Input subsidies in Mozambique: The future of peasant farmers and their seed systems

May 2019
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On 7 April 2015 the African Centre for Biosafety officially changed its name to the African Centre for Biodiversity (ACB). This name change was agreed by consultation within the ACB to reflect the expanded scope of our work over the past few years. All ACB publications prior to this date will remain under our old name of African Centre for Biosafety and should continue to be referenced as such.

We remain committed to dismantling inequalities in the food and agriculture systems in Africa and our belief in people’s right to healthy and culturally appropriate food, produced through ecologically sound and sustainable methods, and their right to define their own food and agricultural systems.

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ISBN: 978-0-6399760-4-4

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Cover Image: Lisolomzi Pikoli
Copy editor: Liz Sparg
Design layout: Adam Rumball, Sharkbuoys Designs, Johannesburg

Acknowledgements
Thank you to Linzi Lewis for writing this report, and to Stephen Greenberg and Agostinho Bento for their contributions. Thank you to Livaningo and those who agreed to be interviewed including farmers, civil society groups, government officials, and other researchers. The ACB further acknowledges the generous support of the Swiss Agency for Development and Cooperation (SDC). The views and opinions expressed in this report are those of the ACB and do not necessarily reflect the official policy or position of our donors.
Acronyms

ACB  African Centre for Biodiversity
AFAP  African Fertilizer and Agribusiness Partnership
AGRA  Alliance for a Green Revolution in Africa
BNI  Banco Nacional de Investimento (National Investment Bank)
CA  conservation agriculture
CAADP  Comprehensive Africa Agriculture Development Programme
CDC  Certificado de Delimitação Comunitário (Community Delimitation Certificate)
DUAT  Direitos de Uso e Aproveitamento da Terra (Land Use and Benefit Rights)
EU  European Union
FAO  Food and Agriculture Organization of the United Nations
FFS  Farmer Field Schools
FNDS  Fundo Nacional de Desenvolvimento Sustentável (National Sustainable Development Fund)
IDA  International Development Association of the World Bank
IFAD  International Fund for Agricultural Development
IFDC  International Fertilizer Development Center
IIAM  Instituto de Investigação Agrária de Moçambique (Agricultural Research Institute of Mozambique)
IITA  International Institute for Tropical Agriculture
MASA  Ministry of Agriculture and Food Security
MITADER  Ministry of Land, Environment and Rural Development
MZN  metical (Mozambique’s currency)
NGO  Non-governmental organisation
NTFP  Non-timber forest products
OPV  open-pollinated variety
ORAM  Associacao Rural de Ajuda Mutua
PEDSA  Plano Estratégico de Desenvolvimento do Sector Agrário (Strategic Development Plan for the Agricultural Sector)
PFCS  Program for Strengthening of the Seed Chain
PNISA  Plano Nacional de Investimentos para o Sector Agrário (National Investment Plan for the Agricultural Sector)
SECF  small, emerging commercial farmer
SUSTENTA  World Bank’s Agriculture and Natural Resources Landscape Management programme
TASAI  The African Seed Access Index
TECAP  Tecnologia e Consultoria Agro-Pecuária, Lda
UNAC  União Nacional de Camponeses (National Union of Farmers)
USAID  United States Agency for International Development
WFP  World Food Programme of the United Nations

1. MINAG changed to MASA in 2016
About this paper

In this paper, we discuss and assess the input subsidy programmes in Mozambique, as part of the larger agriculture policy landscape, the impact this has had on the agricultural sector in Mozambique, and particularly on smallholder farmers.

Input subsidy programmes in Mozambique are fragmented and operate more along the lines of projects and pilots. Therefore, this paper selects a few key projects to explore approaches being taken by the Mozambican government, along with international donors, providing agricultural inputs to peasant farmers. Notably we consider the more recent Food and Agriculture Organization (FAO)’s input subsidy programme, and the World Bank funded Agriculture and Natural Resources Landscape Management (SUSTENTA) programme/project, implemented by the National Sustainable Development Fund (FNDS), under the Ministry of Land, Environment and Rural Development (MITADER).

This paper provides a brief background to agriculture in Mozambique, followed by the agricultural policies, plans and budgets guiding agricultural investments in the country. After briefly outlining the agricultural sector – notably seed, fertiliser and agro-dealers in the country – we discuss and analyse selected input subsidy programmes in Mozambique. The paper closes with a conclusion and recommendations to feed into future discussions with farmers, farmer organisations, non-governmental organisations (NGOs) and others in Mozambique.

Key findings

Input supply and subsidisation in Mozambique tends to be externally driven, such as in the form of relief programmes, or export-oriented commercialisation and value chain integration. Agricultural policy supports this approach. Unlike some other African countries, where large-scale input supply and subsidy programmes get most state agricultural funds, in Mozambique irrigation, followed by extension and research services are the priorities. Mozambique has been pioneering the promotion of participatory extension approaches such as Farmer Field Schools (FFS), yet these have not been scaled up.

Since 2002, agricultural input trade fairs and vouchers have been the preferred delivery mechanism as a humanitarian response in emergencies within the agricultural sector in Mozambique. In the past smallholder farmers in Mozambique have received agricultural inputs free of charge from either government or development partners.

The new Green Revolution in Africa really took off around 2006, at the peak of the global commodities boom and just before the global financial crash in 2008. In 2009/10, the government of Mozambique launched a two-year fertiliser subsidy programme, funded by the European Union (EU), and implemented in partnership with Food and Agriculture Organization (FAO) and the International Fertiliser Development Center (IFDC), to increase maize production and reduce import dependency. The subsidy programme, implemented under FAO’s emergency programme, reached 15 000 maize farmers and 10 000 rice farmers. The EU provided US$ 20 million to fund the programme.

Following the first two years, the Ministry of Agriculture and Food Security (MASA), the FAO and the EU decided to extend the programme for a further five years. The EU-funded umbrella programme “Support to Accelerate Progress towards Millennium Development Goal (MDG) 1C”

2. Fundo Nacional de Desenvolvimento Sustentável
was approved in 2012. FAO, International Fund for Agricultural Development (IFAD) and the World Food Programme (WFP) implemented it, for a total of EUR 67 million, plus an additional EUR 10 million from the government of Mozambique. This programme targeted farmers cultivating between 0.5 and five hectares of maize or rice, who were interested in modernisation and commercialisation, had access to extension services and input and output markets, and could pay the financial contribution of the subsidy (the main criterion). The government held a lottery and randomly selected 25,000 beneficiaries from a larger list of qualifying beneficiaries. The input package consisted of 12.5 kg of hybrid or open pollinated maize seed or 40 kg rice seed, and 100 kg fertiliser (50 kg of urea and 50 kg of NPK 12-24-12). Farmers paid 27% of the market value of the package (US$32 or US$117). The paper voucher system was used by FAO in Manica, Zambezia, Nampula, and Sofala provinces from 2013. Between 2007 and 2013 the Mozambican government spent about US$ 150 million on subsidised inputs, around US$ 25 million per year.

Government and NGO extension officers distribute vouchers to winning farmers, normally at the seed feiras, where they are also able to redeem the vouchers at private suppliers. Other international NGOs, such as Oxfam and the WFP, run similar agricultural input fairs: organising seed fairs and vouchers; selecting beneficiaries; and mobilising them to get to the fairs, to be able to purchase subsidised inputs. The cost of the vouchers depends on the donor, who makes an agreement directly with agro-dealers.

At the beginning of the 2015/16 agricultural season, FAO launched an electronic voucher scheme, in cooperation with Agro-Negocio para o Desenvolvimento de Moçambique3 (ADM), evolving from the previous emergency response into a targeted “smart subsidy” programme. The e-voucher scheme, first launched in Chimoio, Manica, is now being implemented in 12 districts in four provinces: 12,500 e-cards in Manica (Barue, Gondola, Manica, Vanduzi and Sussundenga); 7,850 in Sofala (Buzi, Gorongosa, Maringue and Nhamatanda); 1,600 in Zambezia (Alto Molocue and Gurué) and 1,200 in Nampula (Ribaue). Between 2015 and 2017, 23,000 farmers received e-cards and participated in the e-voucher system, most of which were part of FAO Farmer Field Schools. Two packages were made available. Package A was designed for subsistence farmers, targeted those farming on more than 0.5 ha, but less than 1.0 ha, and particularly women-headed households, and consisted of open-pollinated variety (OPV) seeds of maize and beans, and post-harvest insecticide, with farmers having to contribute 25% (US$ 8.75) of the US$ 35 package. Package B targeted emerging farmers, with paid labour or at least two economically active persons who were farming on more than one hectare and had access to markets, and consisted of either hybrid or OPV maize, beans, fertiliser and post-harvest insecticide, with farmers having to contribute 40% (US$ 52) of the US$ 130 package.

