ARE FARM BLOCKS A VIABLE MODEL FOR SMALLHOLDER FARMING IN ZAMBIA?

By Paul Samboko, Ballard Zulu, Munguzwe Hichaambwa, and Auckland Kuteya
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Any views expressed or remaining errors are solely the responsibility of the authors.

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EXECUTIVE SUMMARY

The development of Zambia’s agricultural sector is crucial in order to achieve economic growth, poverty reduction, and economic diversification. One program touted to contribute towards agricultural development is the farm block development program. Since 2006, farm blocks have been identified as a cornerstone of the government’s rural development policy as highlighted in the Seventh National Development plan (7NDP), and the Second National Agricultural Policy (SNAP). The basic idea calls for targeted investments in infrastructure provision to enable market-oriented agricultural development that would contribute to poverty reduction, food and nutrition security, and reduced out-migration by the rural population.

The government has targeted one farm block for development in each province in the country. A minimum of 1 million hectares (ha) have been set aside under the program. The farm block design is such that a core-venture coordinates production and provides a market for other smaller farms. Farm blocks are expected to accelerate agricultural growth, increase agricultural value addition, and generate export earnings by attracting foreign direct investment and production relations that benefit both the local investors and surrounding communities. Despite significant budgetary allocations by the Zambian Government, and media publications on the program, implementation has been slow. To date, the most visible component of the program is the very large farms. This raises questions about the viability of the approach to the farm block development program in relation to commercialization of smallholder agriculture, and the appropriateness of the approach in attracting investors.

This study sought to contribute towards a shared understanding of the status of the farm-blocks, challenges, and progress concerning their contribution to anticipated benefits. Results from this study are expected to contribute towards refining the program to ensure it achieves its intended objective of being a viable model for smallholder commercialization. We also assessed the program’s potential to contribute towards commercialization of smallholder agriculture.

Methods and Data

A qualitative approach was used to answer the research questions. This involved in-depth interviews with key informants and focus group discussions with farmers in the farm blocks and other farmers located in close proximity to the farm blocks in Serenje District. This was complimented by a review of relevant literature.

Findings

It is important to note that the findings of this study are based on the modest development that is on the ground at this time, and may not reflect the correct position when the model is fully operationalized.

A major finding from the study is that the two farm blocks that are often mentioned to be at an advanced stage (i.e., Nansanga and Luena) remain largely inactive. In Nansanga, there was no anchor core venture; this could be one reason why other farms have not commenced production. However, some large-scale farms have been allocated land and are expected to commence production soon.

This meant that assessment of the benefits of the farm block development program was restricted to a few variables such as employment and infrastructure much to the exclusion
others such as human capital development and government revenue generation (see section 2). The results show that farm blocks have benefited and are likely to benefit locals, especially in terms of improved connectivity through road infrastructure, increased proximity to electricity, and access to better-paying jobs.

Despite some positives from the program, there are some existing and anticipated challenges as follows:

- Some infrastructure is incomplete or missing (i.e., electricity, bridges, access roads, hospitals/clinics, banks, and telecommunications).
- There are lapses in the water and electricity allocations that are likely to yield tensions as farms compete for scarce water and energy resources.
- Costly agricultural finance and lack of confidence by the banks in financing new (green) enterprises for which they have no experience.
- Despite resource allocations to the program, discussions at the district level suggest that funds allocated do not trickle down to them; others indicated that the funds are diverted to other purposes, and not necessarily for program implementation.
- Wildfires remain a threat to viable cattle ranching.
- Replacement parts for farm equipment are usually not stocked by equipment suppliers.
- The lack of communications infrastructure makes the conduct of bank transactions and other activities requiring internet difficult.
- For the potential of the farm blocks program to contribute to smallholder commercialization and broad-based poverty reduction, the current farm block program may not be ideal due to the lack of necessary resources and knowledge to acquire land in the farm blocks for the majority of the smallholder farmers.

Recommendations

A number of proposals follow from the study’s key findings if the program is to effectively achieve manage the farm block program must be established urgently for each farm block.

1. Local government officials should be involved in the planning phase and feasibility studies to secure effective buy-in by the local communities.
2. A farm block policy document that will guide the development and operationalization of all farm blocks is urgently required. Currently the development is haphazard and not following the original design.
3. A business case should be made for private or public service providers, and include telecommunications infrastructure in the farm block budgeting.
4. Farm blocks should consider alternative irrigation that is not dependent on electricity from the national grid (e.g. solar-powered farms or gravity-fed irrigation systems) which assist in reducing the uncertainty associated with electricity availability. This should be supported by sound energy policies (e.g. pricing and power buy-back by the Zambia Electricity Supply Corporation (ZESCO)).
5. Incomplete infrastructure in partially developed farm blocks must first be finalized before allocating resources to new farm blocks.
6. Establish an agricultural credit fund that will provide low-cost agricultural credit to the farm blocks, which should be administered by selected financial institutions (FIs). This would then create a history of financial flows on which banks and FIs can use to assess risk. The supply-side constraints to finance provision in farm
blocks must be identified to minimize risks to the lenders, and a credit guarantee facility should be established.

7. A core venture must be secured first before allocating land to other investors. This is critical in order to assure market access in specific farm blocks and thus inform land acquisition.

8. To achieve smallholder commercialization and poverty reduction, the following needs to be done:
   i. Current efforts for increasing technology adoption among smallholders should be complemented with those aimed at increasing the average farm size from 2 Ha to 3-5 Ha per farming household with a target of 10-12 Ha preferably.
   ii. To achieve smallholder commercialization and make farm blocks a viable development model for smallholder farming in Zambia, there is dire need to revert to the original design that deliberately allocated land to smallholders resident in the peripherals of the farm blocks. These would then be contracted by the core-venture in their value addition activities.
   iii. There is potential for increased participation of smallholders if they can be organized into outgrower schemes within the farm block, and production managed using a core-venture farm.
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</tr>
<tr>
<td>DCS</td>
<td>Department of Correctional Services</td>
</tr>
<tr>
<td>FDI</td>
<td>Foreign Direct Investment</td>
</tr>
<tr>
<td>FI</td>
<td>Financial Institution</td>
</tr>
<tr>
<td>GRZ</td>
<td>Government of the Republic of Zambia</td>
</tr>
<tr>
<td>ha</td>
<td>Hectare</td>
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<tr>
<td>IAPRI</td>
<td>Indaba Agricultural Policy Research Institute</td>
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<tr>
<td>KASCOL</td>
<td>Kaleya Smallholder’s Company Limited</td>
</tr>
<tr>
<td>MLNREP</td>
<td>Ministry of Lands, Natural Resources, and Environmental Protection</td>
</tr>
<tr>
<td>MoA</td>
<td>Ministry of Agriculture</td>
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<tr>
<td>SEZ</td>
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<tr>
<td>ZMW</td>
<td>Zambian Kwacha</td>
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<td>ZSC</td>
<td>Zambia Sugar Company</td>
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1. INTRODUCTION

In recent times, there has been an increase in the number of countries establishing Special Economic Zones (SEZs), with the number of SEZ’s estimated at over 3,000 in the early 2000s, from 176 in 1986 (Aggarwal 2007; Kituyi 2013). SEZs spur economic growth: they create employment, attract foreign direct investments (FDI), and increase foreign exchange earnings from an export-oriented industrialization. Most notably, using SEZs, China created more than 30 million jobs, posted a 58 percent increase in foreign direct investments, 0.6-percentage point increase in total factor productivity, while generating technology spillovers. In total, SEZs account for 22% of China’s gross domestic product (Wang 2013; Velie 2016). The importance of SEZs at a global scale is demonstrated in their ability to generate about US$500 billion in global trade while creating over 70 million jobs (Kituyi 2013).

