmers might be engaging in a kind of "seed breeding", they are nevertheless at best only inferior seed breeders, as their steps are not "linear" and not discrete from farm production activities (it is unclear how these last two claims, even if true, relate to varietal distinction and quality).⁵ The "formal seed system", in contrast, is defined as being "a deliberately constructed system" (but it is not mentioned by whom) designed to "lead to genetically improved products: certified seed of verified varieties" (p. vi) and "to produce seed of optimal physical, physiological and sanitary quality" (p. vi). These definitions overlook that farmer varieties can be "the optimal" varieties for particular contexts, including those characterized by low incomes, seasonal labour constraints, and climate stressors (Mancini et al., 2017; Wise, 2017; Halewood & Lapena, 2016). There is no acknowledgment that farmers' varieties can be of good quality and often better suited to the conditions faced by smallholder farmers (Mancini et al., 2017; Wise, 2017; Wale, Chishakwe, Lewis-Lettington, 2009).

The Seed Capitalist discourse promotes "improved" seed as the optimal seed for smallholders (AGRA, 2010; New Alliance: Agrilinks, 2015; USAID, 2013, p. 7). However, broadly adapted genetic materials may not address local requirements, and some smallholders prioritize food security through staggered production (rather than high-yielding single harvests) over income maximization (Mancini et al., 2017; Dawson et al., 2016). Further, many smallholders don't benefit from improved germplasm as they are often farming on depleted soils unresponsive to fertilizers and on which traditional varieties perform better than improved seed; landraces are often better adapted to local conditions, as well as having higher market value and end product quality (Waldman et al., 2017; Brush, 1991; Mancini et al., 2017).

A more subtle discursive device is at play in stating that "the informal seed system" is also referred to as a "local seed system" (AGRA, 2016, p. vii). Treating the "informal" as

⁵ The definitions closely track those in a 2011 FAO policy report, "Strengthening seed systems: gap analysis of the seed sector", including, for example, the emphasis on the variable quality of informal seed and the implication that this is owing to the fact that "the steps do not flow in a linear sequence and are not monitored or controlled by government policies and regulations" (FAO, 2011, para. 21).

synonymous with “the local” obscures the national, continental and global scale of FMSS. The inclusion of QDS as part of the informal system is also telling. Even though QDS, by the document’s own claims, is “the second most important system for supplying commercial OPV seeds” (p. 25) and is formally controlled by Tanzanian regulations, acknowledging QDS as part of the “formal” system would undermine the effort to portray certified seed as “superior” to all others. “Improved” or “quality” seed and farmers’ seed are defined as binary opposites in the Seed Capitalist discourse. At the same time, and in tension with this, landraces and farmers’ varieties are recognized as sources of useful germplasm (URT, 2009). However, this genetic pool is also portrayed as underdeveloped: “at present, this wealthy variability of complex quantitative and qualitative traits has been only marginally exploited, leaving a great deal of opportunities for the future development of improved cultivars” (URT, 2009, p. 317). This too is a Seed Capitalist lens, reflective of a neo-colonialist “discourse on local seed varieties as raw material and a resource to be ‘discovered’, ‘invented’ and commodified by industry and Western-based technoscience” (Escobar & Fitting, 2016, p. 711; Graddy, 2013). It also serves to deny farmers’ rights in the material, akin to colonial doctrines of discovery (see eg. AFN, 2018), or to *res nullius* (Edelman et al., 2014). Finally, it perpetuates the construction of smallholder farmers as victims, entrenched in poverty by their own allegedly poor quality seed, rather than the capable seed innovators they are (Amanor, 2010, as cited in Tansey, 2011; Herring 2007).

The claim of two distinct categories of seed is contradicted not only by actual farmer practice, but also official seed governance in Tanzania. As noted in the Introduction, farmers often intermix landraces, their own varieties, and scientist-bred varieties. The situation goes further than this, however. As ACBIO has argued (see Chapter 2), any distinction between certified and uncertified seed is blurred in Tanzania, not just practically, but also from a governance point of view, given “the official advice [...] to recycle improved OPV rice for at least four seasons” (2015, p. xviii-xix).

Of Sperling & McGuire’s (2012) three pillars of seed security, only quality receives significant attention in the Seed Capitalist discourse. Problems with the affordability and accessibility of certified seed, to the extent that they are even acknowledged, are ascribed to insufficient demand and an underdeveloped market – in other words, it is assumed that prices would drop to an affordable range if demand could be increased and the market expanded. The possibility that certified improved seed may not always be what smallholders need is not

contemplated. The possibility that additional factors (not just price), such as barriers to access to financing and land for women, may also be relevant to the affordability problem is ignored. Promoting certified improved seeds as a “silver bullet” for increased production and better food security overlooks the fact that the challenges of development agronomy are “wicked problems’, to which there is no single solution” (Fraser, 2017, p. 139).

The framing of the NERICA projects in the Tanzanian Ministry of Agriculture articles is a good illustration of the Seed Capitalist discourse, and its lack of nuance. The Africa Rice Centre (which developed NERICA) has itself identified numerous constraints to adoption:

- Some farmers do not experience any yield increase from NERICA;
- Strong early vegetative growth “was not confirmed [...] in field visits”; and
- Early maturity “can lead to massive bird damage if only a few farmers grow NERICA in a locality” (CGIAR Science Council, 2008, p. 100)
- The shorter straw performs less well as animal feed or for other purposes such as roofing. (CGIAR Science Council, 2008, p. 100)

This illustrates that “improved” varieties are not always optimal from a smallholder perspective. Agricultural development interventions often fail to take into account additional uses of existing crops (Bazuin, Azadi, & Witlock, 2011).

The multiple social and livelihood dimensions of smallholders are ignored, including the dimensions of drudgery in general (Silva & Ramisch, 2018), additional work for women specifically (Boserup, 1970, as cited in Pedersen, 2015), and barriers to access to land (Teveli, 2017) and financing for women (Teveli, 2017a). NERICA’s short straw “implies bending over by women harvesting rice by the sickle and is more painful and difficult than for long straw” (CGIAR Science Council, 2008, p. 100). Lodin et al. (2012) found that while households adopting NERICA in Uganda became better off economically, this was at the cost of an “extreme labour burden” in bird scaring and weeding that was diminishing the wellbeing of women and children.

It is also doubtful whether the program would be sustainable if government subsidies were not involved: “availability of (cheap) NERICA seed (requiring government support if the private sector is not performing) is a condition for adoption and growing” (*ibid*). Further, little is currently known “about the economics of production and marketing along the [rice] value chain” (Nkuba et al., 2016, p. 74). This includes a lack of “information on prices, marketing margins, extent of competition, [and] production costs”, which makes “value chain upgrading recommendations challenging” (*ibid*). Efforts to disseminate NERICA more widely seem

unlikely on their own to lead to increased production, food security or improved livelihoods.

Political issues are rarely mentioned in this narrative, including opposition to plant breeders' rights, support for farmers' rights, and disputes over access to land (see eg. AGRA, USAID, URT). In the Tanzanian account, farmers' rights are framed as a "counter-balance" to plant breeders' rights (URT, 2009a, p. 6). This accords them more power than they currently have in Tanzanian (and international) law, and obscures the extent to which they are in fundamental tension with legal formulations of plant breeders' rights under UPOV. The document states that "the government has initiated a process of enacting a law on access and use of plant genetic resources where all matter related to farmers rights will be captured" (p. 6). This obscures the significant socio-political conflict involved, and privileges the UPOV system over the ITPGRFA, particularly as no such legislation has been forthcoming in the intervening years. It is only in a later section of the document that the ITPGRFA is mentioned, despite the fact that it anchors farmers' rights in international law.

With respect to the UPOV model, the Tanzanian government selectively cites evidence from two countries, China and Argentina, to support the statement that "many countries that have joined UPOV have reported increases in plant breeding activities with direct effects upon their agricultural and horticultural industries [...] [including] increased investments in agriculture" (URT, 2009, p. 9). The document does not specify that these two countries adhere to UPOV 1978 rather than UPOV 1991. It does not cite any evidence from UPOV 1991 countries, and does not mention counter-examples such as India, Malaysia and Thailand which have adopted *sui generis* approaches outside the UPOV system (ACBIO, 2016a). India initiated the procedure to join UPOV in 2002, but the government did not move forward owing to public backlash (UPOV, 2017; Peschard, 2017). India's domestic legislation recognizes farmers as plant breeders, and gives robust protection to farmers' rights, including being the only country in the world to recognize a farmer's right to sell seed of a protected variety (ie. in which someone other than the farmer holds the protection rights), as long as a generic label is affixed to the seed (Peschard, 2017).

[Coalition 2: Seed Sovereignists](#)

[Tanzania Organic Agriculture Movement \(TOAM\)](#)

The Tanzania Organic Agriculture Movement (TOAM) is a Tanzanian registered non-governmental organization formed in 2005, serving as an umbrella organization to coordinate

and promote organic farming, “a crucial factor for sustainable livelihoods” (TOAM, n.d., para. 1). Its “115 members include [...] farmers associations and cooperatives, NGOs, organic operators, companies, distributors, researchers and trainers” (*ibid*, para. 2). While critical of seed-related criminal penalties, TOAM is focusing its efforts on lobbying for expansion of QDS.

TOAM commissioned the Sokoine University of Agriculture to prepare a report on FMSS, including QDS, in Tanzania; Prof. Joseph Hella led the study (TOAM, 2015). The findings were also shared at a National Seed Symposium held at Sokoine in December, 2017 (Boustred, 2017). Sources for the study included smallholder farmers, QDS producers, district authorized seed inspectors, and local government authorities (TOAM, 2015, p. iii). 240 smallholder farmers were interviewed from eight different agro-ecological zones, based on random sampling (*ibid*, p. iii).

Affordability and availability were reported as the top two benefits of the FMSS (p. iv). Perceptions of reliability of FMSS seed varied from a high of 80% of respondents on one region agreeing they were reliable to a low of 50% in another region (p. iv). A significant majority of smallholders (at least 70% to 97%, depending on the region) were advised by extension officers “to use seed from the formal system” (p. iv). Challenges reported were “difficulties in getting seed when crops fail (43%) and pests and diseases that destroy seeds especially during storage (26%)” (p. iv). Notably, “over 80% of farmers indicated that training on seed production from their own saved seed would solve most of the challenges they face” (p. iv).

The TOAM report refers to the “formal” seed system without defining it. The informal system is said to “focus on farmer management of local varieties which have been selected over time and produced under local circumstances” (p. 10). Contrary to the Seed Capitalist discourse, this narrative speaks of the value of informal system seeds: “the varieties will have special attributes e.g. taste and nutrition that give the varieties added value within the community” (p. 10). Rather than seeing the informal system as needing to give way to the formal, local “seed selection and community plant breeding” are seen as foundations of food security (p. 11). The report also portrays smallholders as active agents with a long record of developing improved seed: “for many generations past, in collaboration with nature, our parents have selected and improved those seeds” (p. 11). Such seeds are not “products”, but constitutive of culture and knowledge: “From our understanding and use of these seeds constitute our cultural belief and traditional knowledge” (p. 11).

The report concludes that “generally FMSS remains the main reliable, affordable and widely used source of seed to most of the farmers in all agro-ecological zones” (p. v). It encourages the government to “revive production of [...] QDS as an approach towards widespread use of improved seeds in Tanzania” (p. v). There is concern that farmers’ rights are being eroded, and scepticism that the amended seed legislation does not affect smallholder interests: “Senior government officials claim that the new legislation is aimed at the ‘commercial’ farming sector and will not impact smallholder farmers” but threats to smallholder farmers include “exclusion from access to the benefits of improved seeds” and “gradual weakening of the rights of small farmers” to exchange seeds (p. 51). While acknowledging challenges with FMSS, including poor yield and disease, the report argues that “handling such challenges [is] easier for smallholder farmers than opting for formal seeds which [are] expensive, unavailable and in some cases unreliable” (p. 53). This narrative portrays the informal seed sector positively as a more efficient means of distributing improved seeds to smallholders: “the FMSS provides the most effective way of disseminating improved seeds quickly and efficiently to the nation’s smallholder farmers” (p. 3).