SUSTENTA, funded by the World Bank in Mozambique, as part of the Mozambique Landscape Management Program, is being implemented by the National Sustainable Development Fund (Fundo Nacional de Desenvolvimento Sustentável, FNDS), under the Ministry of Land, Environment and Rural Development (MITADER). SUSTENTA adopts a value chain approach to expanding the network of small, emerging commercial farmers (SECF) in priority areas. The five-year programme, which started in June 2016, aims to: increase the number of rural households participating in agriculture- and forest-based value chains; increase access to finance to these participants; increase access to rural infrastructure; increase Direitos de Uso e Aproveitamento da Terra (Land Use and Benefit Rights, DUATs) and Community Delimitation Certificates (Certificado de Delimitação Comunitário, CDCs); and protect and restore natural resources. US$ 26 million is being financed by the World Bank’s International Development Association (IDA) grant, and another US$14 million is provided through the IDA credit facility, totalling US$ 40 million.

Currently, SUSTENTA is operating in Zambezia and Nampula provinces, in 10 contiguous
districts along the Nacala Development Corridor. The project targets 100 emerging farmers, 20,000 subsistence farmers (including women and youth) and 25 micro, small, and medium agribusinesses. In November 2016, 31 emerging farmers were funded, with a further 20 more funded in April 2018, and the remainder will be funded in October 2018. From the US$ 40 million:

- US$ 14 million goes to the finance department;
- US$ 6.5 million goes to the business plan (of which 20–30% is for the input package, 20–30% for equipment, 40% for operations);
- US$ 2 million is for restoration;
- US$ 5 million is for rural infrastructure; and
- US$ 1 million is for agricultural insurance.

The input package is designed with seed, fertiliser and pesticide, enough for half a hectare. The programme works with the Mozambique’s Agricultural Research Institute (Instituto de Investigação Agrária de Moçambique, IIAM) to choose the appropriate variety, best suitable for the climate of that region. They source inputs from Casa do Agriculturo (Tecnologia e Consultoria Agro-Pecuária, TECAP), a nationwide agro-dealership. There is a choice between eight commercial value chains, including poultry, maize, soya, sesame, cashew nuts, beans, oilseeds, horticulture, and non-timber forest products (NTFP) such as honey (NTFP is being supported on a pilot basis). In this finance-driven model, FNDS subsidises 50% of the farmers’ business plan (primarily developed by the project team), and the other 40% is financed through third party finance (the state-owned Banco Nacional de Investimento, BNI) which FNDS arranges, and farmers pay the remaining 10%.

Mozambican producers have the tendency to respond to fluctuating global commodity prices with a lag, leaving an uncoordinated, disconnected mosaic of projects, programmes and support structures. This generates cyclical crises, which are frequent in Mozambique, with limited local markets for commercial agricultural crops, dependency on international markets, and fluctuating demand and prices. Shifting dependencies between export crops is a dangerous activity, and even in the 2017 pigeon pea crisis, those farmers who had diversified farming systems and relied less on farm workers and purchased inputs were better able to withstand the shock.

Mozambique’s formal economy is highly dependent on external funding. With recent, large-scale, undisclosed loans they have increased public debt and created distrust between government and donors. Fourteen donors who provide direct support to the national budget have suspended financial aid.

While the formalised seed sector may be emergent and immature, farmer-managed seed systems are well established and provide the primary source for farmers to access seed. Yet Mozambican seed and plant variety protection (PVP) laws do not only fail to recognise the significant historical and current role farmers’ varieties, and farmer-managed seed systems contribute to seed security and food availability, but may also criminalise some of their activities. These programmes do not consider the long-term effects of the normalisation of seed and food aid, with farmers becoming dependent on the seemingly never-ending support. Some sort of exit strategy is required to ensure local resilience is improved. Diversification within the programmes beyond industrial commodity crops is essential. The continuous displacement of local seed and local farming practices may have dire long-term consequences, with farmers becoming increasingly vulnerable to climatic shocks, being forced off the land with no good alternative livelihood prospects.

The focus on commercialisation and value chain development tends to prioritise commercially orientated “emerging” farmers. This produces a pattern of exclusionary and unequal development in rural areas, particularly along the development corridors, creating monopsonistic markets and local elitist behaviours, as a result. This deepens the pattern of extractivism, accumulation of resources from external actors, overexploitation of natural resources, exclusion of smallholder food producers, and structural inequalities, leading to increased marginalisation of family farmers. These projects are primarily for commercial crops, not for local food and therefore create risks.
for national food security by reducing the autonomy and sovereignty of farmers. With programmes either aiming to build on the survivalist needs of smallholders, or targeting smallholders indirectly through the investments in medium-scale emerging farmers, a financially driven approach may exclude the family sector from getting adequate farmer support. Therefore, it is crucial to provide a differentiated and holistic approach to farmer support in Mozambique.

Background to agriculture in Mozambique

Mozambique is located on the South-Eastern coast of Africa, bordering Zimbabwe, Zambia, South Africa, Swaziland, Malawi and Tanzania. Its coastline stretches across about 2,500 km, with a total area of 801,590 km². The country is divided administratively into 11 provinces and 158 districts, with a total population of around 25.7 million people. Based on climatic and soil conditions and cropping patterns, Mozambique is classified into 10 agro-ecological zones, and can be broadly categorised into three: arid and semi-arid in the south and south-west; sub-humid in the centre and north; and humid highlands in the central provinces. The north is the most fertile and productive region.

Twenty-four percent of households are considered food insecure, and chronic undernutrition affects almost one in every two children under the age of five. The image below illustrates a contradiction, in that the most fertile and most productive areas have the highest stunting rates.

Seventy to eighty percent of the population live in the rural areas, mostly surviving off agriculture. Agriculture is the main source of income for over 70% of the population in Mozambique, contributing over 30% of the country’s GDP (of which about 84% is from crop production), absorbing 90% of the country’s female labour, and over 80% of the total workforce (Care and ActionAid, 2017; FAO, 2013; MINAG, 2011). Smallholder farmers, commonly termed as the family sector, are the majority in the agricultural sector, cultivating on between 0.5 and 1.5 ha (Suit and Choudhary, 2015). Although the number of medium- and large-scale farms doubled from 2000 to 2010, this still represents a very small proportion of farms in the country (World Bank, 2016). Around 99% of the
cultivated area in Mozambique is worked by the family sector\(^4\) (MINAG, 2013).

Agriculture is overwhelmingly rain-fed, and considered to be of low productivity compared to neighbouring countries and globally (FAO, 2016a). Traditional technologies characterise smallholder farming systems, with low use of formal irrigation (7.3%), and commercial inputs – improved seed (6%), pesticides (4.7%) and fertilisers (4.6%). Comparatively low yields of about 1.5 tons/ha of grain crops are the norm, and there is as much as 30% post-harvest loss (FAO, 2016; World Bank, 2011; USAID, 2016; World Bank, 2016).

Following the peace agreement from 1992 until 2009, Mozambique had the fastest growing non-oil economy in sub-Saharan Africa, with an average economic growth of about 7.5% per year, albeit from a very low base (ADBG, 2011). Between 1999 and 2010 there was a 45% increase in cultivated area, reaching 15.7% of the estimated 36 million hectares of arable land (just over 45% of total land area) available in the country. Increased production is associated primarily with the post-war period, when farmers returned to the land and increased land under cultivation, but with little or no technical change (Cammaer, 2016; Mogues and Benin, 2012). Production expansion has been all over the country, but primarily in the central region.

Between 2000 and 2011 agriculture grew at an average rate of 8.4% per year, surpassing the continental Comprehensive Africa Agricultural Development Programme (CAADP) target of 6% annual average growth.

\(^4\) Small-scale, smallholder, peasant and family farmer are used interchangeably in this paper, as is commonly done in Mozambique.
These figures are contested, such as in the study by Benfica et al. (2014), who suggest that Mozambique fell short of CAADP’s target, and the pattern of agricultural growth was concentrated in a few high-value, often export-orientated crops. These crops have few linkages to the rural poor, which may explain why Mozambique still faces many economic and social challenges, with 54.7% of the population living below the poverty line (MPD, 2010; Thurlow, 2012).

Main food crops grown depend on agro-ecological conditions, market opportunities and food consumption patterns. These include cereal crops (such as maize, rice, sorghum and pearl millet), root and tuber crops (such as cassava and sweet potato) and grain legume crops (such as beans). Cash crops include cotton, cashew, tobacco, sugar cane, coconut, sesame, soybean, pigeon pea, vegetables, and banana. Mozambique shifts attention to different cash crops in terms
of market opportunities (Silici et al., 2015). The main livestock include cattle, goats and poultry, differing from region to region. The country is generally self-sufficient in cassava, beans and vegetables, while consumption of rice, wheat, vegetable oils and meat greatly exceed production (World Bank, 2011).

Maize and cassava are the main staples, grown by 80% of all smallholders and covering over a third of cultivated land (Care and ActionAid, 2017). The estimated share of maize sold ranges from 5% in southern provinces to 20–30% in the central and northern provinces (TIA, 2012). Cassava is grown mostly for household consumption. Diversified production systems tend to be extremely low, with only 4% of rural families producing more than two agricultural crops (Care and ActionAid, 2017). On the other hand, Silici et al. (2015) suggest traditional farming systems include a range of practices, such as intercropping cereals and leguminous plants, agroforestry, and crop-livestock integration (depending on the location), such as maize grown with cowpea, beans, groundnuts and pigeon peas. It is estimated that on average, smallholders only produce sufficient food to feed their families for less than eight months of the year, with the poorest only producing enough food for half of the year (Cuanguara, 2010).