A type of a special economic zone in Zambia’s agricultural sector is the so-called commercial farm blocks (or agro-processing zones). Since 2006, farm blocks have been identified as a cornerstone of the government’s rural development policy that can enhance private sector participation in the agricultural sector, create jobs, and increase agricultural production and productivity, as highlighted in the Seventh National Development Plan, and the Second National Agricultural Policy. Farm blocks are also crucial for economic diversification through agriculture—a government position since 2002 that was re-emphasized by the Republican President in 2016. The basic idea calls for targeted investments in infrastructure provision to enable market-oriented agricultural development that would contribute to poverty reduction, food and nutrition security, and reduced out-migration by the rural population. The total land size under the program is expected to be at least 1 million hectares, with one farm block has been targeted for development in each province.

On paper, farm blocks are meant to be populated by farms of a variety of sizes: large-, medium- and small-scale operations. Yet in the most developed farm blocks to date (i.e., Nansanga and Luena), the most visible component of farm block enterprises is the larger commercial farms, and this raises concerns about the implications for rural transformation using this model, and more importantly, for the development of smallholder agriculture. Moreover, it is unclear the extent to which typical smallholder farmers resident in the rural areas participate in the farm-block development program. The pace of implementation has been slow and frustrating for the government (e.g., see Zambia Daily Mail 2015). This raises questions about the appropriateness of the current approach to farm block development.

Against this backdrop, this research seeks to address the following questions:

1) What is the status of farm block operations in Zambia?
2) What are the size-distributions of farms within the farm blocks, and how do beneficiaries acquire land?
3) What are the constraints to farm block development? and;
4) How do smallholders benefit (directly and indirectly) from farm blocks?

Results from this study will contribute towards a shared understanding of the status of the farm-blocks, challenges, and progress concerning their contribution to anticipated benefits. This will then form the basis on which the concept can be refined to the benefit of the country and the investors.
2. RELATED LITERATURE

2.1. What Are Special Economic Zones?

SEZ’s are larger estates and could be considered cities on their own. They usually cover all industrial and service sectors and target both foreign and domestic markets. They provide an array of specialized incentives including tax breaks, preferential policies, public investments, and specialized regulations ranging from tax incentives to regulatory incentives (OECD 2010). For Zambia, various examples fit this definition, including the Export Processing Zones, Multi-Facility Economic Zones (e.g., Chambishi, Lusaka (East and South), and Lumwana), Industrial parks (e.g., Roma and Sub Sahara Gemstone Industrial Park), and the Zambian government’s commercial farming blocks. All these have distinct objectives despite contributing to overall economic growth. The commercial farming blocks fit this category in that they receive infrastructural developments from government, and tax incentives that have since been discontinued as per 2018 National Budget pronouncement (see GRZ 2017). The design of the farm blocks is such that an anchor core venture coordinates production activities and provides a market for produce (Figure 1).

Each farm-block is expected to have the basic infrastructure for agricultural production and agro-processing. Consisting of a core-venture (agro-processor) with 10,000 hectares (ha) that would coordinate production and provide the market for agricultural products in the farm block—essentially operating an outgrower scheme. This would then be supported by an outgrower cluster consisting: (1) commercial farmers with no more than 15,000 ha in total, (2) medium scale farmers with hectares ranging from 100-1000 Ha, (3) emergent farmers allocated between 50 and 100 ha and (4) small-scale farmers allocated between 25 and 50 ha. The core venture is expected to undertake its own investments with respect to infrastructure. Only the rest of the set-up is government/privately funded.

Figure 1. The Farm Block Design

Source: Authors.
While the farm-blocks are earmarked for the production and processing of export crops, there is flexibility in what can be grown with the government stating that enterprise diversification will be emphasized and strongly supported, especially for food crops. Some of the products will be sold on the foreign and local markets including the national Food Reserve Agency.

2.2. The Evidence on Special Economic Zones

In the literature on SEZs, theory suggests that while they may have distinct objectives, all types of SEZs work to increase economic growth. They do this through: (i) attraction of foreign investments and promote technology transfers with areas in their hinterlands and across countries; (ii) employment creation; (iii) human capital development given their role as hubs for skills transfer; and (iv) generation of government revenue through taxes.

The evidence to date has held up well with this narrative. The most visible benefits have been employment-related (see Warr 1989; UNDP 2015), with the created employment largely indirect and arising from backward and forward linkages with local suppliers of raw materials and other inputs used by processors. However, created employment from SEZs tends to be less than that created in other sectors, and is often associated with high employee turnover (Aggarwal 2007; ADB 2016). In Africa, SEZs have not been as successful in generating employment as they have been in China, but indications are that increased support from the Chinese in zone development to address the financing challenges and increase linkages with the local economy may improve the status quo (UNDP 2015). The evidence for Zambia in this respect agreed with the wider global evidence (ibid), despite some challenges with successful implementation including: (i) the lack of a one-stop shop for sectoral approvals of zone companies; (ii) absence of customs and licensing services within the zone; and (iii) changes in government incentives for zone developers and zone companies. Other benefits could not be assessed because the economic zones were still in the early stages of development. There is no evidence to date on the benefits generated by farm blocks as a type of SEZ; however, indications on the program design suggest that it is the most appropriate farming model for employment creation in Zambia (Matenga and Hichaambwa 2017).

SEZs have also performed well with respect to skills transfers and as demonstration hubs, raising human capital development. However, this is unlikely to occur through movement of former SEZ employees to the domestic (non-zone) sector (Kaplinsky 2001). Further to this, SEZs increase the likelihood of firms exporting produce, and thus, induce positive effects on foreign exchange earnings. Davies and Mazhikeyev (2015) find that for open economies, firms in SEZs are 25% more likely to export than those outside SEZs.

Despite the well-documented positive benefits, sceptics argue that there may be revenue losses from concessions on income taxes and tariffs. Inadequacies in the environmental impact assessments may yield adverse impacts such as loss of habitats due to pollution, reduced water availability and livelihood sources for the local communities. There may also be environmental concerns related to greenhouse gas emissions, and the benefits may not justify the public investments.