TOAM subsequently developed an advocacy policy brief with recommendations for policy reform (TOAM, 2016). The document calls on the Tanzanian government to amend the *Seed Act, 2003* “to provide exemptions [...] for all use of farm saved seed by smallholder farmers”, pointing to Ethiopia’s 2013 Seed Proclamation (TOAM, 2016, pp. 1 & 3). Further, the *Plant Breeders Rights Act, 2012* should be amended “to permit smallholder farmers to save, share and exchange protected seed varieties” (TOAM, 2016, p. 2). The document asserts that Tanzania’s seed laws “have been changed to boost private sector investment in the seed industry” (p. 1) and “to increase control of commercial producers over seed varieties by criminalizing seed selling and strengthening intellectual property rights” (p. 2). TOAM maintains that “favouring of the ‘formal’ commercial seed sector is weakening smallholder farmers’ core rights to save, share, exchange and sell their seeds” (p. 1). The document states that “the formal seed sector is not working for farmers” because it is inaccessible; slow; risky (owing to fake seed); and costly, with most farmers being unable to afford the seed (p. 2). The document alludes to the relative lack of political power held by smallholders and civil society organizations: “Attempts by farmer associations and CSOs to review the legislation have been ignored” (p. 2).

In 2016, TOAM released the short film “Seeds of Freedom Tanzania” (in Kiswahili, with English subtitles), sharing “the reality of the mainstream farmer-managed seed system in Tanzania” (Global Justice, 2016, para. 5). The film follows Mathias Mtwale, a QDS seed producer from the Kongwa district, “as he meets with farmers, researchers, seed suppliers, regulators, and legislators” (*ibid*, para. 3). Mr. Mtwale suggests that QDS seed is well-adapted to current conditions: “thanks to this seed the farmers have at least got some maize. Because this seed endures drought”. Mr. Mtwale regrets that his sales are restricted to his ward: “we find that the law that says we can only sell in this ward it has been hard”.

Mr. Mtwale is sceptical about AGRA, and the extent of government support for QDS: “There has been this government policy on a “green revolution”. Big government programmes but I’ve read the ‘Agriculture First Strategy’. It does not mention QDS. I think the big agricultural corporations and business interests have inserted their own ideas for their own interests”. These concerns are not without foundation – there is some evidence that in neighbouring Malawi, a Monsanto official was one of two authors of the government’s draft seed policy (Wise, 2017). Stanislaus Nyembea of MVIWATA is also interviewed in the film, and echoes Mtwale’s concerns: “With time the farmers will have lost their traditional seeds. They will not have disappeared but they are protected by those who ‘discovered’ or improved them in some way”. This in turn he sees impacting smallholder livelihoods: “Later on the price may be so high that farmers can’t afford it. Then you’ll be given seed, grow your crop and pay for the seed when you sell your harvest. You will in effect be working for others rather than improving for the smallholder farmer”. This challenges the Seed Capitalist portrayal of improved commercial seeds (particularly hybrids) as a panacea for smallholders.

HIVOS

Hivos, a Dutch humanist development NGO, is running a two year multistakeholder open source seed program (2016 - 2018) in Uganda, Kenya and Tanzania (Hivos, 2015; Hivos, n.d.). Hivos builds “global alliances with like-minded organisations such as Open Source Seed Initiative US and Apna Beej India” (One Planet, 2017, para. 4). The program in East Africa, in collaboration with national and local governments, extension services, communities and the private sector, seeks to assist 150,000 low-income farmers by “increasing the availability and diversity of climate-smart varieties of four important crops: beans, forage legumes, finger millet and sorghum” (Hivos, n.d., para. 2). One of Hivos’ partners in Tanzania is TOAM (Hivos,

2017). Open source smallholder seed systems can coexist with UPOV 1991, as long as seeds in the open system are free of plant breeders' rights. By definition open source seed breeders do not seek plant breeders' rights. Farmers' varieties that have intermixed with protected improved seed could not legally or practically be included in such a system, however. Their inclusion would require licensing and/or authorization from the rights' holder, and those rights would trump any subsequent pledge of open access or open global licensing. At least some improved seed (including hybrids) would no longer be under protection, which lasts for 15 to 20 years, depending on the applicable legal regime.

Hivos is critical of public-private seed-related partnerships: "governments, research programs and extension services seek collaboration with the private sector to make improved seed available. However, profit driven companies do not develop products for resource poor farmers" (Hivos, n.d. a, para. 2). Hivos also criticizes seed-related intellectual property protection: "Patenting further supports private companies asserting exclusive ownership over seeds and thereby extracting them from the commons" (para. 2). Rather than framing the situation as one in which smallholders lack improved seeds, Hivos suggests that what farmers lack is support for their own seeds: "Very little is undertaken to support farmers in keeping their seeds healthy and enabling them to contribute to diversity and resilience" (para. 2). This is consistent with the feedback given to TOAM by Tanzanian smallholders.

Hivos argues that open source seed systems can increase on-farm diversity leading to "protected commons" (para. 3). However, in addition to the risk of breaching plant variety protection law, open source seed is at risk of misappropriation. The document glosses over this problem: "Registration and sharing mechanism [sic] through pledges, licenses or other forms of contracts defining general business terms and conditions are important tools to create the necessary moral, ethical and legal protection" (para. 3). Open source seed licences are legally untested as a form of protection. Pledges are unlikely to ground more than a moral obligation. Recovery of breeding investments would depend on sufficiently profitable seed sales (Bjornstad, 2016), public sector support, or philanthropy.

Hivos states that open source seed systems "expand the pool of genetic resources for conditional use by scientists, farmers and gardeners now and in the future" (para. 3). The existing international regime for protection of plant genetic resources for food and agriculture is not addressed. The document is also silent regarding the breeders' exemption in UPOV (both 1978

and 1991) which permits breeders to use protected varieties for breeding purposes without the prior authorization of the rights holder. Hivos speaks of a need to ensure “freedom of access to seeds” (para. 4), without clarifying the nature of the conditions of access (“conditional use”) it has in mind.

The open source seed projects being implemented in Tanzania, as well as Kenya and Uganda, receive funding from the Open Society Foundation, and the FAO benefit sharing fund (Hivos, 2017a). Detailed information on the mechanics of these projects, or in what way(s) they can be considered “open source seed” initiatives, is not provided. The source and type (hybrids / OPVs / QDS / farmer varieties) of “high quality seeds of climate-smart varieties” is not specified (Hivos, n.d., first bullet under the heading “Open Source Seeds Systems’ objectives”). No information is provided as to the financing model for the project, aside from a vague reference to “identifying and marketing channels with supportive financial services to disseminate best [...] varieties” (Hivos, n.d., 2nd bullet under the heading “Open Source Seeds Systems’ objectives”). This makes comparison to QDS and public sector approaches difficult.

[African Centre for Biodiversity \(ACBIO\)](#)

The African Centre for Biodiversity (ACBIO) was formed in 2003 in Johannesburg “to inform and amplify the voices of social movements fighting for food sovereignty in Africa” (ACBIO, n.d., para.1). ACBIO promotes seed sovereignty and opposes corporate expansion in African agriculture, in addition to opposing genetically modified organisms (ACBIO, n.d.). ACBIO sees “the encroachment of corporate laws and policies into African seed systems” as a threat to FMSS and a transition to agro-ecological farming (ACBIO, n.d., para. 5).

The term “informal seed system” is rejected on the basis that it is “used by proponents of the Green Revolution to imply something that is sub-standard and that must be ignored, radically overhauled, [...] eradicated altogether” (ACBIO, 2016, p. 4). The term “farmer-managed seed systems” (FMSS) is preferred, in recognition of farmers as “the primary agents in these systems” (p. 4). ACBIO’s view is that “farmer control over material resources and processes should be [...] protected” and that farmers should be treated as equal partners (p. 4). ACBIO characterizes seed, and plant variety protection, laws “as a threat to the livelihoods of farmer households, and to biodiversity and ecological sustainability” (*ibid*).

In the document “Nuanced rhetoric and the path to poverty: AGRA, smallscale farmers, and seed and soil fertility in Tanzania” (2015), ACBIO examines “the impacts of Green

Revolution (GR) technologies” and “the work of AGRA” on smallholder livelihoods and ecology, with a particular focus on seed and soil fertility (p. vii). The document is based on a three-year research project, which included a survey of 60 farmers (61% women; 33% youth; 4 landless households) in two agro-ecological zones, the first in the mountains of the Northern Highlands and the second “in undulating hills with relatively fertile soil” within the SAGCOT footprint (p. viii). The respondents “relied on a mix of agricultural production, seasonal or temporary wage labour (mostly in the agricultural sector), and small businesses for their livelihoods” (p. viii).

ACBIO describes the GR vision as “a production system in which farmers large and small have access to the latest technologies, financed through the profitable production and sale of commodities that meet the requirements of global, regional and domestic markets” (*ibid*). ACBIO criticizes the basis of this vision as “an ahistorical, linear view of development” which assumes that “agricultural modernization is the precursor to industrialization and hence prosperity” (p. vii). ACBIO emphasizes that “Africa occupies a subordinate position in an already existing global structure of accumulation”, and questions the assumption that “Africa will follow the development path of Western societies” (p. vii).

ACBIO suggests that the “practices inherent in farmer seed systems” are “agro-ecological”, and that such systems “present an existing, viable and coherent alternative to the corporate-industrial capture of African seed systems” (ACBIO, n.d., para. 6). Its platform includes opposition to hybrid seeds, “because they reduce farmers’ ability to recycle seed if they choose, and hybrids are generally heavily reliant on synthetic fertiliser and irrigation” (ACBIO, 2015, p. xx). In ACBIO’s view, hybrids are connected to inequality, as “it is the relatively wealthier farmers who favour hybrids” (p. xx). Logically, this is a better foundation for opposition to inequity, rather than hybrids themselves. ACBIO acknowledges that hybrid maize and improved OPVs produce higher yields than local varieties, but emphasizes that a low percentage of farmers use improved seed in Tanzania, owing to access and affordability barriers (ACBIO, 2015, p. ix). ACBIO does not fully reconcile its promotion of FMSS and opposition to hybrids with evidence of low relative crop yields in Sub-Saharan Africa, the need to increase crop productivity in the region, and strong evidence that improved varieties can be an effective means to do so (Hillocks, 2014; OECD-FAO, 2016; van Ittersum et al., 2016; Komarek, Koo, Wood-Sichra, & You, 2018; Droppelmann, Snapp, & Waddington, 2017; Trimmer, Bauza,

Byrne, Lardizabal, & Guest, 2017; Spielman & Kennedy, 2016).

There is indirect acknowledgement that farmers' varieties are not sufficient - while ACBIO promotes "the revival and use of indigenous/farmer varieties", it also recommends "the use of public sector germplasm and farmer varieties for seed enhancement/improvement" (ACBIO, n.d., para. 6). In other words, ACBIO implicitly acknowledges that for FMSS to be viable alternatives to corporate approaches, public sector involvement and scientist-bred seeds are also needed. In this Seed Sovereignist discourse, however, the interaction is seen as mutually beneficial, rather than a one-way "improvement" of farmers' seed, as such varieties "already contain within them germplasm adapted for local conditions" (p. xix).

ACBIO argues that the distinction between certified and uncertified seed is blurred in Tanzania, given "official advice [...] to recycle improved OPV rice for at least four seasons" (2015, p. xviii-xix). ACBIO states that "a similar situation applies to [...] improved OPVs", which are "closely related to local varieties", as "they are mostly a mixture of local varieties with [CGIAR] germplasm" (p. xix). ACBIO expresses concern that this beneficial diffusion of traits might be disrupted by private ownership (p. xix). In ACBIO's view, "once a seed enters circulation it should be considered part of the farmers' asset base to nurture and grow [...] for local use and even commercially, if acceptable standards are met" (p. xix).

ACBIO does not oppose the sale of farmer seed, but privileges "local exchange/markets for seed produced by farmers" (ACBIO, n.d., para. 6). The organization opposes subsidy programmes, depicted as "creating subsidised markets for multinational corporations" and being "largely ineffective, social transfer schemes that create dependency" (ACBIO, n.d., para. 9; ACBIO, 2016b, p.4). ACBIO is concerned that "disregard for farmer-managed seed" will lead to erosion of landraces critical to agricultural biodiversity (ACBIO, 2016a), p. 9). Exemptions for farm-saved seed, like those in Ethiopian law, are promoted, as is "expansion of the QDS system to the district level" (ACBIO, 2016a, p. 15).

ACBIO argues that agricultural intensification will result in "social dislocation and marginalisation", as well as "long-term ecological damage to soil, water and biodiversity" (2015, p. vii). In contrast to Seed Capitalist characterizations of land in Tanzania as abundant, ACBIO highlights growing land access issues and states that insecure tenure leads to limited investment in soil health (p. viii). Concentration of land holdings will worsen tensions between pastoralists and crop growers (p. viii). ACBIO criticizes AGRA's failure to consider those who will lose

their land and its privileging of formal titling for commercial production at the expense of customary land tenure systems (p. viii-ix).