Agriculture in Mozambique is characterised by low coverage of advisory services, lack of storage infrastructure, high post-harvest losses, poor transport facilities, high transaction costs and poor access to financial services. These are considered major constraints to smallholder farming, and their low productivity (Silici et al., 2015). In 2013, extension services covered only 11% of the 4.9 million family farmers in the country (MINAG, 2013). To partially fill the gap, donors and international NGOs provide extension services through time-bound programmes and projects.

Mozambique’s economic growth has been driven by capital- and import-intensive mega-projects, with limited linkages to the local economy, and has failed to benefit the bottom 40% of the population, mostly living in rural areas (World Bank, 2016). It is expected, and backed by agricultural policy, that large-scale investments and public-private partnerships will be the main drivers of agricultural transformation in Mozambique and will promote commercial farming (Silici et al., 2015).

Farmers in Mozambique face a range of environmental and economic risks that are expected to be compounded with climate change. Drought is the largest agricultural risk in Mozambique, followed by flooding.

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Table 1: Number of agriculture and livestock production units in Mozambique

<table>
<thead>
<tr>
<th>Type of Production Unit</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
<th>Total</th>
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<tr>
<td>Countrywide</td>
<td>3,801,259</td>
<td>25,654</td>
<td>841</td>
<td>3,827,754</td>
</tr>
<tr>
<td>Percentage of distribution per type on total # of units</td>
<td>99.31%</td>
<td>0.67%</td>
<td>0.02%</td>
<td></td>
</tr>
<tr>
<td>Cultivated area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Countrywide</td>
<td>5,428,571</td>
<td>130,651</td>
<td>73,565</td>
<td>5,632,787</td>
</tr>
<tr>
<td>Percentage of cultivated land per type of units</td>
<td>96.37%</td>
<td>2.32%</td>
<td>1.31%</td>
<td></td>
</tr>
<tr>
<td>Average land per type of units (ha)</td>
<td>1.43</td>
<td>5.09</td>
<td>87.47</td>
<td></td>
</tr>
</tbody>
</table>

Source: Agricultural and Livestock Census 2009/10

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5. Farmer seed refers to all seed (and vegetative propagations) reproduced, maintained, conserved, adapted, reused and exchanged directly by farmers from season to season. Commercial seed is limited to first sale of seed produced according to seed laws and policies. Thereafter, that material should belong to the farmer, who should be entitled to use it at will, including reusing, adapting and sharing. Seed laws based on the UPOV model limit and restrict these buyers’ rights.
These are followed by pest and diseases outbreaks, international and domestic price volatility, conflicts (including insecure land tenure and land grabs) and political instability (Suit and Choudhary, 2015).

Seed and fertiliser

Seed

Farmer seed5 saving, adaptation and exchange accounts for most seed used in Mozambique. The farmer seed system can and does generate diverse, quality seed though it is not always evenly distributed. Generally speaking, farmers prefer local varieties for their own use and commercial seed for cash crops with guaranteed markets. Commercial maize and soya varieties are often selected for grain traders feeding into global animal feed markets. These varieties are not palatable to farming communities who have their own preferred varieties. At the same time, farmer seed can benefit from fresh genetic materials and improvements, based on farmer needs in dynamic and changing production conditions. For example, farmers have expressed preference for faster growing and earlier maturing varieties.6

However, seed policies and laws consider farmer seed systems to be inherently inferior, generating low quality seed and hampering growth in the agricultural sector. As a result, the emphasis of policy and programming is on promotion and distribution of formal sector improved seed,7 including hybrids produced through formal breeding processes. Farmer seed systems are barely recognised in seed laws and policies.

Despite the policy emphasis on formal sector varieties, the formal seed market is under 10% of seed used in the country (USAID, 2016). Adoption of improved, formal sector varieties ranges from 1–19%, depending on the crop (See Figure 5). Adoption rates for improved soya bean (not shown in the figure) are about 89%, mainly due to its role as an input for industrial poultry feed. Poultry and feed is a priority value chain in regional investment plans. However, improved maize, rice and cowpea adoption is still below 10% (USAID, 2016, Mabaya et al., 2017).

According to The African Seed Access Index (TASAI), there are 20 active breeders in Mozambique for the four priority crops, all employed by IIAM: eight for rice, six for maize,

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6. Interview with advocacy officer, UNAC, 18 July 2018, Lusaka, Zambia
7. Improved seed is the term adopted for seed that has gone through formal breeding and multiplication processes, as stipulated in laws and policies. Farmer seed can also be improved by farmers themselves, as well as in partnerships with formal sector breeders, as in participatory plant breeding (ACB, 2018). To distinguish farmer improvements from formal sector improvements, we refer to farmer enhancement or adaptation, and use “improved seed” as a formal sector category.
In the late 1980s, the Swedish International Development Agency (SIDA) supported the establishment of Sementes de Mocambique (SEMIC) as the mandated state-owned seed company to produce quality seed for Mozambique (Longley et al., 2005). SEMIC was privatised and purchased by Zimbabwe-based Seed Co as part of deregulation and privatisation in the structural adjustment programmes that swept the region, including in Mozambique in the 1990s and early 2000s. Today SEMIC no longer produces seed (Mabaya et al., 2017) and most seed is imported. Maize and cowpea come from Zimbabwe and South Africa, and soya bean comes from Malawi, South Africa and Zimbabwe. Vegetable seed is imported from South Africa, Europe and Asia (ASI, 2018:20).

Although Mozambique had 63 registered seed companies (59 being local) in 2014–15, only 15 were actively engaged in production and/or marketing of maize, rice, cowpea, and/or soya (ACB, 2015). Leading seed companies by market share currently are Pannar (a subsidiary of Corteva Agribusiness, owned by DowDuPont from the US), Klein Karoo Seed Marketing (South Africa), Phoenix Seed, Oruwera and KCI (all domestic). Corteva and Syngenta mainly focus on hybrid maize. The biggest companies by seed volume produced are Phoenix Seed, Klein Karoo, Oruwera, Companhia de Zembe and Nzara Yaperia (ASI, 2018:20). Alliance for a Green Revolution in Africa (AGRA) has provided support to domestic companies, and AgDevCo has equity in Phoenix Seed8 (see ACB, 2015 for more detail on AgDevCo and the Beira Corridor).

According to AGRA (2017:12), there was “an increase in seed companies from 35 in 2012 to 45 in 2015. Of these, 32 mostly small and medium-sized seed companies were licensed by the Seed Department to produce and market seed. There is an upward trend in foundation and certified seed production, with more than 20% of estimated 9 000 metric tons of improved seed varieties planted by farmers obtained from commercial sources”.

Local companies mostly focus on OPV maize and other grain seed crops (ASI, 2018:20). Oruwera produces certified hybrid and OPV seed in maize, sorghum, sesame, groundnut, pigeon pea, mung bean, bambara nuts, cow pea, and vegetables in the north, and provides demonstration plots, an agro-dealer network and a contract production system with smallholders.9 Phoenix Seed operates from the central provinces of Manica and Zambezia, producing certified maize, soya, cow pea, pigeon pea and sugar beans. Phoenix contracts 25 outgrower seed producers.10

Fertiliser

In Mozambique, especially in the Central Region, shifting cultivation (i.e. land lying fallow for a time before being cropped again) is still widely practised. As a result, fertiliser use does not feature much in production practices, except in commercial tobacco and sugar cane, which account for 90% of imports for use in Mozambique. Overall fertiliser use was an average of just 4.4 kg/ha between 2002 and 2009, compared to the 50 kg/ha target set in the Abuja Declaration.

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There is also limited use of organic fertiliser, due to low animal ownership, a product of the civil war that led to displacement and disruptions to agricultural production (ACB, 2015). This can lead to loss of soil fertility if not replenished. Nutrient mining is identified as a cause of low productivity in Mozambican agriculture. However, in many areas of Mozambique farmers still practise forms of shifting cultivation, which allows land to rest and recuperate.

Green Revolution proponents suggest land access will become more restricted in the future, and farmers will have to intensify their productivity. As it is, they argue that productivity is low by regional and global standards. Farmers must both increase productivity and be prepared for the time when they cannot move from field to field any longer.11 In order to increase or even just maintain productivity, organic materials and nutrients will need to be replaced every cycle, and also supplemented where they are short in the soil. Although standardised fertiliser packages are often tailored for plants, not soil, this is not a necessary feature of synthetic fertiliser. Some ingredients are cheaper to provide through the industrial supply chain. However, there is some recognition that uptake of nutrients is also dependent on soil health, which first and foremost requires life and soil organic matter. Conservation agriculture is becoming mainstream as a method for improving soil health and productive capacity, both with or without fertiliser.

Prior to structural adjustment in the 1990s, fertiliser for small-scale farmers was procured and distributed mainly through public sector institutions, with a few private concessionary holders. Japan was a major supporter of procurement (MINAG, 2012:3). Following deregulation in 1996, a vacuum was created in the supply of fertiliser, because the private sector claimed that importing fertiliser for use by small-scale farmers was not profitable. The public sector was later tasked with

providing support to encourage private sector involvement in the supply of fertiliser (MINAG, 2012:6).