Not all countries that have embarked on a SEZ development program have succeeded, and this underscores the importance of ensuring the right conditions are in place for SEZs to flourish. Where SEZs have failed or performed poorly (e.g., the Philippines and Senegal’s Dakar Economic Processing), drivers of failure are readily identifiable: including bureaucracies, unrealistic goals imposed on investors, poor reputation of the local work-force, rigid and restrictive labor regulations, and a high cost of doing business (see Cling and Letilly 2001; World Bank 2008). Success depends on a number of conditions that must be in place.
These include the presence of infrastructure (e.g., roads, communications infrastructure, clinics, and hospitals) (see Aggarwal 2007), sound development approaches, a supportive regulatory and policy framework, and the right institutional arrangements that contribute to sound management of the zones. In addition, the economic zones must be backed up by sound environmental impact assessments. These should include the right procedures for resettlements to limit the possibility of projects facing opposition from the locals in time, and to ensure that the resettlement procedure is in line with international best practices thus allowing investors to access development finance from international sources (Nolte and Subakanya 2016; Public Citizen 2012; Lambin et al. 2013).

In irrigated agriculture, management of water and electricity is critical owing to the interconnected nature of the hydrologic cycle, and due to the interconnected nature of the availability of electricity and pumping of water. Under conditions of scarcity, externalities are generated because one person’s use of either one or both resource reduces how much is available to the other (Meinzen-Dick 2007). It is thus unsurprising that unreliable electricity supply was a major constraint to attracting investors in the Lekki Free Zone Development Company in Nigeria (UNDP 2015). In India, Malik (2010) showed that electricity shortages in irrigated agriculture can be a major source of adaptation and coping strategies that result in inefficient outcomes that adversely affected firm profitability and agricultural growth in India.

The successful attraction of foreign direct investments in countries in general and SEZs in particular also depends on the investors’ assessment of political risk. In a study on political risk and its effect on Foreign Direct Investment (FDI) inflows, Busse and Hefecker (2007) shows that, political risk can have significant adverse effects on investment decisions. Two main indicators of political risk are critical to this study i.e., Government stability and institutional strength, and quality of bureaucracy. The study finds a significant negative relationship between a lack of government stability, poor institutional quality, and FDI inflows.

2.3. Implications for the Farm Block Development Program

Taking the evidence on SEZs thus far, the farm block development program is expected to largely contribute to employment creation. The presence of dynamic large-farms that are known to invest more and generate spillovers to their hinterlands in the form of technology and knowledge or skills, will contribute to skills and knowledge transfer while creating markets for both agricultural outputs, inputs, and services. Large farms located in the farm blocks will also be responsible for generating a marketable surplus that will be crucial for meeting present and future world food demand, as import dependence for food increases due to rapidly rising populations in Africa and Asia.

However, without appropriate supporting conditions and basic infrastructure, the program may not succeed and/or may yield adverse effects on smallholder agriculture, especially through its impacts on production efficiency, and disenfranchisement of the poor through mechanisms that increase land concentration. This is in light of the evidence that large-scale farms are rapidly rising, and that of increasing land concentration across Southern African countries (Jayne et al. 2016; Deininger and Byerlee 2011). Even the purported employment potential of such large investments appears less than usually assumed owing to unrealistic expectations imposed on the investor (e.g. see Nolte and Subakanya 2016). Further, because FDI inflows tend to be adversely affected by political risk, stability in policies and a reduction in the bureaucratic processes through improved institutional quality will be critical for the farm block development program’s success.
3. DATA AND METHODS

The study relied on qualitative research methods involving focus group discussions and in-depth interviews with key informants using a semi-structured questionnaire. This was complimented by a review of relevant literature. In view of the gaps in knowledge regarding farm blocks, telephone interviews with Ministry of Agriculture personnel were used to inform selection of the study sites. For the two most developed farm blocks under the program (i.e., Luena and Nansanga), only Nansanga had some activity within the farm block, and was selected. Two other farm blocks (outside the farm block development program but in proximity to Nansanga) were included (i.e., Luwombwa and Kasanka). The inclusion of Luwombwa was inevitable, as it has benefited from some of the infrastructure investments meant for Nansanga.

The data collection involved in-depth interviews with key informants drawn from MoA and commercial farmers (investors) in the farm blocks. Focus group discussions were also held with farmers drawn from within the farm blocks, and others resident in close proximity to farm blocks. This was complemented with information drawn from secondary sources including the national budgets, policy documents, and relevant literature.
4. STUDY FINDINGS

4.1. Status of the Farm Blocks

Almost all farm-blocks earmarked for development in Phase 1 of the farm block development program (i.e., Nansanga, Luena, and Kalumwange farm blocks) remain largely inactive, save for production by a handful of landowners on absentee managed fields. Instead, other farm blocks outside the government’s development plan are benefiting from this program, most notably, Luwombwa farm block in Serenje District. It had few investors most notably Silverlands investment and some commercial farmers, some of whom have been in the area since 1995 when 60 commercial farmers first settled there. Luwombwa reflects earlier government efforts to develop farm blocks that would be occupied by retirees under President Kaunda’s “Going back to the land” initiative. There are many other similar initiatives around the country including Munte, and Kasanka in Serenje District, and some that reflect the initiatives by traditional leaders to open up new areas in their chieftoms (e.g., investments by Waterfalls Investments Limited in Rufunsa District and in parts of Northwestern Province).

In the most developed farm blocks (i.e., Luena and Nansanga), production has yet to commence. However, indications were that this was likely to change in the near future. In Nansanga farm block, the Department of Correctional Services (DCS) had commenced investments in irrigation infrastructure to facilitate production of wheat, maize, and soya beans. Nine out of 12 planned center pivots have been erected, with a water reservoir and pump house also constructed (Figure 2).

There are also plans by the DCS to construct staff houses and a holding cell for prisoners that will be working on the farm. Other investors such as the Zambia National Service, Valley Macadamias, and an Arabian investor were yet to record any activities on the ground—these will engage in cashew nut production. Some farm owners were cultivating maize using squatters as their production managers. The anchor core venture that remains unoccupied was allocated to Bonafarm venture group from Hungary, with final negotiations slated for the year 2012, but they pulled out perhaps due to discomfort that came with regime change in 2011, with power shifting from the Movement for Multi-party Democracy under President Rupiah Banda to the Patriotic Front under President Michael Sata. It is unclear why other losing bidders including Polyserve Fertilizer from Egypt, Sable Transport Limited from Zambia, and Sea Agriculture Group from the United Kingdom were not considered following this development.