ACBIO's narrative, unlike that of the Seed Capitalists, incorporates input from smallholders themselves, even when it contradicts ACBIO's preferred policies. The document shares that smallholders interviewed for the report reacted positively to GR interventions such as synthetic fertiliser, although they couldn't afford it (p. xii & p. xv). ACBIO acknowledges that Green Revolution interventions are not necessarily coercive: "Nowhere did we get the sense that farmers were being compelled to adopt the technologies on offer" (p. xv). Nevertheless, ACBIO calls for ongoing longitudinal study to track "the longer-term impacts of the increased use of GR inputs on biodiversity, soil life, water systems and social equality" (p. xv). ACBIO is confident that this will make "the connection between growing landlessness, the necessity of precarious labour, ecological damage, and the adoption of these technologies [...] apparent" (p. xv).

Describing non-certified seeds as "the lifeblood of Tanzania's farming systems", ACBIO opposes UPOV 1991 (p. xvii). It argues that "alternatives that start with protecting and expanding contextual diversity, participatory R&D and shared ownership" need to be developed (*ibid*). ACBIO views QDS as "a good starting point" that "should be supported and expanded with farmer involvement" (p. xvii). ACBIO opposes germplasm ownership transfer from the public to the private sector, as sometimes currently happens in Tanzania (p. xvii), opposes "private ownership of germplasm", and "the effort to privatise the gene pool and criminalise the fundamental right" of farmer seed exchange (p. xxi; p. xxiii).

While supportive of QDS, ACBIO ultimately promotes an open source model: "all products that derive from a shared resource pool should be replaced in that resource pool, for further use by anyone who chooses, on condition that they agree to these terms" (p. xvii-xviii). ACBIO asserts that "open access germplasm is essential for the democratic control of production" (p. xx). Open access would be conditional on modifications "being freely available to others on the same terms" (p. xxi). ACBIO argues that seed companies can still profit in an open access model. Essentially, their argument is that if Seed Company A brings a new variety to market in high quantities, the time and money that it would take for Seed Company B to reverse engineer the new line would exceed the competitive rent left in the market. Further, they say, commercial farmers will continue to purchase fresh seed, for the sake of quality, so leakage to smallholders is inconsequential. Like Hivos, ACBIO does not address the misappropriation risk

inherent to an open source system operating in parallel to plant variety protection and patent laws.

ACBIO is critical of ISSD, on the basis that it “offers platitudes to farmer managed seed systems” but in “its practical work is oriented towards building the commercial sector – by taking advantage of the positive features of farmer-managed systems”” (p. xix). ACBIO advocates turning “the ISSD concept around” to “see the possibilities of connecting the two systems to the benefit of farmers – e.g. public sector germplasm and R&D, and seed enterprises (which can be profitable without being profit maximising)” (*ibid*). ACBIO sees improved OPVs as “a potential key point of intersection between commercial and farmer-managed systems” (*ibid*).

An image promoting seed sovereignty is displayed on ACBIO’s website (Figure 10). The central theme is farmer control over and centrality to their seed systems, framed in rights-based language: “you as a farmer are seed sovereign if you have the right to: [...]” (*ibid*). The list of rights includes “the right to participate” in a wide range of seed-related decisions, including breeding, standards, pricing, production, distribution and diversity. The right to customary practice, “especially in regard to indigenous seed” is also included. A right of “access to seed” is claimed, with important details unaddressed, such as access to what seed, and on what terms. A right to be “protected from being sold fake and inappropriate seed” is included, the broad term “inappropriate” remaining undefined. The right to a “true choice between the use of certified seed and seed from farmer managed seed systems” connects with opposition to the AGRA approach and to failures to exempt farmer seed from seed legislation. It may also provide a link to broader underlying issues of social and economic inequity. Finally, countering the Seed Capitalist narrative which privileges breeders’ rights, a right to “enforce your farmers’ rights and that these are not lower in status than breeders’ rights” is put forward. This alludes to the challenge that most ITPGRFA states have had in implementing legislation that is also consistent with UPOV 1991.



Figure 11: ACBIO & Seed sovereignty (ACBIO, n.d.a)

La Via Campesina & GRAIN

The transnational peasant movement La Via Campesina (LVC) was founded in 1993 by farmers from four continents concerned about globalized agribusiness and currently has 182 member organizations from 81 countries (LVC, 2018). LVC frames seed as the fourth resource after land, water and air (Kloppenburg, 2010a). LVC believes that “multinational corporations are using IPR to take over all of the world’s seeds. Whoever controls the seeds controls the right to food, food sovereignty, and the political sovereignty of the people” (2013, p. 1). GRAIN, an international non-profit organisation and LVC ally, opposes the reification of seeds (including any legalization of seed reproduction), arguing that seeds are social and ecological relations, not things (Montenegro de Wit, 2017; Westengen, 2017).

In 2015, LVC and GRAIN (referred to here as LVC) jointly produced the booklet “Seed laws that criminalise farmers: resistance and fightback” (LVC, 2015). LVC reformulates key terms and definitions in its effort to counter Seed Capitalist narratives. Rather than “informal/traditional seeds”, LVC speaks of “peasant varieties” or “peasant seeds”. The definition emphasizes the positive characteristics of peasant seeds, the active role of smallholders in their creation, and locality: “Peasant seed refers to crop seeds developed by small scale peasant farmers under local conditions to suit local needs” (p. 46). An agroecological dimension is emphasized: “they are usually well adapted to being grown in polycultures, not needing external resources, faring well under local soil and climate conditions” (p. 46). Collectivity is another aspect: “they are often selected collectively by communities, families, or associations of

farmers”. They are described as “normally shared and exchanged” but may also “be sold or bartered” (p. 46). A key exclusionary criteria is that “they are never subject to intellectual property” (p. 46). Peasant seeds are said to be “the opposite of industrial varieties” (p. 46).

The key definitional element for “industrial varieties” is the purpose for which they have been created, and their link to a need for financing: “industrial varieties refers [sic] to seeds that are developed for industrial agriculture. This usually means seeds that require high-tech growing conditions and external inputs such as fertilisers, pesticides and well-timed irrigation, which in turn require access to credit” (p. 46). The connection between their characteristics and the priorities of industrial agriculture is underscored: “usually, these are varieties that are bred to be grown in monocultures, harvested by machine, to be shipped long distances and to be long-lasting on the shelf or in the warehouse” (p. 46). The developers of industrial seeds are “corporations, which patent them or claim plant variety protection on them, or [...] national research institutes which may also obtain property rights on them” (p. 46). Hybrids are defined as a form of “industrial seeds that, if grown with external inputs in recommended conditions, will produce a big harvest in the first year but not in the following years, making them unsuitable for seed saving” (p. 46).

When defining “intellectual property laws”, LVC challenges the Seed Capitalist narrative that they “incentivise the development of well-performing agricultural industries” (LVC, 2015, p. 46). Rather, such laws lead to “monopolies, monocultures and repression”, allowing companies to charge farmers royalties and forcing farmers to buy new seeds every year (p. 46). Most seed laws, according to LVC, “are rewritten by the industry in order to promote their own industrial ‘improved’ seeds, and to ban farm seeds” (p. 7).

LVC resists and rejects corporate interference with an agrarian way of life that Seed Capitalists consider “impoverished”. Seeds are crucial to this resistance: “seeds have also been the basis of productive, social and cultural processes that have given rural people the resolute ability to maintain some degree of autonomy and to refuse to be completely controlled by big business and big money” (p. 4). LVC spurns the Seed Capitalist narrative of bringing life-saving technology, in the form of improved seeds, to struggling communities. Seed Capitalist actions are framed as strategies of control, a “conquest” that includes “agricultural research and extension programmes, the development of global commodity chains, and the massive expansion of export agriculture and agribusiness” (p. 4 & p. 7). LVC argues that “there is no possibility to

negotiate, make concessions, or reach common agreements that would allow the different interests to co-exist peacefully”, on the basis that “large transnational companies have no limits” and seek “to make it impossible for farmers to save seeds and to make them dependent on purchased seeds” (p. 6).

LVC claims that “patents currently allow the privatization of all gene bank-saved seeds as well as those on the farm” (LVC, 2017, para. 3; Van de Wiel, Lotz, Bakker, & Smulders, 2016, p. 10).⁶ Public germplasm cannot come within private ownership unless the public sector owners agree to this. Most rice and wheat germplasm remains freely available to breeders and farmers (Bjornstad, 2016). Public breeding remains important for some types of crops, such as wheat, in respect of which biotechnology tools are less commonly used (Byerlee, 2010). In LVC’s discourse, however, governments are not defenders of the public interest but the co-conspirators of corporations: “governments and companies use strategies of secrecy and lack of transparency precisely because they know that an informed citizenry will clearly reject the privatisation of seed” (p. 44). LVC seeks to ensure that “as many people as possible, especially in the villages and rural communities that are most affected, understand these laws, their impacts and objectives”, but also that they understand “the capacity of social movements to replace them with laws that protect peasants’ rights” (*ibid*). For LVC, “what is at stake is the very basis of our ability to remain in the countryside” (p. 44).

While acknowledging that “seed quality is a real problem in Tanzania”, LVC (2015) argues that “this is primarily a problem for the seed industry whose market share is threatened by fake seed dealers” (p. 19). Peasant farmers are not threatened “because people in the village know each other, and they know where the seeds came from” (p. 19). LVC (2015) states that “it is precisely this type of local sharing and selling of small quantities that will become illegal, as only certified seeds will be allowed on the market” (*ibid*). They note that “under the current law, the government still allows farmers to sell uncertified seeds of a known variety within a restricted area of 2 to 3 villages [...] [but] under the new law, this option will most likely no longer be a possibility” (*ibid*).

Despite reassurances from the government that traditional seed exchange is not

⁶ This may be a reference to the issue of “native trait” patenting, which is currently permitted in the European Union; “native traits” are naturally present in germplasm, and can be patented *if* the “inventiveness” requirement is met.

threatened by the legal amendments, as well as ongoing state support for QDS (Suitbert, 2015, para. 1; Kweka et al., 2016, para.1; Kilimo Trust, 2017, p. 1; Rajendren et al., 2016, p. 1; Nagarajan, 2017, p. 51), LVC maintains that the amended law “is part of a larger project directed against peasant farming and towards the privatisation of peasants’ resources, including land and seeds” (pp. 18-19). To date, it has not been practically or economically feasible for a company to enforce PBR against subsistence smallholders in Africa (De Jonge & Munyi, 2016, p. 37; Coomes et al., 2015, p. 46).

La Via Campesina SEAf

La Via Campesina Southern and Eastern Africa (LVC SEAf) is a regional member of LVC active on Tanzanian issues. It does not have a its own website, but does have a stand-alone Facebook presence (LVC SEAf, n.d.). Nine organizations from eight countries (Angola, Democratic Republic of Congo, Madagascar, Mozambique, South Africa, Uganda, Tanzania, and Zimbabwe) belong to LVC SEAf, including MVIWATA from Tanzania (LVC, 2017a). LVC SEAf sometimes participates with LVC West and Central Africa under the name LVC Africa, for example as a member of the Alliance for Food Sovereignty in Africa (AFSA, 2018). LVC SEAf also acts in its own name, such as its 2017 press release regarding the reports of criminalization of farmer seed exchange in Tanzania (LVC SEAf, 2017, para. 1). The document speaks of this confirming “our fears and what we have been lobbying against: - Alliance for Green Revolution in Africa (AGRA), the New Alliance for Food Security and Nutrition (NAFSN)” and the COMESA and SADC “seed harmonisation regulatory systems” (*ibid*).

In this press release, Tanzania is framed as “the first country in the region to taste [sic?] the waters to see if a mobilisation by the affected will cause widespread social protests, not only there but in other African countries” (para. 2). Consultations with smallholder farmers are described as “very limited” and “last minute”, and as being held only “following an outcry by the Civil Society Organisations” (para. 1). LVC SEAf states that “if protests fail to take root, then we will see similar wholesale pronouncements by other governments [...] setting the stage for blanket criminalisation of peasant seed exchange systems” (para. 2).

Elizabeth Mpofo, General Coordinator, LVC is quoted: “smallholder farmers and their allies must respond strongly. We will use all avenues open to us including engaging our governments internationally at UN agencies in Rome and Geneva” (para. 3; LVC, 2016). She outlines a strategy built around “the emerging healthy food movement and the debates around

climate change”, stressing “the need to reach out to the fast growing urban population, the big market and battle ground which big food corporations are trying to capture” (*ibid*). She says that “everyone wants a clean environment and good food. So we will use this to talk to our urban counterparts since our traditional seeds and agroecological farming methods are the only ones that can meet this new demand” (*ibid*). Consistent with TOAM and LVC narratives, peasant farming is portrayed as a viable alternative to commercial systems, without addressing productivity issues. While not explicitly mentioned here, proponents of agroecology sometimes contend that increased production is not needed, “referring to calculations that theoretically 29% more food per person is available today compared to the 1960s [...] enough to feed nine to ten billion people” (the projected population in 2050) (Bernard & Lux, 2017). They also contend that increased production alone will not solve hunger problems, owing to distributional and social inequities, and in some cases may worsen hunger through lower prices and destabilization of local agricultural systems (*ibid*).