Private companies, particularly Mozambique Leaf Tobacco (MLT) and several sugar companies, constitute around 75–80% of total fertiliser imports for use in Mozambique (MINAG, 2012a). Imports enter primarily through Beira and Nacala ports from the Middle East, East Asia, Europe and South Africa, with about 70% of imports transiting to Malawi, Zambia and Zimbabwe (IFDC, 2012). Fertiliser imports are an important part of the plan to develop the Beira Corridor port and transport infrastructure into the region.

Omnia Fertilizer, a South African-based company, was the first to establish fertiliser manufacturing facilities in Mozambique. Omnia established operations in Beira in 2000. Mozambique Fertilizer Company (MozFert, now owned by Mauritius-domiciled Meridian) set up a processing facility in Gondola, Manica in 2007, followed by Greenbelt Fertilizer in Beira (now owned by Yara) in 2011, and ETC Adubos (ETG) also in Beira in 2014 (AFO, 2018).12 The African Fertilizer and Agribusiness Partnership (AFAP) has recently provided support to Agema Lda and Africa Fertil Lda, for two additional blending plants, a Pakistani multinational company to develop a large-scale ammonium/urea fertiliser gas complex, and prospective phosphate companies (Maaden and OCP) from Saudi Arabia and Morocco (AFAP, 2017).

In 2017, the Mozambican Ministry of Mineral Resources and Energy and Yara International signed a memorandum of understanding to produce fertiliser from the natural gas being extracted in the Rovuma basin in the northern province of Cabo Delgado. Yara was one of three companies to win tenders to extract natural gas in the future, together with Shell and GL Africa Energy.13

11. Interview, Munyaradzi Usore, agronomist, and John Christie-Smith, general manager, Greenbelt Fertilizers, Beira, 8 May 2015
12. There were news reports that the former Greenbelt factory in Beira was closed in early 2017, but it is not clear if that is temporary or permanent, or what the current status is. There is no further news. https://zitamar.com/yara-closes-mozambique-fertilizer-facility-loss-49-jobs/
Agricultural policies, strategies and plans in Mozambique

Mozambique’s overall national development plan is the current Five-year Government Plan (Plano Quinquenal do Governo, PQG), which runs from 2014 to 2019. The Plano Estratégico de Desenvolvimento do Sector Agrário (Strategic Development Plan for the Agricultural Sector, PEDSA), 2011–2020 is the main guiding document for the development of the agricultural sector (MINAG, 2011), replacing the former PROAGRI\(^4\) programmes (Benson et al., 2014). PEDSA aims to transform the agricultural sector from predominantly subsistence agriculture to a more competitive and commercial agriculture, primarily through commercial value chain integration. It further aims to prioritise areas with high chronic malnutrition and food insecurity, in line with the Action Plan for the Reduction of Poverty Production (PARPA).

PEDSA is organised around five strategic objectives (MINAG, 2011):

1. Agriculture productivity through increased production, productivity and competitiveness;
2. Access to markets through improved infrastructure and services for input and output markets;
3. Natural resources through integrated and sustainable use of natural resources, i.e. land, water, forest and wildlife;
4. Creating a legal framework and policies conducive to agricultural investment; and
5. Strengthening agricultural institutions.

PEDSA groups family farmers, farmer associations, emerging farmers, commercial farmers, livestock producers, forestry entrepreneurs and agricultural goods and service providers (including inputs, equipment, technical assistance, financial services, processing and marketing) all under the private sector (MINAG, 2011), and refers to small, medium and large farms under the heading of Rural Households.

Strategies include:

- Increasing farmers’ access to agricultural inputs, especially credit;
- Strengthening extension and research systems mainly in order to increase agricultural productivity;
- Reduce post-harvest losses and increase access to markets;
- Improve soil fertility through conservation agriculture (CA)\(^15\) and agroforestry, as well as increased use of fertilisers (particularly local mineral resources); and
- Increased agricultural mechanisation and the use of appropriate technologies, particularly related to CA (MINAG, 2011).

There is specific mention of developing agricultural value chains along the Nacala, Beira and Maputo corridors (see Figure 3). Input supply chains (seeds, fertilisers, agrochemicals, veterinary medicines, instruments, implements and machinery) are to be expanded. Private sector capacity to strengthen commercial input markets is promoted, particularly reducing cost of fertilisers through bulk imports, and including input suppliers in policy formulation.

The Plano Nacional de Investimentos para o Sector Agrário (National Investment Plan for the Agricultural Sector, PNISA) 2014–2018) was developed with funds from FAO’s Technical Cooperation Program, to operationalise PEDSA. PNISA prioritises agricultural value chains, particularly around

Although there is a recognition in PNISA that increasing productivity is better achieved through investments in agricultural research, roads, farm credit, and irrigation than through input and output subsidies, improved seed, pesticides, and fertilisers are integral and priority investment areas in the PNISA.

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\(^4\) In 1998, the Government of Mozambique and its main development partners designed the Agriculture Development Programme (PROAGRI I), with the goal of improving the coordination of public interventions in agriculture and directing investments. PROAGRI I lasted for 3 years and was revised in 2005, when PROAGRI II was approved.

\(^15\) CA is based on three core principles: no or minimum till, permanent ground cover and crop rotation/intercropping. As such it is considered a step towards wider agro-ecological practices, although some proponents tend to also call for the use of herbicides and synthetic fertilisers as part of best practice.
food crops (notably maize, rice, wheat, beans, cassava, potato, orange-fleshed sweet potato, and horticulture) and cash crops (cashew, cotton, soya, sesame, tobacco, dairy products and eggs). Although there is a recognition in PNISA that “increasing productivity is better achieved through investments in agricultural research, roads, farm credit, and irrigation than through input and output subsidies” (MINAG, 2013:12), improved seed, pesticides, and fertilisers are integral and priority investment areas in the PNISA.

The main policy instruments guiding the (commercial) seed sector are the Program for Strengthening of the Seed Chain (PFCS) under PEDSA, the Seed Act (Decree 41/1994) and the Comprehensive Seed Regulation (Decree 12/2013). PFCS is implemented under the Seed Division at the Directorate for Agriculture and Forestry (DINAS). It aims to strengthen the entire seed value chain. The Comprehensive Seed Regulation was updated in 2013, and harmonised with the Southern African Development Community (SADC) seed regulation on variety release and registration, seed quality control and certification, and seed import/export requirements. The Regulations focus exclusively on certified, improved, commercial seed varieties, and exclude farmers’ varieties from the market. The plant variety protection decree (Decree 26/2014) for breeders’ rights is not yet operational due to a lack in implementation instruments (Mabaya et al., 2017). The seed and plant variety protection (PVP) laws fail to recognise the significant historical and ongoing role that farmers’ varieties and farmer-managed seed systems contribute to seed security and food availability, and in places even go further to disrupt and criminalise farmer seed maintenance and exchange activities (ACB, 2014; ACB, 2016).

Throughout the PNISA, there are activities related to developing locally adapted varieties, as well as local seed production. But this tends to relate to increasing access to improved and certified seed. Research into early maturing and drought resistant varieties of food and cash crops is included as a strategy in PNISA. Between 2011 and 2014 there was a sharp increase in variety releases, due to the ministerial directive (Diploma Ministerial No. 51/2012), which provided for a simplified variety release process based on Value for Cultivation and Use (VCU) and allowed for the provisional release of varieties before the DUS and VCU tests were conducted (TASAI, 2017). Of the 35 maize varieties, 21 were hybrids. But commercialisation remains low (Mabaya et al., 2017; USAID, 2016).

The National Fertilizer Strategy (MINAG, 2012a) is based on the Abuja Declaration target of increasing use of synthetic fertiliser. There is some recognition of the limits of a standardised NPK package, and efforts have gone into developing more context specific blends (ACB, 2015). Efforts are underway to enable commercial fertiliser markets to flourish. Since domestic use is so low and it

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Value Chains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pemba-Lichinga</td>
<td>Potato, wheat, beans, maize, soybeans, forestry, cotton, sesame and poultry</td>
</tr>
<tr>
<td>Nacala</td>
<td>Cassava, maize, cotton, sesame, fruits, poultry, groundnuts, cashew and forestry</td>
</tr>
<tr>
<td>Zambeze Valley</td>
<td>Rice, maize, potato, cattle, goats, sesame, cotton and poultry</td>
</tr>
<tr>
<td>Beira</td>
<td>Maize, wheat, vegetables, poultry, soybeans, rice, sesame, cattle, sugar and forestry</td>
</tr>
<tr>
<td>Limpopo</td>
<td>Rice, vegetables, red meat and poultry</td>
</tr>
<tr>
<td>Maputo</td>
<td>Rice, vegetables, red meat and poultry</td>
</tr>
</tbody>
</table>

Source: Miguel (2015)
is difficult to reach and supply smallholders, the strategy is to work on supplying the bigger markets in Zambia, Malawi and other interior countries, with Mozambique as a subsidiary market that can piggyback on the (commercial import-export) infrastructure to gain access to synthetic fertiliser.

Conservation Agriculture (CA) and farmer-to-farmer extension are recognised in policy. These are elements that farmer and civic society organisation (CSO) seed and agro-ecology networks can potentially link with. CA is included as a strategy in PNISA and is a priority activity for agricultural extension. Due to current and future risks of climate-related disasters, CA is intended to be streamlined across all of PNISA’s programmes and sub-programmes, particularly to promote techniques that increase soil fertility and soil moisture retention, and reduce vulnerability to drought, in particular.