In Luena farm-block, only Sunbird Bioenergy Africa and Nava Bharat Ventures of India have been allocated 10,000 ha land each for the establishment of an integrated sugar estate and biofuels production. The two were expected to operate as anchor core ventures. Nava Bharat Ventures are not new to Zambia; they also have some investments in the energy sector, hence their interest in sugarcane production and processing. At the time of this research, the rest of the farm block is yet to be allocated to other farmers. However, the two firms are expected to operate outgrower schemes for cassava and sugarcane. Specifically, Sunbird has contracted Vana (an Indian company with a footprint on the Copperbelt province) to design and implement a cassava outgrower scheme involving 5,000 outgrowers in Luapula Province in 2017, and an additional 15,000 in 2018 (Zambia Daily Mail 2017). Some access roads are yet to be developed, and this is one reason the investors are yet to move within the farm blocks.
**Figure 2. Some Infrastructure and Investments in the Farm Blocks**

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<tr>
<td><img src="image1" alt="Agricultural machinery in Luwombwa farm block" /></td>
<td>Agricultural machinery in Luwombwa farm block</td>
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<td><img src="image2" alt="1 of 12 fish ponds at a commercial farm in Luwombwa farm block" /></td>
<td>1 of 12 fish ponds at a commercial farm in Luwombwa farm block</td>
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<td><img src="image3" alt="A pump house pivot at the Zambia Correctional Service farm in Nansanga farm block, and a ZESCO power substation for the electricity grid that passes through Luwombwa farm block." /></td>
<td>A pump house pivot at the Zambia Correctional Service farm in Nansanga farm block, and a ZESCO power substation for the electricity grid that passes through Luwombwa farm block.</td>
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<td><img src="image4" alt="Center pivots at a commercial farm in Luwombwa farm block, and at the Zambia Correctional Service farm in Nansanga farm block." /></td>
<td>Center pivots at a commercial farm in Luwombwa farm block, and at the Zambia Correctional Service farm in Nansanga farm block.</td>
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Source: Authors 2017.
When the status of the farm blocks with respect to critical success factors is analyzed (see Section 2), the following gaps are noticeable:

- Some critical infrastructure is still missing in the government-managed farm blocks (e.g., roads and bridges, communications, clinics and hospitals). This raises concerns especially that budgetary allocations are being made to new farm blocks.
- Although there are pronouncements and intentions to create farm blocks that will create employment, increase productivity, and open up previously unoccupied areas, there are no localized institutional arrangements to manage resource-use at the government farm blocks. An example is water-use management.
- Environmental impact assessments are done, with procedures in place to compensate displaced households. However, for the farm blocks outside the government program, there are some complaints from the locals that they are being displaced to marginal lands. On the other hand, investors are also faced with the challenge of opportunism by locals that settle on their land post-allocation and demand compensation.
- Allocation of title to land in the farm blocks outside the government program is quick, suggesting existence of a system that reduces the bureaucracies around the process of land acquisition. This is not the case for other farm blocks outside the program. For interviewed commercial farmers, title acquisition takes up to seven years. One commercial farmer even noted the following: “It doesn’t matter who you know at the Ministry of Lands, the titles take a very long time to acquire”.

4.2. The Process of Land Acquisition and Tenure Arrangements

The Ministry of Lands, Natural Resources and Environmental Protection (MLNREP), and the local councils that fall under the Ministry of Local Government and Housing jointly allocate land in the farm blocks. All applications for land are made through the local councils, and the councils then recommend the applicants to the MLNREP. Approval of farm allocations by the local council is restricted to farms 50 ha and below. Applications for the core venture should be done through the Zambia Development Agency. Both local and foreign investors can apply for the core-venture; however, non-Zambians are required to make provisions for Zambian participation. A checklist detailing qualification criteria can be found in the pre-qualification forms available at the Zambia Development Agency. However, these are only availed upon signing of a non-disclosure agreement.¹

Land tenure in the farm blocks is allocated on a 99-year lease. However, there are restrictions on land transactions. No sale or segmentation is allowed until after 25 years. This condition serves to deter land acquisition by speculators. The study reviewed that title deeds in the government-developed farm blocks are quickly acquired and most titles were given within a week of being allocated the farm to facilitate the acquisition of loans for investments. However, this was not the case for farm blocks outside the government program, where bureaucratic inefficiencies and rent-seeking have contributed to delays of at least six years for titles to be acquired for the commercial farmers interviewed.

While the government farm block does well to deter speculative land acquisitions, the same cannot be said for other farm blocks outside the development program. Some farms are largely inactive as they were acquired for speculative purposes, despite the lack of finance

¹ [https://www.oaklandinstitute.org/sites/oaklandinstitute.org/files/Nansanga%20Farm%20Block%20Prequalification%20Application%20Form.pdf](https://www.oaklandinstitute.org/sites/oaklandinstitute.org/files/Nansanga%20Farm%20Block%20Prequalification%20Application%20Form.pdf)
also playing a role. This is observable when the largely inactive parts of Luwombwa farm block are compared to the more active North.

Most of the land in the farm blocks (i.e., Nansanga, Luwombwa, and Kasanka) is owned by government staff from within and outside the district. Local smallholder farmers manage absentee owned farms, with some limited production on plots allocated to them by the farm owners. They cannot expand own-cultivated plots without the permission of the landowners.

4.3. Challenges with the Farm Block Development Program

4.3.1. Political Risk

The biggest challenge thus far has been securing an investor for the core-venture in Nansanga Farm Block. In Nansanga farm block, despite awarding of the core venture to Bonafarm group from Hungary, the investor pulled out at a time that coincided with the change of Governments from the Rupiah Banda led regime to the one led by President Michael Sata in 2011. This particular occurrence underscores the importance of addressing political risk in the farm block development program. Other farms could not commence production due to the heavy dependence on the core venture in the farm block design.

4.3.2. The Water-Energy Nexus in the Farm Blocks

Using Luwombwa and Nansanga farm blocks as case studies, it is clear that there needs to be relooks into the reliability of water and electricity in the farm blocks and the institutional arrangements for management of both resources. Thus far, the farm block development program may have failed to take into account the development or existence of other farm blocks that reflect the initiative of the local governments, and traditional leaders, and the competing resource-use needs between these and the government-led farm blocks. In Nansanga for instance, Luwombwa farm block was initially not in the picture, but it became increasingly clear that it would also benefit from the infrastructure provisions in Nansanga. Existing farmers in Luwombwa lobbied to be connected to the electricity grid, and this meant that electrification of Nansanga farm block was incomplete. A notable feature in farm blocks outside the government’s program is that some of the infrastructures such as roads and dams are being financed and developed by the investors.

Further, drawing from Luwombwa as a case study, there is need to strike a balance across farms with respect to electricity and water-use rights allocations. Typically, a farm can only pump water to the extent that there is power and sufficient capacity of installed motors. Where a very large farm is allocated more power, there is likely to be over-exploitation of water—with the smaller farms paying the price. Clearly, there is need for close monitoring of water-use vis-à-vis the allocation by a localized body that will have adequate capacity to monitor water-use by those with the capacity to over-exploit the resource.

Lastly, interviewed commercial farmers indicated that the competing demand and subsequent supply of power from the 12 Megawatt Luswishi power station to users in Eastern Province and Mkushi District was reducing the voltage for farms in Luwombwa farm block, which borders Nansanga farm block. Because investments in power infrastructure inevitably fall short of the demand growth, other alternatives must be explored.
4.3.3. Inadequate Telecommunications Infrastructure

The importance of communications infrastructure cannot be over-emphasized. Farmers interviewed bemoaned the inadequacies in the telecommunications infrastructure. Its effects on efficiency by limiting electronic transactions have been frustrating. Where mobile network is available, the speed does not allow for complicated transactions such as internet banking. This suggests the need to include at least Third Generation telecommunications infrastructure in the development of farm blocks.