Another theme is a shift in accountability of governments from the electorate to corporations: “Africa has entered a new phase whereby its investment hungry governments will be accountable to private companies which do not have in mind the interests of the local communities” (para. 4). The press release argues that Tanzania’s actions contravene A.9 of the ITPGRFA “which affirms no law(s) should ‘limit any rights that farmers have to save, use, exchange and sell farm-saved seed/propagating material’” (para. 6). This overstates the strength of A. 9 as significant caveats to its scope have been omitted: its terms are subject to what states themselves deem to be appropriate. Seed exchange is presented as “a key aspect of building an alternative to industrial food system through food sovereignty”, and the “industrial food system” itself is characterized as going “against our culture which promotes family, kin and community ties which are strengthened by such exchanges” (para. 7). The closing theme refers to a need to safeguard “Africa’s genetic biodiversity and rich culture and value systems” (para. 9).

In June, 2018, LVC SEAf issued a five-page open letter to the SADC and the EAC (both of which include Tanzania) on “Climate Justice and Peasant Agroecology” (LVC SEAf, 2018). The organization criticizes public-private agricultural partnerships (PPPs) for undermining policy and advancing “profit-driven interests at the expense of [...] communities” (p. 3). LVC SEAf suggests that national agricultural research budgets have been deliberately underfunded to facilitate PPPs. In a paragraph addressing resource grabbing, the organization reiterates its

concern regarding harmonization of seed laws “that make it illegal for peasant farmers to exchange, sell and in some cases even save their own traditional and indigenous seeds” (p. 3).

The letter makes numerous demands, including for recognition, adoption and promotion of peasant agroecology “as a viable alternative to industrial agriculture” as well as rejection of so-called Climate Smart Agriculture, an “externally driven false solution” (p. 4). LVC-SEAf seeks “people-centered Agrarian Reforms”, holistic agricultural training (centering peasant agroecology), and farmer-led research centres (p. 4). These elements are the antithesis of the AGRA and New Alliance vision.

Hallmarks and weaknesses of the Seed Sovereignty Discourse

Seed Sovereignty narratives generally oppose the application of any type of intellectual property law to seeds, including UPOV 1991, and any type of seed certification law, on the basis that such laws fundamentally contradict farmers’ rights (in the language of the ITPGRFA) and/or peasant rights (in the language of LVC). They do not oppose the buying and selling of seed, but object to the notion of a seller having any ability to continue to profit from or control seed after the buyer has taken possession. In the Seed Sovereignty narrative, farmers’ rights and breeders’ rights cannot be reconciled, and deep scepticism and mistrust is expressed not only with respect to AGRA and the New Alliance but also to the Seed Pluralist project, including ISSD. Seed Sovereignists point to the fact that “most countries that are contracting members of the [ITPGRFA] have been unable to domesticate it due to conflicts with UPOV 1991” (ACBIO, 2016a, p. 19).

There is some divergence between Tanzanian Seed Sovereignty narratives and that of the transnational peasant movement LVC. Whereas LVC advocates for a peasant seed regime that is free from any government restriction, TOAM seeks extension of the QDS legal framework to allow sale of QDS beyond the ward level. This may be due in part to restrictions on freedom of speech in Tanzania (Hyden, 2016; Freedom House, 2017). Many civil society organizations in Tanzania “adopt a consciously non-confrontational strategy with government in order to improve their chances of influencing policy” (TADREG, 2013, p. 63), and this may inform TOAM’s focus on QDS and seed certification law, rather than plant breeders’ rights. This is speculative, however, and warrants exploration in future research.

The regional actor ACBIO opposes forms of legal ownership in seed, but supports calls for expansion of the QDS system in Tanzania. Both ACBIO and HIVOS call for open source

models, without addressing the risk of misappropriation if operating in parallel to plant variety protection and patent systems. Open source licences and pledges are legally untested, and may not be sufficient to prevent “parasitic behaviour [...] from entities that take from the commons without contributing back improvements or making alternative donations” (Timmermann & Robaey, 2016, p. 295). LVC opposes open source as still involving, in its view, a form of ownership and legalization of seed to which it is fundamentally opposed. An open source seed initiative in India includes compilation by farmers themselves of data on the characteristics and uses of their varieties (Patnaik et al., 2017). This, and other examples of defensive documentation discussed earlier, may mobilize Seed Sovereigntist support for open source seed models.

The LVC narrative goes to great lengths to assert two rigidly distinct categories of seed (peasant seed and industrial seed) without acknowledging “creolized” seeds. Creolized varieties “contain the germplasm of [...] traditional varieties crossed with commercial seed” (Fenzi, Jarvis, Reyes, Moreno, & Tuxil, 2017, p. 60; Aistara, 2011). As noted earlier, scientist-bred varieties are often integrated with farmers’ seeds, enriching the genetic diversity. Cross-pollination between the two can also occur naturally (Kool, 2010). Creolized seeds pose a narrative dilemma for LVC’s discourse. LVC seeks to protect FMSS from any incursion by plant variety protection and patent laws. Creolized seed, however, “sometimes incorporate genetic materials from modern varieties” that are protected (Aistara, 2012, p. 130). Acknowledging this could potentially open at least some LVC members to investigation and prosecution under those laws.

The existence of creolized seed also contradicts the definition of peasant seed. Peasant seeds are represented as all that a peasant farmer needs, but if this is the case, then why are farmer varieties mixed with scientist-bred varieties? A recent comprehensive dataset established that smallholder farmers in that study obtained 90.2% of their seed from informal seed systems (McGuire & Sperling, 2016). However, farmers’ own seed was a secondary source, ranging from 28 to 45% of seed sown across six countries, rather than a primary source (*ibid*). The creation and exchange of creolized seeds can play “an important role ecologically [...] because their continuous genetic mixing promotes higher resistance to disease and pests, and renders seeds and plants better adapted to local conditions” (Aistara, 2012, p. 130). To acknowledge this, however, undermines LVC’s rejection of “industrial” seeds.

LVC and HIVOS frame seed systems in a binary manner – collective ownership of seeds is good for smallholders, and private ownership of seeds is bad. Public sector ownership is rendered invisible in this narrative. ACBIO’s narrative acknowledges the possibility of public ownership of germplasm, if it is held fully in the public interest. TOAM’s characterization of seed does not follow the LVC binary approach, and TOAM is not opposed to the sale and use of seeds bred by plant scientists. It does, however, like other Seed Sovereignists, call for an uninhibited farmer right to sell any type of seed, including that containing protected germplasm, without authorization from the breeder or the obligation to pay royalties.

The image put forward by LVC of peasant farmers being fully self-sufficient in terms of seed is contradicted by the narratives of other Seed Sovereignists. Hivos and TOAM both support the provision of extension services to smallholders to provide training on seed selection and saving, consistent with their recognition that not all farmers’ seed is reliable. ACBIO acknowledges that farmers they surveyed expressed interest in learning more about seed production, and “were sure they could produce quality seed themselves if they could acquire the technical knowledge” (ACBIO, 2015, p. xvii).

A central criticism of the Seed Capitalist discourse made by ACBIO is that it “fails to consider the impacts on those who are not able to integrate” into the agribusiness model “but who currently rely on agriculture for their survival” (p. vii-viii). ACBIO’s assessment of the likely impacts of an agroindustrial system on smallholders differs considerably from that of Seed Capitalists: “At best, many farmers [...] displaced by forces of competition and concentration will find poorly paid and insecure work in mines and factories. At worst, they will be left destitute, their historical connection to the land severed [...] without any alternative livelihoods” (p. vii). Reminiscent of Silva & Ramisch’s (2018) call for making the real costs, risks, opportunities and trade-offs more explicit, ACBIO argues that “in order for farmers to have meaningful choices they must receive a range of information that highlights both the pros and cons of different technologies” (p. vii).

Seed Sovereignty narratives can obscure challenges associated with a highly localized model of peasant agroecology. ACBIO does not fully reconcile its promotion of FMSS and opposition to hybrids with the need to increase crop productivity in Sub-Saharan Africa, and strong evidence that improved varieties can be an effective means to do so (Hillocks, 2014; OECD-FAO, 2016; van Ittersum et al., 2016; Komarek, Koo, Wood-Sichra, & You, 2018;

Droppelmann, Snapp, & Waddington, 2017; Trimmer, Bauza, Byrne, Lardizabal, & Guest, 2017; Spielman & Kennedy, 2016). LVC and LVC SEAf argue, however, that increased production in a context of political and economic inequity can destabilize local markets through lower prices, worsening smallholder livelihoods.

There are millions of smallholders in the world who produce agricultural commodities for export “on the basis of relatively equitable land and social relations and sustainable [...] systems” (Edelmann et al., 2014, p. 915). If required instead to grow staple foods for local markets (ACBIO and LVC’s preferred model) they could face plunging incomes (*ibid*). TOAM’s approach is more nuanced, and in keeping with Agarwal’s (2014) questioning of an assumption embedded in ACBIO and LVC framing that all smallholders wish to pursue their livelihoods in a traditional manner. TOAM’s narrative, and the smallholder feedback given to ACBIO, support Jansen’s (2015) observation that collective action by farmers often relates to access to external inputs to increase productivity, “not because farmers have been misled by corporate capital, but because these external inputs have an agronomic effect in their fields” (p. 226).

This is not to diminish the important contributions that LVC has made, including raising awareness of the need for environmentally sustainable agriculture (Agarwal, 2014). The Seed Sovereignist commitment to seed held by collectives has achieved impressive outcomes in some contexts. The well-known 10,000 hectare *Parque de la Papa* (Potato Park) in the Peruvian Andes was established by six indigenous communities who joined together to repatriate hundreds of potato varieties from the CGIAR International Centre of the Potato back to their lands of origin (Graddy, 2013; Iles & Montenegro de Wit, 2015).

That said, members of LVC have themselves acknowledged that its peasants’ rights framing (including a right to collective ownership) has had a weak mobilizing effect and is “somewhat disconnected from grassroots activists” (Claeys, 2015, p. 458). The contradiction of LVC’s agenda by TOAM illustrates “questions of presence and representation [...] that are particularly complex when applied to issues of livelihood and survival under substantial inequality and diversity between peoples and nations” (Agarwal, 2014, p. 1248). The collective mobilization challenge that LVC itself acknowledges, illustrated by the divergence in narrative with TOAM, points to conflicts typical in social movements, “between the particular and the universal, [the] local and global” (Kontinen & Millstein, 2017, p. 75). From the perspective of

Seed Sovereignty activists, the shorter-term collective mobilization failure may be part of a more important longer-term process of redefining culture codes relating to substantive rights and cultural politics (Suárez, 2013, p. 244; Altmann, Demirhisar, & Mati, 2017, para. 14).

Coalition 3: Seed Pluralists

ASARECA & The Royal Tropical Institute (KIT)

The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) and the Royal Tropical Institute (KIT) were commissioned by the Bill & Melinda Gates Foundation to assess Tanzania's seed sector, resulting in the document "Tanzania Seed Sector Assessment: Synthesis Report" (the Synthesis Report) (ASARECA, 2014). KIT is a self-financed non-profit organization promoting the social, economic and political inclusion of all people (KIT, n.d.). ASARECA is a non-profit component of the National Agricultural Research Systems of 11 countries, including Tanzania (ASARECA, n.d.).

A framing these authors shared with the Seed Capitalist discourse is that smallholder access to "quality seed of superior varieties" is critical to growth and poverty alleviation (p. iii). However, they do so by identifying entry points for "Integrated" seed sector development (ISSD) in Tanzania (p. iii). The concept of ISSD is not mentioned in the Seed Capitalist discourse, and is mostly rejected by Seed Sovereignists.

At times, there is a Seed Capitalist tendency to assume that farmers need certified seed: "only 5.3% of the seed used in Tanzania is certified, which doesn't come close to meeting farmers' needs" (p. iii). That said the key recommendations include strengthening farm-saved seed production (p. iv). Further, and contrary to the Seed Capitalist's rejection of uncertified seeds, the document identifies unregistered landraces as being preferred for many crops in ISSD" (p. iv).