Mozambique has been pioneering the promotion of participatory extension approaches such as Farmer Field Schools (FFS). The FFS is an extension approach adopted by FAO and others that focuses on “strengthening farmers’ and the rural communities’ capacity in analysis of their production and in identifying their main constraints, as well as testing possible solutions” through an exchange of knowledge, where farmers identify and adopt practices and technologies suitable to their farming system (De Oliveira, 2018:2).16 FFS have been adopted as the main extension approach, following the national Action Plan for Food Security (PAN) that was implemented by MASA, with support from FAO (Nagasawa, 2017). The FFS methodology has been implemented in Mozambique since 2012, by FAO and the National Directorate of Agrarian Extensino (DNEA), which have trained over 3 000 extension workers during this time (FAO, 2018).

Public expenditure on agriculture

Despite the central role of agriculture to Mozambique’s economy, only an estimated 2–3% of annual budgets in the first decade of this century went towards agricultural production (excluding forestry and fisheries) (AGRA, 2017). This is far below the 10% suggested in the Maputo Declaration. Agriculture and rural development’s share of the budget increased to 5.7% in 201817 (República de Moçambique, 2017), although the PNISA planned to provide 11% to agriculture (Benfica et al., 2014). From 2009-2013 extension and training followed by credit, agricultural research, and irrigation took around half the budget between them. On average, providing extension services to farmers in Mozambique increases their crop revenues by 26 percent. Input supply received 5% of the budget in this period. The PNISA increased this to 9.3% (Benfica et al., 2014).

Smallholder farmers mostly received these agricultural inputs free of charge from either government or development partners. Between 2007 and 2013 the Mozambican government spent about US$ 150 million on subsidised inputs, around US$ 25 million per year (CARE and Actionaid, 2017). The PNISA, implemented between 2013 and 2017, allocated 31% of to irrigation, 29% to research and extension services, 21% to other agricultural activities, 10% to fisheries and rural roads, and 9% to cover input subsidies (CARE and ActionAid, 2017). The PNISA aimed to spend, on average, US$ 43 per rural inhabitant per year between 2013 and 2017.

Mosca and Abbas (2016) argue that, although agriculture gets a small percentage of resources, even these are often not fully spent. AGRA (2017:6) indicates that “the absorptive capacity of the Ministry is estimated at 80%, but was 58% in 2016 due to late disbursement”. Mosca and Abbas mention that about 23% of state spending benefited small and medium-sized producers.

16. FFS originated as a participatory agricultural extension method, originally designed to educate rice farmers on biological pest control and integrated pest management (IPM) (Bijlmakers and Islam, 2007). It has been used primarily to encourage behavioural change and technological diffusion with limited financial, technical and managerial support, where farmers and extension workers learn through informal and practical learning exchanges. Although it is aimed to encourage bottom-up learning, integrate traditional farming methods, and encourage local innovation, in Mozambique it has become a top-down process, incentivising farmers to adopt new techniques and technologies, such as agricultural inputs (pesticides, fertilisers, improved seeds, credit etc).
while about 67% benefited medium and large farmers, targeting the south, which has lower population, lower production, and fewer farms, yet greater business opportunities because of proximity to larger markets such as Maputo and South Africa. This is unlike the PEDSA, which clearly prioritises the Nacala and Zambezia corridors. Deeper investigation is required into how and by whom investments are being made across the country. AGRA (2017) suggests that the major investments in Mozambique include: the rehabilitation of Irrigation Schemes Program (PROIRRI); Rural Agricultural Market program (PROMER); Pro-poor Value Development Program (PROSUL); Integrated Agriculture and Natural Resource Project (SUSTENTA); and Beira Agricultural Growth Corridor.

Mozambique is highly dependent on external funding. In 2014, donor funding contributed 53% of budgeted expenditures, although it is noted that this aid dependency is gradually declining (CARE and ActionAid, 2017). The financial resources required to implement PNISA between 2013 and 2017 came to around MZN 122 billion (US$ 4 billion). The EU represents the largest source of development aid to Mozambique, around 75% of the total. The large-scale, undisclosed loans from 2016 have increased public debt, and created distrust between government and donors, with 14 donors who provide direct support to the national budget suspending financial aid (Norad, 2016; CARE and ActionAid, 2017).

Table 2 illustrates the funding landscape related to agriculture along the Nacala and Beira Corridors, the Zambezi Valley, and in agricultural policy and financing. Quite a number of donors and agencies sponsor seed supply and research. FAO and the African Development Bank (AfDB) support fertiliser supply and research. There is also some activity in supply of other agricultural inputs and agro-dealer development.

A brief history of input subsidy programmes in Mozambique

After independence in 1975 agricultural support was mostly in response to emergency food situations, such as war, displacement, droughts and floods (Longley et al., 2005, Mabaya et al., 2017). In 1988 the distribution of seeds and tools began officially, with the establishing of the Emergency Programme for Seeds and Tools (Programa de Emergencia para Sementes e Utencilios, PESU) funded largely by the Mozambique-Nordic Program. Seeds were mostly imported from Seed Co in Zimbabwe. About 1.2 million families received assistance annually from this programme (Howard et al., 2001).

Around 90% of all SEMOC seed went into emergency programmes. Other funds were used to assist drought- and war-affected farmers with seeds and tools, through international NGOs using the seed kit approach. Kits were prepared by seed companies for different agro-ecological zones, with a combination of maize, cowpea, groundnuts, beans and vegetables, and provided, with tools.

Following the devastating floods of 2000, seed fairs and vouchers were introduced to provide farmers with a greater choice of seed, and to establish commercial seed systems (Longley et al., 2005). In 2001, FAO implemented this approach through Kulima (a local NGO) in Maringue (Sofala Province) and Macossa (Manica Province), using Italian Cooperation funds. Since 2002, agricultural input trade fairs and vouchers have been the preferred mechanism as a humanitarian response in emergencies in agriculture in Mozambique. Kulima recently worked with Oxfam as well as the WFP, organising similar seed fairs and vouchers, selecting beneficiaries, and mobilising them to get to the fairs to be able to purchase subsidised inputs. The cost of the vouchers depends on the donor, who makes an agreement directly with agro-dealers. The WFP

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18. Interview with advocacy officer, UNAC, 18 July 2018, Lusaka, Zambia
19. Interview with Kulima, 28 March 2018, Maputo
### Table 2: Donor funding in Mozambique

<table>
<thead>
<tr>
<th></th>
<th>Seed supply and research</th>
<th>Fertiliser supply and research</th>
<th>Other ag. inputs</th>
<th>Infrastructure</th>
<th>Farmer access (agro-dealers)</th>
<th>Farmer awareness (extension)</th>
<th>Farmer organisation</th>
<th>Market linkages</th>
<th>Post-harvest management, quality and standards</th>
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<tr>
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<td><strong>Zambezi Valley</strong></td>
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<td><strong>Beira Corridor</strong></td>
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<td><strong>National and regional policy</strong></td>
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<tr>
<td><strong>Agricultural finance</strong></td>
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Source: AGRA (n.d.)
purchases the inputs and provides them free to beneficiaries. Oxfam was responding to drought in Maputo, Gaza, Inhambane and Sofala provinces.

Fertiliser Subsidy Programme, 2009–2015

In 2009/10 MASA launched a two-year fertiliser subsidy programme, with US$ 20 million in funding from the EU, implemented in partnership with FAO and the IFDC, to increase maize production and reduce import dependency. It reached 15,000 maize farmers and 10,000 rice farmers (Carter et al., 2013; Laajaj, 2012). Of those selected to receive vouchers, 46% did not collect the voucher as they lacked the co-payment required to purchase the inputs (Carter et al., 2013). Of those who received their voucher, 87% redeemed it; and 57% used the fertiliser exclusively for maize, while others used it on other crops, or did not use it, or sold it.

Following the two-year programme MASA, FAO and the EU decided to extend the programme for another five years. The EU-funded umbrella programme, “Support to Accelerate Progress towards Millennium Development Goal (MDG) 1C (halve hunger by 2015)”, was approved in 2012. FAO, IFAD and the WFP were selected to implement. The total budget was EUR 67 million, plus an additional EUR 10 million from the Mozambican government (IFAD, 2017; European Commission, 2015). The programme targeted farmers who cultivated between 0.5 and 5 hectares of maize or rice, were interested in modernisation and commercialisation, had access to extension services and input and output markets, and could pay the financial contribution of the subsidy (the main criterion). The government held a lottery and randomly selected 25,000 beneficiaries from a larger list of qualifying beneficiaries, selected by District Services of Economic Activities (SDAE), extension officers, local leaders and agro-input retailers, under the supervision of the IFDC (Carter et al., 2013).

20. Interview with programme manager, FAO Mozambique, 13 March 2018
In the early stages, the input package consisted of 12.5 kg hybrid or open pollinated maize seed, or 40 kg rice seed, and 100 kg fertiliser (50 kg of urea and 50 kg of NPK 12-24-12) (Carter et al., 2013). The market value of this package was about US$ 117, with farmers paying about US$ 32, that is, 27% of the total cost. Government and NGO extension officers distributed vouchers to winning farmers, normally at the seed feiras, where they were also able to redeem the vouchers at private suppliers. These markets serve dual objectives of voucher and seed distribution, and provide a venue for smallholders to sell their produce. The paper voucher system was used by FAO in Manica, Zambezia, Nampula, and Sofala provinces from 2013 (De Oliveira, 2018; Nagasawa, 2017).