4.3.4. Agricultural Finance

From interviews with commercial farmers in Luwombwa farm block, the classic case of blocked supply of agricultural finance manifests due to the agricultural risk perceptions among banks. Banks are unwilling to lend to farmers wishing to produce commodities other than wheat and soya beans, yet farmers are interested in investing in other high value commodities such as fish and Macadamia nuts. As a result, diversification within farm blocks is a challenge. Enterprises such as fish farming have to show a record of incomes at the farm to be financed. This underscores the need for government loan guarantees to farmers wishing to invest in commodities that banks are unfamiliar with. Other risk mitigation measures can be put in place to reduce risks to the lender, such as a credit guarantee facility. However, this must be backed by a comprehensive analysis of the constraints to increased supply of agricultural finance, with a special focus on risk mitigation.

4.3.5. Wild Fires

One challenge that threatens the diversification agenda is the outbreak of wildfires caused by the local population. From interviews conducted in this study, the locals in their search for mice burn pastures that could be used as grazing lands. Figure 3 shows the incidence of fires across Zambia since 2012, clearly some districts earmarked for farm block development face this risk, especially with respect to cattle ranching which requires adequate pastures. Fire alerts are highest in the period following harvests (Figure 3; Figure A1). This means that for farm blocks targeted for cattle ranching, there will be a need for sensitization of the locals, to minimize the incidence of fires.

Figure 3. Fire Alert Count (2012 to Present)

Source: Global Forest Watch 2017.
4.3.6. Farm Equipment Replacement Parts

Another key challenge is the lack of replacement parts for farm machinery. Typically, farm equipment dealers in Mkushi stock up on farm equipment, but not so much on replacement parts. Consequently, the supply of specific parts may delay, adversely affecting the timeliness of farm operations and/or productivity. A recommendation, in this case, is for agro-equipment suppliers to understand the market in the farm blocks and stock-up to anticipate product demand from the farmers.

4.3.7. Inadequate Infrastructure

Despite the provision of a reasonable amount of roads, electricity, bridges, and irrigation infrastructure, some key services are missing in the farm blocks (i.e., healthcare, police, and schools). The roles played by these need not be re-emphasized; the police provide the necessary security to deal with domestic and other cases on and off the farms. Healthcare needs to be close to safeguard both farm owners and their workers, while also indirectly serving the rest of the communities. The presence of schools will be crucial to retaining farm workers. Commercial farmers have taken up the initiative to put up schools that run up to Grade 4 in order to deter their workers from migrating in search of schools for their children. However, this can only work up to a certain grade and needs further support from the government. One farm interviewed had four classes with a total of 40 students and three teachers that were paid for by the farm. For healthcare, some large investors have established their own healthcare facilities, while others still have to go as far as Mkushi or use those being provided for by other investors. The challenge, however, is the erratic supply of drugs to nearby facilities.

4.3.8. Program Financing

Table 1 shows the Zambian government has allocated resources towards the development of the farm blocks since 2014. The beneficiary farm blocks include Nansanga, Luena, Luswishi, Kalungwishi, and Manshya. Activities conducted thus far include the undertaking of feasibility studies, installation of electricity infrastructure, construction of roads and irrigation infrastructure (see Table 1 for details). Cumulatively, budgetary allocations for the farm blocks development program amount to Zambia Kwacha (ZMW) 26,911,582 in nominal terms over the period 2014-2018. In 2017, as of September, 71% of the budgeted for amount (ZMW 726,127) had been released towards the program, however, for individual farm blocks, Eastern Province had not received any budget releases as of September 2017. This suggests that pronouncements may not necessarily translate to release of funds. In 2018, ZMW 3,585,455 is expected to be spent on farm block development, but the budget is yet to be approved. Majority of this will be for farm blocks on the Copperbelt, and Northern Provinces.

From discussions held in the districts hosting the farm blocks, one reason for the delayed program completions is that allocated resources do not always make it to the districts. Instead, resources are used for workshops in Lusaka, or could be diverted to other competing needs within the Ministry of Agriculture.
Table 1. Farm Block Budgetary Allocations (2014-2018)

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<td>Luena farm block roads</td>
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<td>500,000</td>
<td>500,000</td>
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<td>Supervision of Luena</td>
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<td>975,000</td>
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<td>Luapula</td>
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<td>Other</td>
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<tr>
<td>Annual Total</td>
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<td>600,000</td>
<td>600,000</td>
<td>726,127</td>
<td>511,681</td>
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4.4. Will the Benefits of Farm Block Development be Realized?

Thus far, indications are that farm blocks have been successful in opening up new areas, and are on track with respect to contributing to increased food production particularly for wheat, soya beans, macadamia nuts, fish, and cattle. Whether they will contribute to rural poverty reduction depends on the extent of involvement of the rural population in the farm blocks. Presently, the model is leaning more towards commercial farming involving retirees and other large-farm owners that are not necessarily the typical small-scale farmer in rural Zambia. The extent of participation of the typical smallholder farmers will depend on their engagement through outgrower schemes, such as those by Sunbird Bioenergy Africa. While farm blocks are expected to contribute to agricultural processing, this may be less than previously assumed given the challenges around securing a core venture in Nansanga farm block. Moreover, processing of other products such as groundnuts or soya beans into cooking oil are likely to be very low key activities due to the limited effective demand in the markets in close proximity to the farm blocks. On the role of farm blocks in reducing rural to urban migration, the prospects are positive. We found locals to be engaged in employment on the farms (Figure 4), and in agreement with the notion that thus far, created opportunities have contributed to employment opportunities hence confining the locals within the rural areas.

Through focus group discussions with farmers in and around Luwombwa and Nansanga farm blocks, seasonal employment was seen as one of the benefits that had come with development of the farm blocks. Farm owners employ locals on seasonal jobs that include harvesting, land preparation, threshing, guarding, stamping, weeding, and grading of produce. Very few locals were employed on contract basis. Typically, farm owners come with skilled employees that operate farm equipment or conduct specialized tasks (e.g., center pivot operators, drivers, cattle herders, and security guards), and those hail from places such as Mkushi, Kabwe, Lusaka, Monze, and Mazabuka. These were employed on a permanent basis or fixed term contracts. In some cases, locals were trained on the job and given fixed contracts.
However, the numbers employed was dependent on the types of enterprises farms engage in, and the type of the investor. During interviews with staff from the Department of Correctional Services, there was an indication that, they would use prisoners for farm labor. It is expected that labor intensive enterprises were likely to generate the largest employment benefits. For example, chili and tobacco production that requires a lot of female labor for grading and picking, while wheat production and harvesting is more mechanized. Whether or not a farm block generates employment will also depend on the farm-size distributions. The very large farms are more mechanized and generate the least employment, while smaller farms are likely to generate the most employment per ha of operated land.

There are also indirect benefits that have come with the farm block development program. An example is the supply of inputs to commercial farmers by agro-dealers. At the time of the research, companies providing agricultural inputs had been scanning the market, identifying the inputs that farmers use, or might need for their production activities. However, they were yet to establish points of sale within Serenje or within the farm blocks perhaps due to the low levels of demand at the time. With increased activity, this might change. Further, the banks have set-up branches in the district in anticipation of the market, for instance, Serenje District
has three banks. This might spell a shift to the use of locally available banks by commercial farmers from Mkushi to within Serenje. Not only is this important for financial inclusion, but also for facilitating government subsidy provision through the electronic vouchers. The fact that most permanent employees working on the farm were paid from Mkushi had the effect of reducing a market for locally produced commodities. From focus group discussions held for this study, farmers indicated that permanent workers that hail from within the communities now buy their foodstuffs from Mkushi when previously; they used to buy from the locals.