The report promotes participatory variety selection involving farming communities as well as the QDS system (p. iv). FMSS are characterized "as timely, affordable and reliable means of delivering seed of reasonably good quality" (p. iv). The main difficulty with FMSS is not quality in this narrative, but the lack of surplus seed, particularly during droughts (p. iv). That said, the report recommends seed extension services for smallholders to "improve the quality of self-supply of seed" (p. vi). This distinguishes the narrative from the Seed Sovereignist discourse, which rejects extension services as an attack on farmer sovereignty.

The narrative describes the distribution of seed by the humanitarian relief system as "an

erratic and unreliable seed supply system, prone to be used as political leverage” (p. iv). The document recommends more support for the private sector but advocates a coordinated ISSD approach. The current situation is described as an “uncoordinated array of efforts between the public, NGO and private sectors” (p. v).

The report recommends building on the QDS system “to ensure quality control of all crops for which seed is sold” including expansion beyond ward boundaries (p. vi). It also points to “local agrobiodiversity as a source for new varieties” and recommends fast-tracking “the registration of popular landraces as official varieties” (p. vi). This would permit formal seed production of such varieties and building linkages between the sectors (p. 25).

The document concludes that “on the whole, Tanzania has a strong legal regime that regulates seed variety release, seed certification, and quarantine and phytosanitary measures” (p. vii). However, it recommends official recognition and support for informal seed systems (p. 34). Concern is also expressed that UPOV 1991 curtails farmers’ rights and adversely impacts the livelihoods and interest~~see~~ of smallholders (p. 35). While published in May 2014, the document does not mention the *Plant Breeders Rights Act 2012* (which came into force in June, 2013), referring only to the 2002 version. One can only speculate how the following passage might have read had the UPOV 1991-compliant version of the Act been taken into account: “By and large, the existing policy and legal frameworks allow the existence of a pluralistic formal (public and private sector) system and an intermediary system, which produces and distributes QDS” (p. vii).

[Centre for Agriculture and Biosciences International \(CABI\)](#)

The Centre for Agriculture and Biosciences International (CABI) has 48 member countries, including Tanzania (CABI, 2018 & 2018a). CABI’s report “Good seed initiative: a strategy for CABI-led work on seed systems in Sub-Saharan Africa and South Asia, 2014 – 2019” includes discussion of QDS in Tanzania (p. 6), as well as the SSTP (p. 12). The document presents CABI’s strategy for strengthening FMSS in sub-Saharan Africa and South Asia (CABI, 2014). Unlike the Seed Capitalists’ focus on primarily hybrid commercial varieties, CABI’s approach is pluralist, encompassing mainly farmer-saved landraces and improved OPVs, but also hybrids (p. 1, p. 16).

While CABI sees a distinction between “formal” and “informal” seed systems (CABI, 2014, p. 5), its conceptualization differs from Seed Capitalism. The main distinction is the degree of regulatory oversight. In formal seed systems, “all parts of the seed production, processing and

marketing chain are subject to regulation, inspection and certification” (p. 5). In contrast, “informal seed systems comprise large numbers of farmers who produce both traditional (landrace) and modern (improved) varieties with no regulatory oversight” (p. 6).

CABI is concerned that policy in developing countries is “shifting away from farmers’ interests, favouring systems that prioritise the interests of plant breeders and seed companies” (p. 7). CABI sees a role for both the formal and informal, a hallmark of Seed Pluralism. It considers that a diversity of strategies ”: a smallholder might purchase maize seed from the formal system, save his or her own legume seed, and obtain millet seed from a neighbour, for example (p. 7). Advantages of informal systems include conservation of local agrobiodiversity, accessibility of locally valued varieties (p. 6) and affordability (p.13). Disadvantages include seed scarcity after droughts, lack of adequate storage facilities, and variable seed quality (p. 6).

In CABI’s view, the majority of seed used by smallholders in sub-Saharan Africa will be “farmer-saved for the foreseeable future” (p. 20). Unlike Seed Sovereignists, CABI indicates that farmer-saved seed is often has poor germination rates and low yields. The cause is said to be poor practice at all stages, including production, selection, harvest, cleaning and storage (p. 20), rather than the germplasm itself. Accordingly, farmer varieties needn’t be replaced by commercial varieties, as the Seed Capitalists would have it – rather, seed-related capacity-building for farmers is appropriate (p. 20).

CABI agrees with Seed Capitalists that low crop productivity is a problem in Africa,” (p. 14). Accordingly “new crop varieties, developed in international and national crop breeding programs [...] with higher yield potential” are needed (p. 15). These include OPVs and under-utilised crops like indigenous vegetables (p. 15). CABI suggests that “public research programmes developing such materials [...] need to find other ways to disseminate their varieties” including “informal or participatory means” (p. 15).

CABI calls for an “enabling environment [for] the development of diverse seed enterprises”, and including “recognition of farmers’ privilege (the right to save, exchange and sell seed even of commercial varieties) for small-scale, farmer-based seed enterprises” (p. 15). Mention of farmers’ privilege, let alone the suggestion of small-scale farmer seed enterprises based on farmers’ privilege, marks this narrative as significantly different from Seed Capitalism. CABI considers that “excessively strict certification and varietal registration” can impede ISSD (p. 15). CABI identifies three approaches that could be adopted– QDS (as implemented in

Tanzania and Uganda) (pp. 5-6; p. 30); truth in labelling; and recognition of farmer-developed varieties (p. 15). India and Nepal permit seeds to be marketed as “truthfully labelled” without having to meet strict certification and registration requirements (p. 15).

The Seed Capitalist discourse portrays private seed companies and public research institutes as the sole sources of germplasm of sufficient quality for plant breeding, portraying landraces as “inferior” varieties that hamper development of demand for commercial improved varieties. CABI, in contrast, suggests that “the traits and qualities” of many farmers’ landraces “would be useful beyond the local area where they developed” particularly in light of climate change impacts (p. 21). CABI suggests that farmers, researchers, regulators and seed companies should work together “in creative new ways”, starting with of seed from farmers’ fields and participatory testing of lines (p. 22). The most promising lines should be developed into “formally recognised named varieties” for commercialization (p. 22). CABI acknowledges that commercialization of landraces requires the development of new intellectual property models to hold rights “on behalf of farmers (or the nation)” to share benefits equitably (p. 22). Otherwise, there is a risk of plant breeders’ rights being “transferred to others to the detriment of the farming communities which developed the landraces” (p. 22). This last point is a key concern for Seed Sovereignists, and CABI does not elaborate on possible models.

In order to make formal seed systems more effectively “pro-poor”, CABI advocates for landrace-based commercialization projects to increase “the capacity of small-scale farmers and small- and medium-sized seed companies” (p. 22-23). While CABI does not define it, the “term has become widely used in the development literature” (ODI, 2004, para. 1). The concept emerged as a “consequence of a deep rooted disillusionment with the development paradigm which placed exclusive emphasis on the pursuit of growth” and trickle-down theory (Pasha, 2002, p. 1; see also Mosley, 2012). Some usages of “pro-poor” carry an overtone of Sen and Nussbaum’s capability approach (see Crocker, 2008; and Fraser, 2017), and CABI’s usage includes this dimension. Food sovereignists object to an “anti-poverty” approach, on the basis that this reduces “the issue of hunger and malnutrition to a humanitarian problem for rich countries to solve” (Bisht et al., 2018, p. 106).

CABI recommends strengthening agricultural value chains to increase demand for quality seed of improved varieties (p. 25). Unlike Seed Capitalists, though, CABI notes that “it is all too easy to swing into a situation of oversupply” (p. 25). This reflects a pro-poor perspective. A key

outcome to be measured is the “number of times during lifetime of strategy when farmers producing seed with project support fail to sell their seed due to oversupply issues” (p. 25). CABI also seeks to stimulate demand for “specific agricultural products grown from seed of improved varieties” in an effort to stimulate dependable markets and “avoid gluts of seed or produce” that would be detrimental to the smallholder producers (p. 25).

Climate Change, Agriculture and Poverty Alleviation in Tanzania (CCAPAT)

The CCAPAT initiative ran from 2012 to 2014 and involved a partnership between five Tanzanian civil society organizations funded by the United Kingdom and Denmark (CCAPAT, n.d.). The initiative sought to influence national policy and local practices towards an agricultural development that reduces poverty and lowers greenhouse gas emissions (*ibid*). The CCAPAT narrative challenges the Seed Capitalist “argument in favour of dispossessing smallholders of their land and creating larger units” held by “larger scale commercial farmers” (CCAPAT, 2013, paras. 4 & 1). The coalition argues that “farm size is not the key determinant of productivity”, based on evidence from Asia (para. 1). Fertiliser and seed subsidy programs for smallholders, like those in Ghana and Malawi, are a better model for increased productivity and welfare than “small enclaves of commercial farmers” (paras. 6-7 & 4). CCAPAT does not address the corruption problems associated with Tanzania’s subsidy program, discussed above.

CCAPAT produced two short videos in Kiswahili, transcribed and translated into English by Eunice Njorge for the purposes of this thesis. The 14 minute video “Solution: climate change, farming and forestry” is set in Kilosa and Chamwino Districts. It opens with a song praising the project, sung by women smallholders: “It has given us education on farming, we have benefited with plenty of harvest: millet, sunflower, and sesame, our expenses are reduced” (CCAPAT, 2015, p. 5). Contrary to the Seed Capitalist discourse, the emphasis is on reduced expenses, rather than increased income. Managing expenses is far more within a smallholder’s control than efforts to increase income, given difficulties accessing markets and price fluctuations. The narrator frames the goal of the project as “poverty alleviation among small scale farmers in Tanzania” and tackling “the challenges of deforestation” ostensibly arising from shifting cultivation (p. 5). This is the first mention of deforestation connected with agriculture in Tanzania in any of the records examined so far. This exemplifies another characteristic of the Seed Pluralist discourse, situating agriculture in a wider societal context.

Like the Seed Capitalist discourse, and in contrast to Seed Sovereigntist narratives, the

documentary emphasizes poor indigenous agricultural practices that need to be “modernized” with the help of “experts”. Unlike the Seed Capitalist discourse, the main emphasis is on improved techniques rather than improved seed. Farmer Ibrahim Malima, states that “when the experts got here, they found us farming recklessly” (p. 5). The techniques taught include digging basins of precise width and depth, and mixing manure into the soil, for seed planting, to reduce soil erosion and increase retention of rain water; mulching with leaves (which previously were burned as trash) to preserve moisture and increase soil fertility; digging trenches to harvest rain water; and planting in rows. Farmers Leonia Mgwama and Laurian Mkuche speak of significant productivity increases achieved through the program’s techniques, using traditional seed (p. 7). The Seed Capitalist narrative also refers to a need for new agricultural techniques, but does not acknowledge that such techniques combined only with farmer varieties of seed (rather than improved OPVs and hybrids) can also lead to productivity gains.

As with the Seed Capitalist discourse, the need for stronger markets is discussed. Ernest Jerome, an agricultural officer with the project, states that “there has been a scarcity of markets for farmers [...] there need to be market strategies which can attract farmers to use these new farming methods” (p. 7). The narrative is ultimately Seed Pluralist in nature, however, as access to affordable seed is seen as a public sector responsibility. Juliana Kilasala, a Chamwino official, explains that the district has “a 100 acre seed farm of quality seeds [of] sunflower, millet and sesame. After harvesting, they are sold to farmers at reasonable prices” (p. 8). A Seed Pluralist acceptance of seed saving and sharing is in evidence – Ms. Kilasala states that “there are 33 villages that [...] are given high quality seeds [...] and these seeds will continue spreading because as one farmer gets, another will get and that way they will spread across the entire village” (p. 8).

The project manager, Elinasi Monga, counters a tendency in some scholarship, and the Seed Sovereignty discourse, “to romanticise small farms and smallholder farmers” (Giller, Andersson, Sumberg, & Thompson, 2017, p.153). He states that many farmers are unaware of when they should plant or what seeds are best suited to their local conditions or how to adapt to drought (p. 8). He calls for collaboration between the public, private and smallholder communities (p.8). The Executive Director of TFCG emphasizes that such collaboration needs to focus on empowering small scale farmers, contrary to the government’s current focus “on helping large and medium scale farmers” (p. 9). This counters Seed Capitalist efforts to

characterize AGRA and SAGCOT projects as being beneficial to smallholders.