At the beginning of the 2015/16 agricultural season, FAO launched an electronic voucher scheme, in cooperation with ADM, evolving from the previous emergency response into a targeted “smart subsidy” programme (De Oliveira, 2018). The main objectives were to improve access to and use of agricultural inputs, particularly seeds and fertilisers, and strengthen the input supply chain (particularly agro-dealers) and input producers (seed and fertiliser producers) (ICTworks, 2018). The introduction of the e-vouchers was coupled with FAO’s participative agricultural extension approach, FFS.

The e-voucher system is a flexible market development tool. The e-vouchers operate similarly to the paper vouchers, in that they allow farmers to buy certain quantities and types of inputs from participating agro-dealers, at a subsidised price. Unlike the paper vouchers, the e-vouchers allow for farmers to stagger financial contributions and purchases as and when they choose, and reduce the possibility for fraud (De Oliveira, 2018). The electronic card contains a subsidy that is activated upon payment of the beneficiary’s contribution. Selected agro-dealers have tablets and e-card readers to process payments. Twenty-five agro-dealers were chosen and registered with the programme.21 The e-voucher programme was first launched in Chimoio, Manica, and is now being implemented in 12 districts in four provinces: 12 500 e-cards in Manica (Barue, Gondola, Manica, Vunduzi and Sussundenga); 7 850 in Sofala (Buzi, Gorongosa, Maringue and Nhamatanda); 1 600 in Zambezia (Alto Molocue and Gurué) and 1 200 in Nampula (Ribaue) (Nagasawa, 2017; De Oliveira, 2018). Between 2015 and 2017, 23 000 farmers participated in the e-voucher system, most of whom were part of FAO’s FFS.

Local committees were responsible for selecting beneficiaries and developed beneficiary lists with local authorities, representatives of farmer associations, extension services and agro-dealers. The main selection criteria included (Nagasawa, 2017):

- Being a resident and farmer for at least three growing seasons;
- Having financial capacity to purchase subsidised inputs;
- Willingness to be trained; and
- Having identity documentation.

Other criteria that were less important included registering in an extension programme, being willing to share knowledge, having children under five years old, and being a member of a FFS.

Two packages were made available. Package A was designed for subsistence farmers, and Package B for emerging farmers (Figure 7). Package A targeted those farming 0.5–1.0 ha, and particularly women-headed households. Package B targeted farmers, with paid labour or at least two economically active persons, farming on more than one hectare, and with access to markets. Both packages included: OPV maize, cowpea, common bean, pigeon pea, sorghum, soya, peanut, or rice seed; inoculant; and field and post-harvest insecticide. In addition, the emerging farmer package included hybrid maize seed and fertiliser (urea, NPK). Farmers getting Package A had to contribute 25% (US$ 8.75) of the US$ 35 package. For Package B farmers were to contribute 40% (US$ 52) of the US$ 130 package (Nagasawa, 2017). This system costs approximately US$ 62 per recipient for Package A and US$ 108 per recipient for Package B (De Oliveira, 2018).

21. The way in which agro-dealers were selected to participate in this programme is unclear.
In 2016, the government subsidised about 720 tons of maize seed (16% of commercial maize seed sales), 120 tons of cowpea seed (33% of total seed sales), and 3 tons of rice seed (less than 1% of total rice seed sales). The total value of the government subsidies in 2016 was about US$ 880 000. By 2017, 24 378 farmers had registered with the e-voucher scheme, with 18 706 beneficiaries activating the voucher and purchasing inputs (Nagasawa, 2017). The FAO, together with the government of Mozambique – through MASA, plans to continue to support and upscale the system nationally the e-voucher for three agricultural seasons (De Oliveira, 2018).

**SUSTENTA**

SUSTENTA is one of many programmes funded by the World Bank in Mozambique, as part of the Mozambique Landscape Management Program, being implemented by FNDS. The FNDS was established as part of restructuring of the MITADER in 2015. SUSTENTA adopts a value chain approach to expanding the network of small, emerging commercial farmers (SECF)\(^2\) in priority areas, investing in agribusinesses along the value chains, improving land tenure, strengthening natural resource resilience, and improving rural infrastructure and institutional functioning (World Bank, 2016). The aim for SUSTENTA is to become a national strategy for rural development, with efforts to get it adopted in two years.\(^3\)

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2. The SECF model is a private sector-driven approach, inspired by projects in Cambodia, Zambia, Ghana, and Ethiopia since 2005. It was piloted in Mozambique with funding from the Gates Foundation, Netherlands Embassy, Ford Foundation, Swedish International Development Agency (SIDA) and Department for International Development (DFID, in Zambezia, Nampula, Manica, Sofala, Niassa, Inhambane and Maputo provinces.

3. Interview with project coordinator and financial director, FNDS, 29 March 2018
Table 3: Overview of selected recent input subsidy programmes

<table>
<thead>
<tr>
<th>Programme</th>
<th>Dates</th>
<th>Donors and implementing agents</th>
<th>Aid amount</th>
<th>Package contents</th>
<th>Selection criteria and numbers</th>
<th>Value of package and own contribution</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertiliser Supply Programme</td>
<td>2009–2011</td>
<td>EU / FAO / IFDC / MASA</td>
<td>US$20m</td>
<td>Voucher: 100 kg of fertiliser (50 kg of urea and 50 kg of NPK 12-24-12) and 12.5 kg of improved maize or rice seed.</td>
<td>Farming between 0.5 and 5 ha of maize. “Progressive farmer” - aiming for modernisation of production methods and commercial farming Access to agricultural extension and to input and output markets Ability and willingness to pay for the remaining 30% of the package cost Target 25,000</td>
<td>US$ 117 total Farmer contribution US$ 32 (27%)</td>
<td>Manica, Sofala, Tete, Zambezia and Nampula</td>
</tr>
<tr>
<td>extension</td>
<td>2013–18</td>
<td>EU / FAO / IFAD / WFP / MASA</td>
<td>EUR 67 million plus EUR 10 million from Mozambique government</td>
<td>Paper voucher 12.5 kg hybrid/OPV maize or 40 kg rice seed 100 kg fertiliser (50 kg urea, 50 kg NPK 12-24-12)</td>
<td>0.5–5 ha of maize or rice Financial contribution Access to extension services Access to input and output markets Lottery to randomly select 25 000 beneficiaries from a larger list of qualifying beneficiaries Selected by SDAE, extension officers, local leaders and agro-input retailers</td>
<td>US$ 117 total Farmer contribution US$ 32 (27%)</td>
<td>Manica, Sofala, Zambezia, Nampula</td>
</tr>
<tr>
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<td>E-voucher pilot</td>
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<td>Extension from previous programme</td>
<td>Target: 23 000 farmers 25 agro-dealers Package A: 0.5–1 ha, women-headed households a priority Package B: &gt;1 ha, labour, markets</td>
<td>Package A: US$ 35 total Farmer contribution US$ 8.75 (25%) Package B: US$ 130 total Farmer contribution US$ 52 (40%) Farmer can stagger contributions and purchases</td>
<td>Manica, Sofala, Zambezia, Nampula</td>
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<td>2016–21</td>
<td>World Bank / FNDS</td>
<td>US$ 40m (20–30% for input package)</td>
<td>Seed, fertilisers and pesticides and other support Crop choice including poultry, maize, soya, sesame, cashew nuts, beans, oilseeds, horticulture, and non-timber forest products (NTFP) such as honey</td>
<td>Target directly 100 emerging farmers, 25 small agribusinesses; indirectly 20 000 subsistence farmers Commercial farmer Has received training &gt;2 ha Financial contribution</td>
<td>10% of business plan</td>
<td>Nacala Development Corridor - Zambezia, Nampula</td>
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The five-year programme, which started in June 2016, aims to provide technological and financial support and agricultural inputs to emerging farmers, to increase yields and thereby increase their income as a result of sales (World Bank, 2016). The project aims to increase the number of rural households participating in agriculture and forest-based value chains, increase access to finance to these participants, increase access to rural infrastructure, increase DUATs and CDCs, and protect and restore natural resources.

US$ 26 million is financed by the World Bank’s International Development Association (IDA) Grant, and another US$ 14 million is provided through the IDA Credit facility, totalling US$ 40 million. US$ 14 million goes to the finance department, US$ 6.5 million to the business plan (of which 20–30% is for the input package, 20–30% for equipment, 40% for operations), US$ 2 million for restoration, US$ 5 million for rural infrastructure, and US$ 1 million for agricultural insurance. They are working with the Global Insurance Fund, as well as Hollard and Mozambique Insurance Company (IMOZ), and giving them technical assistance in designing an insurance product. Models based on finance capital, such as insurance funds, will inevitably result in economies of scale, concentration of resources and wealth extraction.