In the literature on SEZs, it is often assumed that wage rates in the SEZs are significantly higher; hence, respondents were asked during the focus group discussion to compare wage rates within and outside the farm blocks. As per priori, the wage rates in the farm blocks were higher. Casual workers earn from ZMW 23.5 per adult per day while permanent workers earn ZMW 35 per day. This translates to ZMW 329 in 14 working days. Interviewed farmers indicated that casual work outside the farm block paid ZMW 250 in 14 days. This result suggests that wage rates for casuals were better paying in the farm blocks. We argue that despite some farmers indicating they were paid less than outside the farm block, this was merely because they worked for longer periods outside the farm block, making them inefficient time users. Close supervision within the farm block meant that they spent less time for the same piece of work. The other difference is that farmers cannot negotiate wages inside the farm block as they do when employed outside the farm block. There were complaints among smallholder farmers that the higher wage rates being offered by the investors has raised the cost of labor in areas close to the farm blocks and there are fears that this might reduce the amount of labor available for hire for the smallholder farmers. Related to this, negative impacts were reported, with farmers citing increases in adultery. This was attributed to the fact that farm workers typically earn more money and thus are able to attract locals’ wives.

Location of smallholder farmers in the farm block is expected to increase their yields through interaction with large-scale farmers that allows them to adopt more intensive production systems and best practices. For this study, given the very low levels of activity in the farm blocks, it is difficult to assess the impact of farm blocks on crop yields. However, we note that farmers (squatters) resident in the farm blocks are still achieving yields that are equal to the currently obtaining yields. Moreover, the so-called smallholder farmers as classified in the farm blocks are different from typical smallholder farmers.

### 4.5. Implications on Smallholder Commercialization

A core question relates to the potential for the farm blocks program to trigger smallholder agriculture commercialization and significantly contribute to broad-based rural poverty reduction. In its current state, the farm block program excludes the majority of the smallholder farmers that do not have the requisite knowledge and resources to acquire land in the farm blocks. Moreover, the size of the smallest farm sizes is too large for the majority of Zambia’s smallholder farmers. Considering that program implementation is still in the early stages, there is scope for inclusion of smallholder farmers, particularly those in the farm block hinterlands. These could be allocated land and included in outgrower farming arrangements by the core-venture.

In addition, efforts targeted at increasing smallholder technology adoption and productivity can be effectively complemented with those aimed at increasing the average farm size from prevailing levels to the 3-5 ha range from which significant agricultural sales can be achieved. The target, resources permitting, should be to reach 10-12 ha as the average
smallholder farm size that can both produce significant crop surpluses as well as provide the means for subdivision to support rural livelihoods for future generations. This would then buy another 20-30 years for demographic and economic transitions to take place that would eventually shift the majority of the labor force into non-farm employment. A policy that supports migration to areas of land abundance would entail basic public goods investments in fertile regions suitable for agricultural commercialization. Such investments would include trunk highways, health care facilities, schools, electrification, irrigation etc., to open up more land for cultivation in agro-ecologically suitable areas that are currently under-utilized. In its current form, the farm block development program cannot increase access to land except for a small proportion of farmers, very few of which are likely to be land-constrained smallholder farmers.

A key consideration is adaptation of the original model in such a way that the core-venture is first allocated land, and allowed to recruit local smallholder farmers; allocating them pieces of land in some form of outgrower arrangement.
5. RETHINKING THE FARM BLOCK DEVELOPMENT APPROACH

5.1. Global Best Practices

In countries that have successfully implemented any form of SEZ, there are some good practices that the farm blocks development program in Zambia can adapt or adopt. Drawing from Gauthier (2011), Madani (1999), and World Bank (2008), these include:

- Letting the private sector take the initiative, rather than giving the government the leeway to designate unprofitable zones. A key argument under this is that privately managed farm blocks are better performing and less expensive to set-up. They require less public funding to establish and operate because government focuses on the provision of off-site infrastructure and facilities;
- Develop an appropriate legal, regulatory, and institutional framework to ensure adequate regulation and facilitation, requiring greater administrative facilities within host governments. The framework must also tackle labor-related issues to increase worker productivity, and reduce worker turnover;
- The government should not play the role of regulator and promoter in SEZs, as the two roles are conflicting;
- Realistic expectations should be set and a thorough cost-benefit analysis should be conducted, determining whether it is more efficient to have a private sector or public sector led development of zones;
- Competition between public and private zones should be avoided by aligning incentives among zones;
- Clear physical development standards and criteria for approval of privately and publicly developed zones should be put in place and streamlined;
- Greater involvement of the private sector in the development of zones should be encouraged—international experience reveals that a significant number of government developed and managed zones have been less effective than their private counterparts;
- Take into account the social impacts that come with such an undertaking (i.e., HIV/AIDS, promiscuity, petty theft etc.);
- A sound environmental impact assessment that will ensure the program does not face opposition by the locals in future as land constraints increase, and in light of potential adverse effects such as air/water pollution;
- High-level political commitment and support; and
- The special economic zone must have linkages to the local labor market.

In view of the evidence on the farm block development program, the global best practices for successful SEZs and insights from interviews with commercial farmers and literature, there are proposals for ensuring that the farm block development program effectively achieves its intended objectives.

5.2. Options for Addressing the Challenges of Farm Block Development

To manage water conflicts within the farming area, farming concessions have often employed a management company that allocates water to different farmer fields or water users’ associations. The approach is based on Ronald Coase’s 1960 theorem on efficient resource allocation in the presence of externalities. It involves the establishment of a system of incentives and punishments to reward efficient and equitable water use, and to penalize any deviation from a fair water allocation in this instance (or what is acceptable) (see Coase 1981; Coase 2013). In all this, full participation of all farmers in the farm block is critical. A
common example across Southern Africa is in the production of sugarcane by outgrowers who supply produced sugarcane to a central processing facility. Water-use conflicts may arise because of different electricity allocations and hence capacity to pump water, or because of different farm locations (i.e., upstream and downstream), and hence the availability of water. Farms upstream may be at an advantage in times of drought, reducing the amount of water available to farmers downstream.

This model could be adopted for the original concept of the farm blocks where the core venture would have an allocation of water, which can be shared across the various farms supplying output to it, and managed by a company or water-user associations. The model could be adapted in the case where the farm block design deviates from the original concept, as is the case in the farm blocks outside the government’s farm block development program, where individual farmers own different water-use rights, and have different capacities to pump due to differences in electricity availability (see Box 1).

Other recommendations on each of the challenges being experienced or anticipated are provided for in Table 2. The list draws from global best practices, and insights from commercial farmers interviewed.