The 12 minute video “Chamwino Changes” features interviews with smallholders and local officials in dryland Central Tanzania in the Chamwino District (CCAPAT, 2015a). Unlike the first, it includes English subtitles; I make reference both to Ms. Njoroge’s translation and the subtitles. This film, unlike the first, puts an emphasis on use of improved seed. Mary Mazengo, a ward councillor, says “What I advise farmers is they must first use improved seeds, they should abandon the seeds they used before which were stored from previous harvests” (p. 10). A project participant, Simon Manyangalazi, says that “we have received knowledge and also eliminated hunger, because previously we were just cultivating using traditional crops that don’t resist drought during this period of climate change” (p. 10). Farmer Olipa Ngubesi states that: “We have planned to use improved seeds which we get from the District [the subtitles add: using Quality Declared Seed produced by the District] we don’t use stored seeds” (p. 11). Farmer, Bernandin Mpondi, speaks to productivity gains, saying that he now gets seven to ten sacks from one acre instead of one sack (p. 11). A number of smallholders call on the government to provide them with better farm tools, including hand ploughs, either directly or on credit, and express interest in rearing chickens cooperatively (p. 11-12). This belies other narratives centering on “improved” seed as a singular solution to smallholder constraints.

Hallmarks and weakness of Seed Pluralist Discourse

Like Seed Capitalists, Seed Pluralists consider that African smallholders need to increase their agricultural productivity, in order to stimulate economic growth and alleviate poverty. Access to affordable “quality seed of superior varieties” is regarded as a critical element but in the Seed Pluralist view it needn’t always be certified, given the central concern regarding affordability (ASARECA, 2014; CABI, 2014; CCAPAT, 2015). In Seed Pluralism, uncertified landraces are seen as a good foundation for ISSD programs (ASARECA, 2014). Unlike Seed Sovereignists, there is an openness to the use of hybrid seeds as well (CABI, 2014).

Farmer-managed seed systems (FMSS) are a main point of engagement in this discourse. In contrast with Seed Sovereignty, the variable quality of farmers’ seed is acknowledged but contrary to Seed Capitalist narratives, quality is not characterized as the main problem (ASARECA, 2014; CABI, 2014; CCAPAT, 2015). Rather, the main problem is unreliable production of surplus seed by FMSS (ASARECA, 2014; CABI, 2014). Seed Pluralists recommend seed extension training services for smallholders to improve the quality of self-

supplied seed in contrast to Seed Sovereignists, who generally portray smallholders as all the necessary skill to produce reliable seed.

Seed Pluralists include relief seed systems in their analyses. Neither the Seed Capitalist nor the Seed Sovereignty discourses acknowledge this aspect of seed sectors. For Seed Capitalists, this may uncomfortably highlight the degree of socio-economic inequity and challenge their reliance on Kuznet-based models (see e.g. Ranieri & Ramos, 2013). For Seed Sovereignists, it undercuts the emphasis on peasant self-reliance. Seed Pluralists take an ISSD perspective on the matter, emphasizing the need for better coordination between the public, relief and private seed systems.

The narrative also endorses more support for the private seed sector, unlike Seed Sovereignists. At the same time, Seed Pluralism, unlike Seed Capitalism, recommends expansion of the QDS system, including allowing for sale of QDS beyond ward boundaries. There are calls for expansion of the Tanzanian QDS system from smallholder producers, seed policy researchers, the local seed sovereignty movement led by TOAM, and regional seed sovereignty allies (Kisembo, 2017, para. 1 *et seq.*; ISSD, 2017, p. 7; Farrelly, 2016, para. 10; Haug et al., 2016, p. 380; Mkindi, 2015, p. 4; TOAM, 2015a, p.54; 2015b; 2017, para. 5; ACBIO, 2015), as it can provide smallholders with access to reliable seed that is more affordable than certified seed.

An issue that needs further development in the Seed Pluralist discourse is how to protect farmers' varieties in the absence of robust legally enforceable farmers' rights and collective intellectual property rights. CABI promotes integration of landraces as official varieties, but acknowledges that this might require legislative amendment so as to protect farmers' rights in such landraces. Hue, Jarvis, & Halewood (2016) describe a successful project in Vietnam involving participatory breeding and commercialization of a rice landrace. Supported by local and national government, the 20 smallholder farmers involved in the project formed an association which enabled them to register the new variety, Tamxoan Haihau, for their collective benefit, having also met the DUS criteria.

The Indian legal regime permits registration of farmers' varieties by individual farmers; only three of the four usual criteria (distinctness, uniformity and stability), need be met, while the fourth criteria, novelty, is only applied to plant breeder applications (Andersen & Winge, 2013;

Peschard, 2017).⁷ However, as Peschard (2017) observes, registration can facilitate the identification of useful traits by private companies and it can be challenging to prove that a farmer's variety has been used in the development of a commercial variety. Bisht et al. (2018) conclude that implementing farmers' rights meaningfully remains a challenge in India, and that formal registration of farmers' varieties under the Indian legislation restricts the free exchange of seed that is needed for farmer seed systems to thrive (see also Patnaik et al., 2017). Smallholders in Brazil successfully opposed inclusion of a register for "local, traditional or Creole" varieties in the national seed law in 2003, out of concern that such registration could lead to exclusive ownership rights (Santilli, 2016, p. 340).

An alternative to formal registration under plant variety protection laws that warrants further consideration is the defensive protection of farmers' varieties through rigorous documentation in public databases (Noriega, 2016). The strategy is based on the basic patent principle that voluntary disclosure of an invention places it in the public domain, and renders any identical invention by another actor ineligible for patent protection. This is a way of defeating claims for IPR under UPOV or patent systems, without having to directly participate in those systems (Noriega, 2016). Proactive publication of detailed information about a given farmer variety demonstrates its lack of novelty, making it ineligible for protection via patent, and its lack of distinctness (meaning different from all other existing varieties), making it ineligible for PVP (Halewood & Lapena, 2016; Noriega, 2016). The defensive publication needs to describe the characteristics that distinguish the variety from similar varieties in the community, but need not demonstrate that it is different from all varieties worldwide, as the goal is merely to show that it is a variety of common knowledge (Noriega, 2016). Strategies to ensure that defensive publications are included in the literature searches conducted by IPR examiners need to be developed, ideally including national government support and agreements with intellectual property offices (Noriega, 2016; WIPO, n.d.a).

In the Philippines, smallholders have developed community registries of farmer varieties in order to prevent commercial misappropriation; the registries are supported by joint affidavits sworn by community members declaring the varieties to be in the public domain (Andersen & Winge, 2013). The village council adopted a resolution recognizing the community registry, and

⁷ Other countries that permit registration of farmers' varieties using alternative criteria in order to obtain plant variety protection rights include Malaysia and Thailand (Hale, 2016, p. 10).

samples of the varieties were deposited in a university gene bank. The NGO Southeast Asia Regional Initiatives for Community Empowerment (SEARICE) facilitated development of this model, which establishes a strong evidentiary foundation to challenge registration claims for “new” varieties based on the community’s germplasm (Anderson & Winge, 2013; Atienza, 2013). Community-based defensive documentation may serve as a bridge between Seed Pluralists and the many Seed Sovereignists who do not seek monopoly rights for farmer varieties and believe that they should remain available for anyone to use.

The Seed Pluralist discourse acknowledges structural inequity affecting smallholders, their livelihoods, and their use of seeds (including as embedded in the terms of UPOV 1991 and the Tanzanian seed legislation), with a particular focus on the affordability of seed. A fundamental characteristic of Seed Pluralism is the view that public policy should encourage a diversity of seed sources provided by a variety of different types of enterprise, including the FMSS. The approach accords with evidence that “the level of formal and informal seed provision varies greatly between [...] different countries and for different crops within them” (Tansey, 2011, p. 111). By supporting a variety of options, Seed Pluralism, unlike Seed Capitalism, recognizes that “communities have their own priorities for improving their lives” (Schindler et al., 2016, p. 10), and that risk-return considerations play an important role in smallholder decision-making (Silva & Ramisch, 2018). This discourse seeks to protect the interests of smallholders, with proposals that attempt to reconcile the conflict between farmers’ and breeders’ rights. Such proposals would maintain but not increase the structural power of seed companies, and increase the structural power of smallholders to an extent. The degree of increase would depend on the scope of any amended farmers’ privilege in plant variety protection legislation, in particular whether the sale of varieties containing protected germplasm would be permitted without the breeder’s authorization and without payment of royalties.

[Key differences and similarities across the three discourses](#)

The differences and similarities across the three discourses discussed above are summarized in the following three tables.

Seed Capitalism	Seed Sovereignty	Seed Pluralism
<ul style="list-style-type: none"> Neoliberal “deficit” approach to agriculture (Sumberg, 2012) Transform smallholders into “agribusinesses” UPOV 1991 & seed certification needed to stimulate commercial seed sector <u>Breeders’ rights trump farmers’ rights</u> 	<ul style="list-style-type: none"> Peasant agriculture is viable Corporatization of agriculture resisted IPR (including UPOV system) and seed certification contradict farmers’ rights <u>Farmers’ rights and breeders’ rights cannot be reconciled</u> 	<ul style="list-style-type: none"> Smallholders need to increase agricultural productivity to stimulate economic growth and alleviate poverty IPR (including UPOV system) needs to allow farmer seed exchange of protected varieties Seed certification should not be required for farmer varieties – expand QDS <u>Breeders’ rights need to be better balanced with farmers’ rights</u>
<ul style="list-style-type: none"> Farmer varieties are obsolete & inferior Smallholders need hybrid seeds to increase productivity Improved seed optimal in all circumstances 	<ul style="list-style-type: none"> Farmer varieties reliable and resilient Hybrid seeds require unaffordable external inputs and are not suitable for seed saving Farmer varieties optimal in all circumstances 	<ul style="list-style-type: none"> Smallholders need access to affordable quality seed of superior varieties, can include OPVs Farmer varieties and landraces should be used in participatory breeding improvement programs FMSS does not produce reliable surplus
<p>Weaknesses:</p> <ul style="list-style-type: none"> Smallholder seed skills denied Smallholder risk-return calculus ignored Seed affordability ignored Squeezing out smallholders into equally or more precarious livelihoods 	<p>Weaknesses:</p> <ul style="list-style-type: none"> Creolized seed ignored Production of agricultural exports can provide secure livelihood (in contexts of equitable land and social relations) Collective action by farmers often relates to access to external inputs to increase productivity (Jansen, 2015) 	<p>Weaknesses:</p> <ul style="list-style-type: none"> Not apparent how best to protect farmer varieties: registration ↔ biopiracy Evidence from India that official registration of farmer varieties restricts free exchange of farmer seed Further development of alternatives, including defensive documentation, needed

Table 2: Key elements of the three discourses summarized

Table 3: Detailed comparison of key elements of the three discourses

Concept	Seed Capitalism	Seed Sovereignty	Seed Pluralism
Agribusiness	<p>Favoured</p> <p>Needed for “agricultural transformation”</p> <p>Pathway out of poverty</p> <p>Only way to tackle climate change</p> <p>Delivers technology, skills and services to farmers</p>	<p>Opposed</p> <p>Profit-driven companies do not develop products for smallholders</p> <p>Does not benefit smallholders; connected to growing landlessness, land-related conflict, increased precarious labour, & ecological damage</p> <p>Threatens transition to agro-ecological farming</p> <p>MNCs are using IPR to take over all the world’s seed</p>	<p>Opposed</p> <p>Large scale commercial farming dispossesses smallholders of their land</p> <p>Farm size is not the key determinant of productivity</p> <p>Collaboration between smallholder communities and the public and private sectors is needed, focusing on empowering smallholders, rather than helping large and medium scale farmers</p>
Farmer-managed seed systems	<p>Ignored</p> <p>If discussed, referred to as informal seed system</p>	<p>Supported</p> <p>Foundation of food security</p> <p>Farmers manage local varieties, which they have selected and improved over time under local circumstances</p> <p>Reliable, affordable, and most widely used</p> <p>Inherently agro-ecological</p> <p>Should not be regulated</p>	<p>Supported</p> <p>Important to food security</p> <p>Farmers manage local varieties, which they have selected and improved over time under local circumstances</p> <p>Timely, affordable, reliable, accessible seed of reasonably good quality, most widely used</p> <p>Conserves agrobiodiversity</p> <p>Seed quality varies</p> <p>Risk of insufficient surplus (seed scarcity), especially after drought</p> <p>Lacks adequate storage facilities</p> <p>Should be supported & strengthened and integrated with</p>