Originally the project was designed for 200 farmers. However the World Bank only financed half the requested amount. Therefore the project is now targeting 100 emerging farmers directly; and 20,000 subsistence farmers (including women and youth) and 25 micro, small, and medium agribusinesses indirectly (World Bank, 2016). The theory behind the project design is that subsistence farmers will indirectly benefit from the programme, and be integrated into the value chain with one emerging farmer to 200 subsistence farmers. At this ratio, 100 emerging farmers would reach 20,000 smallholder farmers. They are currently averaging at 1:120. Emerging farmers sell inputs on credit to subsistence farmers, and they pay back after harvest, or in exchange for a certain amount of produce. This translates into a contract farming scheme, where the emerging farmer is supposed to provide a secured market for the subsistence farmers. There are often unequal relations of power between contracted smallholders and other value chain actors (Du Toit and Hickey, 2007; Smalley, 2013). Smallholders are almost always price takers, and value is extracted from them with limited compensation. Some farmers may benefit from participation in corporate value chains, but this will only be a small layer, who will seek to expand their land holdings, sometimes at the expense of other farming households.

Eligibility criteria for emerging farmers are:

- Commercial farmer;
- Have received training;
- Farm on more than two hectares; and
- Can make a financial contribution.

In November 2016, 31 emerging farmers were funded, with a further 20 more funded in April 2018, and the remainder from October 2018. Currently SUSTENTA is operating in Zambezia and Nampula Provinces, in 10 contiguous districts along the Nacala Development Corridor.

The input package consists of seed, fertiliser and pesticides for half a hectare. SUSTENTA work with IIAM to choose the most appropriate variety, best suited for the climate of that region. They source inputs from Casa do Agriculturo/TECAP. By March 2018, 8,000 packages had gone to the 31 emerging farmers, primarily including hybrid maize, beans, fertilisers and pesticides, and had apparently reached about 4,000 smallholders. Farmers can choose from eight commercial value chains, including poultry, maize, soya, sesame, cashew nuts, beans, oilseeds, horticulture, and NTFP such as honey (NTFP is being supported on a pilot basis).

They have hired 30 trained extension workers, 15 in Nampula, and 15 in Zambezia. This translates into one extension officer for every emerging farmer. (The extension officers do not reach the smallholders.) The programme focuses on climate smart agriculture (CSA) as a model to strengthen agro-ecological resilience, primarily using drought-tolerant and short-maturing varieties and more efficient and effective fertilisers from the private sector, in line with the World Bank’s Agriculture Development Policy Operation.
Many stakeholders were involved in the project design, including FAO, the EU, DIME (the impact evaluation arm of the World Bank who are also currently running an assessment of the project), MASA (national, provincial and district) and NGOs.

In selecting potential beneficiaries, first the local government compiles a list of emerging commercial farmers in the area. Key criteria to select the emerging farmers include that they should have a minimum of 3–5 ha and demonstrate an entrepreneurial aptitude, technical farming proficiency, and capability to act as local role models for behavioral change (lead farmers) (World Bank, 2016). The project team then visits potential beneficiaries and sees whether they would be interested in participating. From this initial screening, a needs assessment is done, following which, the project team designs a business plan and returns to the farmers to validate it. The business plan outlines the costs involved for operational expenses, including tools, machinery and input packages for them and the smallholders in their value chain, and how much they would have to contribute. Many farmers withdraw at this stage. Once the business plan is approved, it moves to a third party (the state-owned BNI) for credit and risk analysis, and is either approved, rejected, or reworked. This is a highly top-down, finance-driven model.

FNDS subsidises 50% of the farmers’ business plan, the other 40% is financed through third party finance (BNI in this case), which FNDS arranges, and farmers pay the remaining 10%. BNI offers a 5% interest rate. Commercial rates were too high to be inculded in this programme.
Reliance on external, export markets: Case study of pigeon pea

For the farmers in the Centre-North of Mozambique, particularly in Zambezia province, the economic difficulties experienced in Mozambique – especially since 2015 – mainly filtered through in the form of higher costs of imported consumer goods. Immediate causes of the economic downturn included the uncovering of hidden debts and subsequent cuts in foreign aid, plummeting international prices of the country’s main export products, such as coal and aluminium, the depreciation of the metical (MZN), and increasing inflation rates.

At this time, prices were booming for agricultural crops, in particular pigeon pea and maize. This led to the expansion of pigeon pea cultivation to more than 1.2 million farmers in central and northern Mozambique, stimulating local economic opportunities. The growth in pigeon pea production was driven by Indian demand, and formalised in 2016 with the signing of a Memorandum of Understanding (MoU) between the governments of Mozambique and India on the production and marketing of pigeon peas and other pulses (Da Cruz and Oppewal, 2017a).

India is both the largest producer and the largest importer of pigeon peas, accounting for 90% of global imports. Pigeon peas are processed into dhal, a staple protein in India. For many years, Indian production could not meet local demand, and in the last decade, Mozambique and Tanzania emerged as significant exporters to India. In 2016, Mozambique exported 170 000 tons (valued at around US$ 125 million). Farmers were convinced of this guaranteed market, and shifted production away from traditional food and cash crops, particularly in Zambezia and Nampula provinces.

But in 2017, with good monsoon rains in India and a bumper harvest of pigeon peas there, prices collapsed from MZN 45/kg in 2016 to MZN 5/kg in 2017. The same occurred with maize, where prices dropped from MZN 20/kg in 2016 to MZN 5/kg (Da Cruz and Oppewal, 2017), paralysing exports of these crops from Mozambique. This led to an economic crisis in the main pigeon pea growing areas, especially where farmers did not have alternative cash crops. This had impacts both on farm sustainability, and on the local economy, affecting farm workers, shops and businesses (Da Cruz and Oppewal, 2017).

Like smallholder farmers elsewhere on the continent and globally, Mozambican farmers respond in a delayed fashion to volatile, globalised commodity prices. Farmers tend to react to the previous season’s prices. Thus, if prices were high, farmers will move to plant that crop the following season. If prices were low, farmers will shift to other crops. Tailing global markets in this way leaves an uncoordinated, disconnected mosaic of projects, programmes and support structures. The resulting cyclical crises are frequent in Mozambique, with limited local markets for commercial agricultural crops, and dependency on fluctuating demand and prices of international markets. Shifting dependency from one export crop to another is highly risky activity. Farmers who had diversified farming systems with less reliance on farm workers and purchased inputs were better able to absorb the shock, and to continue production in the following season. Cruz and Oppewal (2017) argue it is better to focus on crops with both local and international markets (such as mung bean), to ensure that farmers get returns on investment and can maintain production the following season. Many farmers had been persuaded to produce pigeon pea, which reaped some benefit in previous years. In this instance, with plummeting global prices, farmers were left only with pigeon pea, as this had displaced other crops being cultivated. Without any income, they could only replant the pigeon pea. This case highlights the dangers of depending on single cash crops, particularly in large, centralised markets, where smallholders are price takers.
International Development Enterprise (IDE), Cooperative League of the USA (CLUSA), and TechnoServe are contracted to implement the project, and to establish and support the network of SECFs. FNDS had thought of adopting the e-voucher technology, as in the FAO FISP programme (see above), but this “system costs US$ 3 million a year to run and needs to be enlarged considerably to be profitably and economically sustainable”.

Impact of FISPs

Most of the literature examines the impact of input subsidies on the adoption of these technologies, particularly of synthetic fertilisers. Historically, fertiliser use was concentrated in cotton, cashews, and tobacco production, due to the linkages with out-grower systems supplying the credit, input and outputs markets (Schneider and Gugerty, 2009). Input subsidy programmes that we discuss in this paper primarily focus on maize production.

Adoption of improved seed and fertiliser

Carter et al. (2016) conducted a study in parallel with the input subsidy programme between 2009/10 and 2010/11, both with and without a savings programme, in Manica Province. Their findings indicated that recipients of the study increased their fertiliser use for two subsequent unsubsidised seasons. Interestingly, when paired with savings interventions, included in this study, this behaviour of fertiliser use did not persist among those who did not receive a savings package. Carter et al. argue that the continued burden of uninsured risk acts as a barrier to the adoption of improved technologies and income. They suggest that the study population are “underinsured”, and therefore the introduction of savings options was used as a risk reduction strategy, rather than as a means of reinvesting in fertiliser. This highlights the priorities of households, when balancing risk and return. The continued use of fertiliser, without a subsidy, however dwindled after two years following the subsidy, which relates to the findings of Jayne and Rashid (2013) who note that fertiliser use has limited effects on profitability, and suggest that farmers would not adopt it without a subsidy.

Only 28% of farmers who were preselected to receive a voucher redeemed it and used the fertiliser for their maize production. This implies that, although farmers use the fertiliser inputs, it does not seem to be a priority in terms of farmer support. Many of the farmers involved in these programmes had little to no previous experience using modern agricultural inputs (Carter et al., 2014). Prior to the voucher schemes, 22% of farmers in the study area were already using fertiliser for maize cultivation, while 53% were using improved seeds (Carter et al., 2014). Despite the fact that there were initial positive benefits for those who used the vouchers, Carter et al. (2013) suggest that the low uptake of the voucher coupons signals the additional constraints experienced by farmers, limiting their uptake. Other barriers they highlight include financial constraints, risk aversion, information barriers on technology use and returns, and unreliable input supply. Therefore, often, such programmes miss their targets, and ultimately benefit better-off farmers in the community (Minot and Benson, 2009).