**Box 2. Water Management by Kaleya Smallholder Company in Zambia**

Incorporated in 1981, Kaleya Smallholder’s Company Limited (KASCOL) was established to supply water to 2,156 ha of sugarcane, and fill the excess capacity at Zambia Sugar Company (ZSC) in an irrigation scheme that involves smallholder farmers. All water accessed by KASCOL is governed by ZSC. Typically, water for irrigation is conveyed from the Kafue river through a pipeline to six-night storage reservoirs, and gravity-fed irrigation furrows. KASCOL has its own water right of up to 1,600 cubic meters per day from Kafue river, but it is not exploiting it due to high infrastructure costs entailed in laying its own conveyance system. Water is siphoned from tertiary canals onto the fields for flood irrigation. Only sugarcane can be grown with the supplied water. The costs of water are subtracted from each farmer’s proceeds when they sale their sugarcane to Nakambala Sugar Estates (the processor). Water management is fully controlled by KASCOL (the estate), while irrigation scheduling, water distribution and ordering to outgrower and estate fields is done by the irrigation personnel. However, even with the presence of a management company, farmers have the responsibility of taking care of their fields in a manner that ensures water allocated is sufficient for their crop. Previous experience has shown that farmers do not ensure timely completion of some tasks on their individual plots.

Sources: Matenga and Hichaambwa (2017); Bangwe and Von Koppen (2012); and Njobvu (1990).
<table>
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<th>Recommendation</th>
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| Over-exploitation of Water           | ● Constitute a management company to monitor and allocate water use as is done for sugarcane production at Nakambala sugar plantation in Mazabuka District. Such a company should not be under a government agency to avoid conflicting government roles as both promoter and regulator. Other examples exist at Manyonyo and Magobbo irrigation schemes.  
● Employ a dynamic approach to water use rights allocation to take into account climate variability and change, and the seasonal changes in river flow rates. |
| Unreliable Power                     | ● Alternative irrigation that is not dependent on power (e.g., solar-powered farms). However, this relies largely on energy sector policies especially those to do with pricing and power buy-back by Zambia Electricity Supply Corporation (ZESCO). Gravity-fed irrigation systems can also be installed to account for the unreliability in electricity supply.  
● Take into account the power demands of other farm blocks other than only the ones being developed in the feasibility studies.  
● Align electricity demand growth and investments in power with the farm block development program.  
● Have a private sector or management company within the farm block to invest in alternative power instead of relying on ZESCO power (e.g., gas-fired power plant).  
● Scheduling of electricity availability and hence water pumping in the farm blocks. |
| Attraction of Core Ventures           | ● Let private sector identify or lead the development of farm blocks that make business sense.  
● Explore alternative production models in existing farm blocks that are unattractive for the core venture.  
● Establish a window beyond which failure to attract a core-venture should allow for flexibility in the farm block production activities.  
● Enhance marketing of regions (farm blocks) to investors through provincial agri-tech expos and investment conferences. |
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| Over-exploitation of Water                                           | • Constitute a management company to monitor and allocate water use as is done for sugarcane production at Nakambala sugar plantation in Mazabuka District. Such a company should not be under a government agency to avoid conflicting government roles as both promoter and regulator. Other examples exist at Manyonyo and Magobbo irrigation schemes.  
• Employ a dynamic approach to water use rights allocation to take into account climate variability and change, and the seasonal changes in river flow rates. |
| Inadequate Or Missing Communication Infrastructure                    | • Encourage public-private investment partnerships.  
• Address political risks from various sources including policy stability and government stability. |
| Inadequate Infrastructure                                             | • Make a business case for private or public service providers.  
• Include telecommunications infrastructure in the farm block budgeting. |
| Competition For Resources Between Government Planned And Existing Farm Blocks | • Schools, hospitals, and a police station must be made priority investment areas for farm block development.  
• Funds budgeted for must be committed and released for program development. |
| Costly Agricultural Finance and Lack of Confidence by Banks in New Value Chains | • Consult local government officials in the planning phase of farm block development and in the feasibility studies.  
• Consider development of already existing farm blocks, or budget for these when developing those in close proximity to existing ones.  
• A farm block policy document that will guide the development and operation of all farm blocks. |
| Bushfires                                                             | • Establish an agricultural credit fund that will provide low-cost agricultural credit to the farm blocks, and this should be administered by selected financial institutions. This would then create a history of financial flows on which banks and FIs can use to assess risk.  
• Establishment of a credit guarantee scheme.  
• Identify supply-side constraints to finance provision in farm blocks.  
• Sensitize the local communities on the negative effects of fires. |
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<td>Over-exploitation of Water</td>
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<td>• Employ a dynamic approach to water use rights allocation to take into account climate variability and change, and the seasonal changes in river flow rates.</td>
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<td>• Provide the locals with opportunities that will elevate their food security status.</td>
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<td>The Gestation Period for Some Products May Be Unsuitable for the Smallholder Farmers.</td>
<td>• The core venture must make clear what products will be produced to allow farmers and other investors to make a priori decisions on whether to acquire land or not within the farm block.</td>
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Source: Authors 2017.
6. CONCLUSION AND RECOMMENDATIONS

Zambia’s farm block development program has been identified as key to attracting foreign direct investments and spurring economic growth. The specific objectives of this program are four-fold: (i) To commercialize agricultural land and exploit its full potential in order to attain economic diversification and growth; (ii) To enhance food security through production of adequate food; (iii) To open underdeveloped rural areas, reduce poverty and minimize rural to urban migration; (iv) To add value to agricultural products by processing them into products ready for the market; and (v) Create employment.

Since 2006, the government has invested resources towards this program, however, the most visible component of the farm block development program in the media and on the ground are the large-scale farms. Little is known about the status of the farm blocks, and the constraints to production commencement. This paper sought to develop a shared understanding on the status of farm blocks in Zambia and to draw lessons from the first phase of farm block development as a basis for rolling out the rest of the program.

Our key finding is that farm blocks remain inactive despite indications of some activity in the near future. The biggest constraint thus far has been the absence of a core venture in Nansanga farm block, perhaps highlighting that not all farm blocks are attractive to investors, and the need to increase private sector participation in farm block development. Thus far, the original farm block concept is deviating, with large-scale farms the most visible in Nansanga farm block. Clearly, not all farm blocks will have a core venture, and government must therefore consider flexibility in the design.

We find the program successful in opening up new areas, and installation of infrastructure including roads, electricity and irrigation infrastructure. Other farm blocks not earmarked for development (i.e., Luwombwa) under the government’s program have benefited from infrastructure provisions. Production activities in Luwombwa are more than in Nansanga as private investors have invested, created employment, and contributed to agricultural production for mostly wheat, soya beans, tobacco, chilies, and cattle.

Despite limited activity and thus learning points from the program so far, there are indications that it is likely to do well with respect to contributions to employment creation, skills transfers, abatement of rural-urban migration, and increased production. However, agro-processing from within the farm blocks may be less than previously assumed, because of missing core ventures. Most of the products are locally sold and raises questions about the potential contribution of farm blocks to agricultural export earnings. Only chilies are currently being exported to Namibia and other products are sold in the Copperbelt Province.