Concept	Seed Capitalism	Seed Sovereignty	Seed Pluralism
			formal system, including supportive regulation.
Farmers' Privilege	<p>Restrictive</p> <p>Farmers must not be permitted to exchange or sell seeds from protected varieties they have grown, including creole seed (if essentially derived or similar). Any use must be limited to farmer's own land. UPOV 1991 is supported.</p>	<p>Permissive</p> <p>Smallholder farmers should be permitted to save, share and exchange protected seed varieties; the UPOV system is opposed.</p>	<p>Permissive</p> <p>Small-scale farmer seed enterprises should be permitted to save, exchange and sell seed of protected varieties they have grown. UPOV 1991 is opposed; including sale of seed in the scope of the privilege also goes beyond 1978. Truth in labelling (generic labelling) should be permitted.</p>
Farmers' rights	<p>Opposed</p> <p>Rarely mentioned</p> <p>Less workable than IPR because difficult to identify a title-holder</p>	<p>Supported</p> <p>Gradually being weakened by the state with corporate backing</p> <p>Should be formally recognized by the United Nations through the Declaration of Peasant Rights</p> <p>Discomfort with monopoly seed rights whether held individually or collectively</p>	<p>Supported</p> <p>New intellectual property models for collective rights holding by groups of farmers are needed.</p>
Formal seed system	<p>Supported</p> <p>Only system producing genetically improved seed of optimal quality</p>	<p>Mistrusted</p> <p>Inaccessible, slow, risky, costly</p> <p>Forces farmers to buy new seeds every year</p> <p>Involves monopolies, monocultures & repression</p>	<p>Reform advocated</p> <p>Main distinction with informal is the degree of regulatory oversight</p> <p>Should be supported and integrated with informal system</p> <p>Should involve farming communities in participatory variety selection</p>

Concept	Seed Capitalism	Seed Sovereignty	Seed Pluralism
			Should be made more effectively pro-poor
Humanitarian seed system	Ignored Not mentioned	Ignored Not mentioned	Reform advocated Erratic, unreliable and prone to political leverage Needs to be better coordinated with public and private systems
Informal seed system	Ignored or Opposed Not always discussed Inferior and cannot provide sufficient quantity of quality seeds Should be eliminated Populated by unscrupulous traders dealing in fake seed	Reconceptualized Preferred concept is “farmer managed seed system”	Supported Exists on a national, continental and global scale and has a role to play
Root problems	Low crop productivity (yield gap) Market failures/limited private seed sector Weak value chains Inadequate supply of EGS Insufficient profit margins for EGS Low adoption of improved seed by smallholders	Affordability of seed Erosion of farmers’ rights and farmers’ privilege Lack of political and economic redistribution Commercial sector favoured; corporations coopting governments and seed governance Seed laws amended to boost private sector investment in seed industry Seed saved by smallholders is not exempt	Low crop productivity Scarcity of markets Weak value chains FMSS does not reliably produce surplus Affordability of seed Excessively strict certification and varietal registration requirements Poor agricultural practices Farming communities not involved in participatory

Concept	Seed Capitalism	Seed Sovereignty	Seed Pluralism
	<p>Poor agricultural practices</p>	<p>from <i>Seeds Act, 2003</i></p> <p>Consultations with smallholders are last minute and very limited</p> <p>Concerns of smallholders & CSOs about seed legislation ignored</p> <p>Plant patents & PVP laws</p> <p>Farmer control over material resources and processes are not protected</p> <p>Farmers are not treated as equal partners</p> <p>Input subsidy programs create subsidized markets for MNCs, are largely ineffective, and create dependency</p> <p>Private ownership of germplasm</p> <p>Africa is in a subordinate position in global structure of accumulation</p>	<p>variety selection</p>
<p>Smallholder farmers</p>	<p>Reconceptualized & opposed</p> <p>End-users or customers</p> <p>Maintain, save, recycle, “re-use” seed</p> <p>Need to “opt up” or “opt out” of agriculture</p> <p>Must turn into agribusinesses</p>	<p>Supported</p> <p>Primary agents in FMSS</p> <p>Develop seeds individually and collectively under local conditions to suit local needs</p> <p>Have the knowledge and skill needed to produce reliable seed</p> <p>At risk from agribusiness of landlessness and precarious employment</p>	<p>Supported</p> <p>Agents actively balancing risk-return considerations, including yield stability versus high yields</p> <p>Need extension training to improve quality of self-supplied seed</p> <p>Capacity could be increased through pro-poor initiatives</p> <p>Managing expenses as important as increased income</p>

Concept	Seed Capitalism	Seed Sovereignty	Seed Pluralism
Smallholder farming	<p>Reconceptualized & opposed</p> <p>Solitary struggle to survive</p> <p>Needs to transform into agribusiness</p> <p>Needs ‘modernization’</p>	<p>Supported</p> <p>A way of life to be protected</p> <p>Viable alternative to commercial systems</p>	<p>Supported</p> <p>Smallholder farming needs policy support</p> <p>Smallholders have difficulties accessing markets and are challenged by price fluctuations</p>
Tanzanian seed sector & governance	<p>Criticized</p> <p>Poor functioning</p> <p>Stalled at a less “mature” stage</p> <p>Bottleneck hindering “projects aimed at smallholders”</p> <p>Needs to provide adequate IPR protection</p> <p>Alignment with UPOV 1991 is crucial</p>	<p>Criticized</p> <p>Sceptical of government claims that legislative amendments aimed only at commercial farmers</p> <p>Excludes smallholders from accessing the benefits of improved seeds</p> <p>Overly influenced by agricultural corporations and business interests</p> <p>Seed and PVP laws threaten smallholder livelihoods, biodiversity, & ecological sustainability</p> <p>Contravenes A. 9 of the ITPGRFA</p> <p>Seed quality is only a problem because of fake seed</p> <p>National agricultural research budgets are deliberately underfunded in favour of PPPs</p>	<p>Criticized</p> <p>Prioritizes interests of commercial plant breeders and seed companies</p> <p>Informal seed systems should be officially recognized and promoted</p> <p>Alignment with UPOV 1991 curtails farmers’ rights as well as livelihoods and interests of smallholders</p>

Table 4: Detailed comparison of conceptualizations of seed across the three discourses

	Seed Capitalism	Seed Sovereignty	Seed Pluralism
Certified seed	<p>Supported</p> <p>Optimal in all contexts</p> <p>Needed by smallholders to escape poverty and food insecurity</p>	<p>Mistrusted</p> <p>Expensive, unavailable and sometimes unreliable</p> <p>Distinction between certified and uncertified seed is blurred in Tanzania, as state officially advises smallholders to recycle improved OPV rice for at least four seasons</p>	<p>Reform Advocated</p> <p>Not optimal in all circumstances</p> <p>Excessively strict certification can impede ISSD</p> <p>Affordability is more important than certification</p> <p>Uncertified landraces should have legal recognition</p>
Creolized seed	<p>Ignored or Opposed</p> <p>Rarely acknowledged or discussed; characterized as lacking in quality and purity</p>	<p>Ignored & Implicitly Supported</p> <p>Not explicitly discussed; implicitly supported given advocacy for unrestricted farmer seed exchange of protected varieties</p>	<p>Ignored & Implicitly Supported</p> <p>Not directly or explicitly addressed; implicitly accepted as part of the FMSS</p>
Hybrid seed	<p>Supported</p> <p>High-yielding</p> <p>Should be preferred over OPVs by smallholders</p>	<p>Mostly opposed</p> <p>Unaffordable and limits smallholders' ability to save & reuse</p> <p>Opposed as heavily reliant on synthetic fertiliser & irrigation which are not affordable or agroecologically sound practices</p> <p>High-yielding only if grown in optimal conditions, and only in first year</p>	<p>Supported</p> <p>Can play a role in smallholder farming if economic barriers are addressed through microfinancing</p>
Improved seed	<p>Supported</p> <p>Only created by scientist-breeders</p>	<p>Reconceptualized</p> <p>Can include smallholder seed</p>	<p>Reconceptualized</p> <p>Critical to growth & poverty alleviation</p>

	Seed Capitalism	Seed Sovereignty	Seed Pluralism
	<p>Commercial</p> <p>High-yielding</p> <p>Optimal in all contexts</p> <p>Needed by smallholders</p>	<p>Smallholders need support to keep their seeds healthy, diverse and resilient, rather than improved external seed</p> <p>Improved OPVs are mostly a mixture of local varieties with public germplasm – private ownership might disrupt this beneficial diffusion of traits</p> <p>Sometimes acknowledged that improved OPVs higher-yielding than smallholder varieties – but there are access and affordability barriers</p> <p>Pros and cons of different technologies should be provided to smallholders to permit meaningful choice</p>	<p>Can include smallholder seed</p> <p>More improved OPVs should be developed through public research on a participatory basis with smallholder farmers</p>
Industrial seed	<p>Term is not used</p>	<p>Opposed</p> <p>Developed for industrial agriculture, requiring fertilisers, pesticides, & irrigation, and therefore, access to credit</p> <p>Bred for monoculture, machine harvesting, long-distance shipping, and long shelf life</p> <p>Developed by corporations or national research institutes and subject to patents or PVP</p>	<p>Term is not used</p>
Open-pollinated seed	<p>Disinterested or opposed</p> <p>Not of significant commercial interest</p>	<p>Supported</p> <p>Critical element of FMSS and permits smallholders to retain control</p>	<p>Supported</p> <p>International and national crop breeding programs should develop OPVs with higher yield potential, on a participatory basis with</p>

	Seed Capitalism	Seed Sovereignty	Seed Pluralism
	“Irrationally” preferred by smallholders		smallholders
Open source seed	Opposed Not discussed, implicitly rejected through strong support for UPOV 1991	Supported Property rights in underlying germplasm is opposed	Ignored Not mentioned by the actors examined
Peasant seed	Term not used	Developed, often collectively, by smallholders under local conditions Well adapted to polyculture, local soil and climate conditions No external inputs needed Normally shared or exchanged, can also be sold or bartered Never subject to IPR Framed as the opposite of industrial varieties	Term not used
Public seed	Mostly opposed Plant breeding should be a private sector activity, and private sector access to germplasm in public institutions should be better facilitated A period of monopoly commercialization is the only way to finance new varieties	Supported by some Public crop breeding research programs should not partner with private sector Public germplasm ownership should be protected from transfer to the private sector Public sector and smallholder germplasm can be combined in a mutually beneficial way, as the latter is adapted to local conditions Public agricultural research programs are	Supported Public crop breeding research programs are needed Dissemination of public varieties needs improvement, including through participatory plant breeding

	Seed Capitalism	Seed Sovereignty	Seed Pluralism
	Public agencies should not be engaged in producing early generation seed (EGS)	coopted by corporate conquest (LVC) No seed should be privatised (LVC)	
Quality Declared Seed	Ignored or Opposed Unfairly competes with commercial seed	Supported Affordable seed well-adapted to local conditions, including drought Should be supported and strengthened by the government and sale beyond ward level should be permitted	Supported Provides reliable seed of adequate quality More affordable than certified seed Should be supported and strengthened by the government and sale beyond ward level should be permitted
Smallholder (local /landrace) seed	Opposed but targeted for exploitation Poor, obsolete, unimproved Impedes development of demand for commercial varieties Arises from “adaptation” Marginally exploited and underdeveloped Useful germplasm	Supported Has special attributes such as taste and nutrition that are valued in the community Constitutive of culture and knowledge Poor yield & disease issues sometimes acknowledged At risk of biopiracy Critical to agrobiodiversity Well adapted to polyculture, doesn’t need synthetic fertiliser or other external inputs, and grows well under local soil and climate conditions	Supported Reasonably good quality but low yields Often has poor germination rates because of poor practices at all stages Not always adapted to drought Easily accepted by smallholders When combined with improved techniques can lead to productivity gains Traits & qualities useful beyond local area for climate change adaptation Preferred seed-type for many crops in ISSD Should be used in participatory line-testing research

	Seed Capitalism	Seed Sovereignty	Seed Pluralism
			<p>Will be the majority type of seed used by smallholders in sub-Saharan Africa for the foreseeable future</p> <p>Popular varieties should be fast-tracked for registration for formal seed production and commercialization by smallholders and SMEs</p>

Interplay with Tanzania's political settlement

The Seed Capitalist discourse obscures or fails to address numerous factors critical to any truly pro-poor approach, including the need for affordable seed, the role of creolized seed, and the fact that scientist-bred seed is not optimal in all circumstances. Just as Cammack (2009) advocates for dropping the naïve view that the aim of the IMF and World Bank's Poverty Reduction Strategy Papers (PRSPs) is to reduce global poverty, it is difficult to read the Seed Capitalist discourse as anything other than "an intensification of the neoliberal strategy of the original Washington consensus" (borrowing Cammack's characterization of PRSPs) (as cited in Joseph, 2010, p. 42). Like the PRSPs, the aim of the Seed Capitalist discourse seems to be to secure "the hegemony of capital over labour" and to pressure lower income countries to accept a new institutional infrastructure that supports [this] objective" (Joseph, 2010, p. 42). That said, this strategy has only been successful in a *de jure* sense in Tanzania.