Other challenges in the program include inadequacies in the power and water allocations, unavailability of finance for other enterprises, costly agricultural finance, inadequate communication infrastructure, bushfires and, inadequate infrastructure (i.e., Police stations, hospitals/clinics, all-access roads, incomplete electrification etc.).

To move the program forward, there is need to harmonies the establishment of private farm blocks being developed by the private sector in collaboration with traditional leaders, and others by the local administration with those under the government program. Water allocations in the farm blocks need to be done by a management company, and alternative electricity and irrigation approaches must be explored in light of the likelihood that public investments in power will always lag behind demand growth. There is need to establish an agricultural revolving fund that will address the finance challenges in the farm blocks; this
should also be complemented by a government credit guarantee scheme. To ensure sustainability in the program, private sector participation in the identification of profitable farm blocks and their development should be enhanced. Further, before farm block allocations are made to the farmers, anchor core ventures must first be secured to inform the land acquisition decision among other settlers.

In terms of the potential for the farm blocks program to contribute to smallholder commercialization and broad-based poverty reduction, the current farm block program may not achieve the desired results as the implementation has deviated from the original design that included the core venture at the center, surrounded by commercial and smallholder farms. Further, the minimum size of the farms in the farm blocks may be too large for most smallholder farmers. Smallholder inclusion will require deliberate efforts to ensure farmers in the farm block hinterlands are allocated land; these could then enter into outgrower contracting with the core-venture.
### Table A1. Summary of Status of Farm Blocks

<table>
<thead>
<tr>
<th>Farm Block</th>
<th>District</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nansanga</td>
<td>Serenje</td>
<td>Some level of activity by the Zambia Correctional Service, other farms yet to settle in the farm block. Infrastructure developed, but not entirely complete, e.g., power lines are yet to cover the whole farm block due to diversion to neighboring Luwombwa. There is no anchor core venture. Bonafarm group from Hungary won the tender to be the core venture in 2012, but they pulled out.</td>
</tr>
<tr>
<td>Luena</td>
<td>Kawambwa</td>
<td>Two investors (i.e., Sunbird Bioenergy Africa and Nava Bharat ventures of India) are making progress towards settling in the farm block as anchor core ventures for establishment of an integrated sugarcane estate, and a biofuels plant. Each investor has been allocated about 10,000 ha, but other farms are yet to be allocated land. Some access roads remain incomplete and this is one reason investors have not moved on site. Present activity includes land clearing.</td>
</tr>
<tr>
<td>Luswishi</td>
<td>Lufwanyama</td>
<td>100,000 ha identified, feasibility studies have been conducted, and an environmental impact assessment done. Investors have been identified. The farm block has been allocated funds in the 2018 national budget and phase 1 of its development is expected to be completed in 2020.</td>
</tr>
<tr>
<td>Kalumwange</td>
<td>Kaoma</td>
<td>-</td>
</tr>
<tr>
<td>Mikelenge/Luma</td>
<td>Solwezi</td>
<td>-</td>
</tr>
<tr>
<td>Simango</td>
<td>Livingstone</td>
<td>36,000 ha identified. 75,000 ha under soil fertility and social investigations.</td>
</tr>
<tr>
<td>Mwase</td>
<td>Lundazi</td>
<td>-</td>
</tr>
<tr>
<td>Senanga Citric Plant</td>
<td>Senanga</td>
<td>-</td>
</tr>
<tr>
<td>Mungu</td>
<td>Kafue</td>
<td>-</td>
</tr>
<tr>
<td>Manshya</td>
<td>Mpika</td>
<td>147,000 ha identified. Feasibility studies undertaken. 350 small, emergent and medium scale farms demarcated and cadastral surveyed.</td>
</tr>
<tr>
<td>Kalungwishi</td>
<td>Mporokoso</td>
<td>Feasibility study completed, construction works slated for commencement in April, 2018.</td>
</tr>
<tr>
<td>Musakashi</td>
<td>Mfulira</td>
<td>-</td>
</tr>
<tr>
<td>Chikumbiilo</td>
<td>Mfulira</td>
<td>About 38,000 ha land secured and soil feasibility studies done. Negotiations for a further 62,000 ha are under way. Environmental impact assessment conducted.</td>
</tr>
</tbody>
</table>

Source: Authors compilation from various sources (2017).
<table>
<thead>
<tr>
<th>Activity</th>
<th>Responsible Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financing and co-ordination</td>
<td>Ministry of Finance and Ministry of National Planning and Development</td>
</tr>
<tr>
<td>Agricultural land alienation / identification and consolidation</td>
<td>Ministries of Agriculture, Local Government and Housing, and Lands Environment and Natural Resources.</td>
</tr>
<tr>
<td>Advocacy</td>
<td>Ministries of Agriculture, Local Government and Housing, and Lands Environment and Natural Resources.</td>
</tr>
<tr>
<td>Agricultural land baseline data</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>Layout plans</td>
<td>Ministries of Agriculture, Local Government and Housing, and Lands Environment and Natural Resources.</td>
</tr>
<tr>
<td>Environmental Impact Assessment</td>
<td>Tourism and Natural Resources / Zambia Environmental Management Agency, Farm Block Sub-Committee</td>
</tr>
<tr>
<td>Demarcation and survey</td>
<td>Ministries of Agriculture, Local Government and Housing, and Lands Environment and Natural Resources.</td>
</tr>
<tr>
<td>Land allocation</td>
<td>Ministry of Lands, Natural Resource and Environmental Protection, and the Ministry of Local Government and Housing (i.e. local councils)</td>
</tr>
<tr>
<td>Roads infrastructure</td>
<td>Ministry of Works and Supply</td>
</tr>
<tr>
<td>Dams and boreholes</td>
<td>Ministry of Energy and Water Development, Ministry of Agriculture</td>
</tr>
<tr>
<td>Electrification</td>
<td>Ministry of Energy and Water Development / Zambia Electricity Supply Corporation</td>
</tr>
<tr>
<td>Schools</td>
<td>Ministry of Education</td>
</tr>
<tr>
<td>Health facilities</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>Investor identification</td>
<td>Zambia Development Agency /Industrial Development Corporation oversee all parastatals including the Zambia Development Agency.</td>
</tr>
<tr>
<td>Security</td>
<td>Ministry of Home Affairs</td>
</tr>
<tr>
<td>Investment Certificates</td>
<td>Zambia Development Agency</td>
</tr>
<tr>
<td>Land use plans</td>
<td>Ministries of Agriculture, Local Government and Housing, Lands Environment and Natural Resources.</td>
</tr>
<tr>
<td>Conservation works</td>
<td>Ministry of Lands, Environment and Natural Resources Environmental Council, Ministry of Agriculture, Zambia Environmental Management Agency</td>
</tr>
<tr>
<td>Oversight/project steering</td>
<td>Technical Multi-disciplinary and Multi-Sectoral Committee on Farm-block Development</td>
</tr>
</tbody>
</table>

Source: Adapted from MoFNP 2005.
Figure A1. Incidence of Fires in Zambia (2012-2017)

Source: Global Forest Watch 2017.
REFERENCES