Benjamin Mkapa, President from 1995 to 2005, genuinely supported the neoliberal agenda (Languille, 2015). His government's decision to join ARIPO and to implement the country's first plant variety protection statute (the *Plant Variety Protection Act, 2002*) is consistent with this stance, but what of incorporation of QDS in the regulatory framework in 2003? This may have resulted from donor pressure (Denmark having supported the initial QDS pilot projects in Tanzania, as discussed earlier); domestic religious organization pressure (also involved in the QDS pilot, as discussed earlier); an alignment with the need for rent opportunities consistent with the political settlement (Tilley, 2014); an effort to balance the impact of the new PVP legislation on smallholders; other factors, such as genuine policy support from an influential public servant or other actor; or some combination of these. Clarifying these drivers would form the basis of interesting future research.

While President Kikwete (2005 to 2015) had a more nationalistic view, and "a less conciliatory attitude towards international demands", Tanzania joined the New Alliance, aligned its legislation with UPOV 1991, signed the Arusha Protocol, and joined UPOV 1991 during his term (Languille, 2015, p. 86; Tilley, 2014). During Kikwete's presidency, however, he and his ministers and senior officials would "frequently repeat their commitment to the primacy of the private sector" in agriculture, but "official initiatives [would] tell a different story" (Booth et al. 2014, p. 50). From the entire period since 2000, while the Tanzanian government has accepted the conditions of Northern aid, "if they have not been in line with the government's own

development agenda, they have not been fully met” (Tilley, 2014, p. 112). That agenda, as expressed in the CCM’s pre-election 2005 Manifesto, emphasized the rapid development of a liberal market economy, with little emphasis on resolving governance and accountability issues (Selbervik, 2006). The Kikwete regime was marked by repeated corruption scandals, and the power struggle between Kikwete and the powerful Prime Minister Edward Lowassa during Kikwete’s second term resulted in a government more focused on maintaining clientelistic networks than resolving socio-economic problems (Hyden & Mmuya, 2008; Andreoni, 2017).

President Magufuli’s (2015 – present) regime is distancing itself further from the expectations of Northern donors. The new Minister of Agriculture has very recently banned GMO trials, terminating trials that were underway and ordering the destruction of the GMO materials (Mirondo, 2018). This was done without consultation, and while consistent with MVIWATA’s opposition to GMOs, the main motivation for the ban seems to have been a failure to obtain all required regulatory approvals (*ibid*). Further research would be required to determine whether this connects to rent-seeking on the part of agriculture and other government officials, or other drivers.

While the Seed Capitalist discourse is currently embedded in the Tanzanian state’s legal framework, this should not be read as a fully successful incursion by dominating international actors such as the New Alliance and USAID against a passive and powerless state political regime. Given the nature of the political settlement in Tanzania, it seems plausible to conclude that the domestic political elite’s commitment to AGRA and the New Alliance flows from the opportunities for patronage and rent that initiatives like SAGCOT provide, rather than a policy commitment. From at least 2000 forward, in a number of other policy contexts related to international aid, “Tanzania has pursued a strategy of slippage and strategic ambiguity” through which “*de jure* policy has differed from *de facto* implementation” (Tilley, 2014, p. 117). The political elite may have decided to superficially align the state’s legislation with UPOV 1991 without intending to implement the amendments in an effective *de facto* manner, in order to satisfy donor demands, capture opportunities for rent, but also to protect smallholder seed exchange. Tanzania also seems unlikely to succumb to any regional pressure to enforce its seed legislation fully, given its “increasing alienation from the EAC [...] and foot-dragging on deeper regional integration” (Booth et al., 2014). At least some donors are growing impatient with the strategy of slippage, as evidenced by the suspension and withdrawal of aid by the United States

noted earlier.

The predominance of Seed Capitalism in Tanzania's seed governance framework, even if only in a *de jure* sense, leaves a policy vacuum with respect to smallholders and their needs. The absence of robust pro-poor *de jure* and *de facto* policy support marginalizes smallholders, leading to decreased smallholder resilience. Seed Pluralism, which holds promise for seed-related interventions likely to enhance smallholder resilience and well-being, has a small foothold in Tanzania's seed governance, through the Quality Declared Seed (QDS) system. Calls for expansion of QDS beyond the ward level from civil society and QDS producers continue to be resisted, however. In 2017, the Tanzanian Registrar of Plant Breeders' Rights and head of TOSCI, Patrick Ngwediagi, was reported to have firmly rejected QDS expansion:

Ngwediagi said however that if they want to distribute seeds like other companies, they must follow the procedure so that they can officially enter into the seeds business. "These QDS producers have been trained to produce seeds in areas where large seed producers and suppliers have not yet reached, but if they also want to sell to other areas [...] [they] have to follow the processes," he stressed. (Kisembo, 2017)

Refusal to see QDS as anything other than a stopgap against market failure is consistent with findings that smallholders have little influence on national policy-making in Tanzania (Cooksey, 2012, p. 21; Booth et al., 2014).

Mobilization of mass opposition to the *de jure* seed governance framework seems unlikely to emerge, particularly in the increasingly repressive political environment, and as long as restrictions on farmer seed exchange of protected varieties are not enforced in Tanzania. In the near term, a more likely driver of change in the seed governance framework, both *de jure* and *de facto*, may be the increasingly fragile relationship with Global North donors and the strengthening relationship between the Tanzanian state and China. China adheres to UPOV 1978, but selling or sharing seeds of protected varieties is prohibited in its domestic law – in practice, violations are rarely prosecuted (Holthuis, 2015). The head of the Bureau of Seed Management stated in 2014 that while China will inevitably join UPOV 1991, that regime is not currently suited to the state of agricultural development in the country (Gu, 2017). Accordingly, a failure by Tanzania to enforce the UPOV 1991 restriction with respect to smallholder seed exchange of protected varieties would likely not impair this donor relationship. That said, Eriksen (2018) notes that the increase in Global South investment in Tanzania, including from China, appear to be reinforcing business-political connections "that are not conducive to inclusive growth" and are prone to corruption (p. 30).

CHAPTER 3: CONCLUSION

I have explored debates around seed governance in the context of Tanzania's recent changes to its seed policies and laws, in order to critically examine the framings and discourses employed. Three narratives emerge, Seed Capitalism, Seed Pluralism, and Seed Sovereignty. The underlying debates relate to complex problems for which singular solutions are inadequate (Fraser, 2017). Consistent with Westengen (2017), Seed Capitalism and Seed Sovereignty rely on, and are entrenched in, binary opposition, despite the complexity of the problems involved. The two narratives rest on binary dichotomies in relation to seeds and forms of agricultural production, and put forward opposing and relatively singular solutions, involving opposing normative forms of seed, agricultural production and livelihood. I have contributed to the literature by identifying contradictions and tensions within both discourses that obscure nuances with important policy implications. I have also contributed to the literature by identifying and exploring a third discourse, Seed Pluralism, which resists binary framings and recommends a multiplicity of approaches informed by the nuance of relevant facts. Juxtaposing all three discourses brings the weaknesses of each into sharper relief, helping to identify seed governance issues in need of further policy elaboration, including how breeders' rights can be better balanced with farmers' rights, and how to protect farmer's varieties without increasing the risk of biopiracy.

A Seed Capitalist discourse is dominating the seed governance frameworks that affect Tanzanian smallholders, frameworks that are failing to adequately facilitate affordable access to reliable seed for smallholders. A fundamental characteristic of the Seed Capitalist discourse is the failure to acknowledge, account for, or deal openly with structural inequity in relation to smallholders, their livelihoods, and their use of seeds. The discourse privileges a normative package of certified scientist-bred seed, industrial agriculture, and the structural transformation of smallholder livelihoods. This discourse seeks to maintain and enhance the position of seed corporations by suppressing farmers' rights and extending breeders' rights and seed certification. It ignores or dismisses farmer-managed seed systems, characterizing them as outdated and incapable of providing reliable seed.

To date, the seed policies promoted by the G-7 in Tanzania, and Africa, are unlikely to benefit smallholders. Any G-7 donor country with a substantive commitment to pro-poor seed policy ought to withdraw from the New Alliance (as France has done) and work with allies to

promote an alternative package of seed policy reforms for low-income countries. In the UPOV context, such donors should lobby for amendment of the farmers' privilege such that smallholders in low-income countries may continue to save, use, exchange and sell seeds of all varieties, including those containing protected germplasm.

In their multilateral and bilateral trade negotiations with low-income countries, donors should no longer require implementation of UPOV-compliant seed legislation in the absence of such amendments, accepting instead the validity of *sui generis* approaches. With respect to national variety registration and release in low-income countries, donors should promote policy and legislation supportive of smallholder seed exchange, whether through exemption or more flexible registration. Donors could also, in recognition of the contribution smallholders make to agrobiodiversity, facilitate agreements between their own PVP or patent offices and interested national agricultural research institutes in low income countries for inclusion of information about farmer varieties in the examiners' databases. Donors could also support better extension support for OPVs to improve yields from these widely available seeds.

The FMSS in Tanzania is the source of 80 to 90% of the seed planted in the country, and is critical to the livelihood resilience, including food security, of smallholders. It is capable, particularly with improved extension support, of providing affordable and accessible seed of adequate quality that meets smallholder preferences, including, for example, yield stability. While smallholder varieties often do not meet formal sector uniformity and stability requirements, their genetic variability is a significant benefit in terms of an ability to adapt to challenging and fluctuating agro-ecological conditions (Otieno, Reynolds, Karasapan, & Noriega, 2017).

The Tanzanian UPOV-based restrictions on farmer seed exchange are inappropriate for this context. In addition, the national plant variety registration, release and certification regime does not adequately reflect and support smallholder seed requirements. Expressly excluding farmers' seed from the prohibition on sale of uncertified seed in Tanzania would show good faith and more reliable reassurance that this is directed at the fake seed problem, rather than traditional seed exchange. The QDS component of the legislation should be expanded to permit QDS producers to sell at the regional level. While transnational Seed Sovereignty discourse opposes any form of private ownership or legalization of seeds, QDS is popular locally in Tanzania, and its expansion is supported by local and regional seed sovereignty movements. The production of

unregistered farmer varieties under the QDS system should also be explored. Together, these changes would permit and further encourage the development and exchange of resilient local varieties, including through participatory plant breeding, as the FAO QDS guidelines originally envisioned (Halewood & Lapena, 2016).

Unfortunately, it seems unlikely that plant breeders' rights and plant variety registration legislation will be retrenched in Tanzania, or that the viability and applicability of *sui generis* systems like those in India and Nepal would be considered in the near term. Currently, there is no apparent political need for the ruling elite to do so, and Tanzania's rising political ally, China, appears committed to the UPOV system at this time. An area of reform that might realistically be pursued would be to strengthen A. 12(3)(d) of the ITPGRFA by prohibiting recipients of germplasm transferred under the treaty from claiming IPR not only in the germplasm received, but also in any lines derived from the germplasm.

Lobbying for such reform by the Tanzanian political elite would not contradict the domestic political settlement, given the extensive involvement of the state in seed breeding and EGS.⁸ While China's current seed policy foresees a greater role for the market in seed production, there is also support for public welfare seed research (Zhong, 2017). The state also supports and encourages participatory breeding projects using OPVs (Song, Zhang, Song, & Swiderska, 2016). China could accordingly also be open to such a campaign. While corporations would oppose such an amendment, growing civil society support for the open source seed movement could be leveraged, as such an amendment would provide the legally enforceable protection that is currently lacking in that model. LVC SEAF might also be willing to support such a campaign, given its opposition to PPPs in relation to plant breeding.

The amendment would also permit collectively developed varieties to remain in the public domain with strong legal protection against biopiracy, thereby avoiding the downsides of collective registration. Creolized seed containing germplasm protected by the private IPR regimes cannot be protected under the ITPGRFA framework. Such an amendment would at least, however, provide recognition and support for creolized seed derived from public domain germplasm.

⁸ I am not arguing in support of the "developmental patrimonialism" school of thought, which argues that "rents derived as outcomes of clientelism can be used on productive ways", but rather make this point in recognition of the need to consider how proposed reforms would be received in the context of the political settlement at play (Behuria et al., p. 521 and p. 509).

Numerous questions for future research remain: What were the drivers for inclusion of QDS in Tanzanian seed legislation during a period of neoliberalization? Does the very recent ban on GMO trials signal greater state support for smallholders, a connection to rent-seeking, or other drivers including increasing authoritarianism? How significant is the productivity difference between new protected hybrids of staple crops and those that are 20 years or older and thus no longer protected? Could rights holders be persuaded to transfer EGS lines that are being discontinued to smallholders without charge, and would access to such pools of germplasm benefit smallholders? Is there a desire amongst Tanzanian smallholders to identify and defensively document their farmer varieties?

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