Nagasawa suggests that farmers’ investment behaviours in inputs increased with the number of years of participation in the programme and greater experience and practice in using new technologies, and therefore he recommends the continuing of voucher schemes (to increase input adoption). Nagasawa’s study looked at the linkage between FFS and the e-voucher input subsidy. About 15% of e-voucher recipients were members of FFS, and these farmers generally invest earlier in inputs than non-members. Nagasawa (2017) suggests the most effective target groups for the vouchers system are farmers in FFS and wealthier farmers. He also notes that women tended to purchase inputs in a timelier manner than men.

24. Interview with project coordinator and financial director, FNDS, 29 March 2018
Yields and income

Laajaj (2012) observes that inputs alone do not contribute to increased yields. Rather, increased production is coupled with irrigation and a history of using inputs, and therefore more well-resourced households benefit from these programmes (Carter et al., 2013a). Figures 5a and b below indicate the varying maize production as a result of the input vouchers provided between 2009 and 2011. In this case, there was a very high heterogeneity of returns amongst farmers, and a higher concentration of benefits was observed primarily amongst the most productive and irrigated farmers (Laajaj, 2012). While 97% of farmers had positive returns at the subsidised input prices, only 25% of farmers had positive returns at market price. In particular, higher returns were seen in irrigated cultivated areas (Figure 5b), and where farmers had previous experience using fertiliser (Laajaj, 2012). Maize yield increases have been noted as a result of the e-voucher programme, from 0.82 t/ha to an average of 2.6 t/ha, combining the packages with the FFS and adoption of new cultivation practices (De Oliveira, 2018; ICTworks, 2018).

Looking at longer-term impacts, Carter et al. (2014) found that farmers receiving the subsidy had a significant increase in crop production, 21.6% higher than non-recipient farmers. In another study, Carter et al. (2013a) found that the most productive farmers benefited most from the subsidy. Figure 5b shows that amongst farmers who did not receive the subsidy, those on non-irrigated land were more productive. This represents the majority of farmers in Mozambique, who are farming with rain-fed agriculture. However, the inputs assisted irrigation farmers to increase their productivity more than non-irrigation farmers. Therefore, we can conclude that the packages are more appropriate for irrigation farmers. Carter et al.’s findings indicated that widespread adoption through the input subsidy programme was limited. The adoption of new technologies is not simply about reduced input costs, but is dependent on a range of other variables.

In the same study, the lack of timely distribution of vouchers and a late drought had disastrous impacts on productivity. Many farmers, waiting for the vouchers, stayed off planting until December, and were met with a drought in late January through to early February, reducing the returns expected from fertiliser use. This is similar with improved maize hybrid seeds, which need to planted at a specific time in order to yield benefits, and often achieve high yields coupled with irrigation (Nagasawa, 2017). Hybrid maize, however, was only available in Package B. It was also noted that those farmers purchasing Package B had more delays in purchasing inputs. This is attributed to the lack of financial resources.
and microfinancing options. Further to this, the investment behaviour indicates that many farmers purchase fertilisers later in the agricultural growing season, indicating that fertilisers are used for horticultural crops, rather than the intended commercial crops.

Improved seeds, and the synthetic fertilisers they require, depend heavily on optimal conditions, which are not found across most of the country. This illustrates the inappropriateness of these “modern” inputs in such agro-ecological and socio-political contexts. Administrative delays are not unusual and can be expected, and few farmers have access to irrigation. The same can be said for uncertain climatic conditions, where frequent droughts and floods are common. Farmer support should take these contexts into account.

The private sector-driven model, where agro-dealers arrange the supply of inputs has resulted in delays. The delays caused by on-truck deliveries, in particular, can potentially negatively affect farm productivity, yet this remains an essential and “indispensable” way to reach remote rural areas (Nagasawa, 2017:57). Nagasawa suggests that government should, therefore, intervene in the arrangement of input supply and distribution, in particular on-truck delivery. It is also noted that on-truck sales limit input choice, and reduce investments. Such government oversight could also extend to the type of inputs that are available, and therefore respond to farmers’ priorities, rather than those of agro-dealers.

Benfica et al. (2014) suggest that, while those farmers who irrigate, receive extension services, or use chemical fertilisers have higher productivity, it is primarily the allocation of resources to research and extension that has the greatest impact (a factor that is also emphasised in the PNISA and PEDSA). Therefore, they urge that research and extension should be afforded a greater role in government investment plans.

Carter et al. (2016) observed an increase of almost 10% in per capita household expenditure, due to participation in the subsidy programme. In their 2014 study, Carter et al. suggest that the input subsidy led to increases in household agricultural production, market sales, per capita consumption, assets, ownership, and housing improvements. They found that on average between 2012 and 2013, there was an increase of 14.7% daily income of those farmers who received the vouchers compared to those who did not.

**Farmer and crop selection**

Mosca and Abbas (2016) suggest that that a large part of the subsidies are only accessible to medium and large producers, as a result of production techniques, land tenure, and access to equipment and credit. Prioritisation of agribusiness and integration of emerging commercial farmers into value chains often neglects smallholder farmers. There was a notable shift in resources allocated from Package A to Package B from 2013 to 2017 (De Oliveira, 2018, ICTworks, 2018). In 2016/2017 women accounted for just 32% of all recipients of the subsidy (De Oliveira, 2018).

In the voucher system, the selection process is open to favouritism and manipulation, as voucher participants are selected initially by local leaders and input suppliers in a manner that is not transparent (CARE and ActionAid, 2017). This is a major issue, as local administrations and leaders are party representatives (most notably the ruling party Frelimo), and in order to access benefits such as inputs, credit, and other farmer support, farmers must belong to the political party. “Sometimes they belong [to the political party] just to have these benefits”.25

Mosca and Dada (2014) indicate there are no clear criteria guiding the application and allocation of resources for subsidies. In some cases, there are no eligibility criteria (such as inputs provided to smallholder producers), period of validity (such as credit subsidies), or use of infrastructure (irrigation). Selection criteria are based on a mix of commercial orientation and the ability to contribute financially, while also aiming at poorer sections of the population. Allocation mismatches causes uneven benefits, with
better-off farmers able to participate, while the majority of smallholders, and particularly female farmers, are excluded (CARE and ActionAid, 2017).

There is some diversity of crop types available to farmers, including soya bean, peanuts, sorghum, rice, and OPV and hybrid maize. However, these were inconsistently available in different locations (Nagasawa, 2017). The disconnection between policy and practice may be wide, and, in terms of crop type and varieties available, this may be limited and not necessarily responsive to local farmer preferences, nor local agro-ecological conditions. Agro-dealers determine the choice of inputs (and hence production systems) available to farmers. It is important to understand what is available, what is being purchased, what is being sold, and what is being consumed to understand whether these programmes ultimately contribute to improved nutritional status and other measures family farmers prioritise.

**Input and export markets: Sustainability versus dependency?**

In terms of agricultural input subsidies in Mozambique, it is difficult to distinguish relief interventions from the supply of subsidised inputs for longer-term agricultural development. “Subsistence farmers do not have capacity to buy inputs, and in many ways these programmes are simply about survival”.

In emergency situations, farmers receive formal sector seed, and in many cases this causes a displacement of local varieties. Farmers are mobilised to come to seed fairs, and tend to take whatever is being provided. Often these are hybrids or other varieties developed for commercial value chains, and to be produced under controlled and high-input conditions.

The displacement of local seed and local farming practices may have dire long-term consequences, with farmers becoming increasingly vulnerable to climatic shocks. Shifting farming practices and products entrench the dependency on agricultural inputs, with the main beneficiaries being foreign companies.

The investment in emerging farmers and integration of smallholder farmers along commodity crop value chains – which are notably for export markets – has some advantages, but many dangers for smallholder farmers who are included and supported only marginally. This may divert scarce resources between crops from household food consumption to export-oriented crops, with impacts on local food and nutritional security (Mosca, 2012). Export-oriented production is exposed to variations in international market prices, and farmers bear the risk if and when prices plummet, such as the pigeon pea example.

Longley et al. (2006) suggest that the introduction of input vouchers has supported commercialisation in the “informal” seed sector, rather than the formal seed sector. They suggest that the provision of seed and other agricultural inputs through direct distribution or voucher-based approaches does not necessarily equate to the strengthening of commercial seed markets (nor of quality seed), often a central reason for these interventions.

The use of input trade fairs is seen as a way to promote input markets in rural areas, although it is also a way to promote local seed production. There are a variety of strengths, weaknesses, opportunities and threats of seed and input fairs, as outlined by Longley et al. (2006). These range from farmers’ choice in deciding what seed they would prefer and from whom, to varieties on offer, and logistical, administrative, and information concerns. While formal seed traders increased, the price of seed also increased, with corporate seed being five

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26. Interview with António Fagilde, TECAP/Casa do Agriculturo, 28 March 2018, Maputo
27. Interview with advocacy officer, UNAC, 18 July 2018, Lusaka, Zambia
to six times more expensive than those available from farmers. Longley et al. also note extensive quality issues related to seed from the formal sector, compared to farmers’ seed varieties, many of which had also gone through some sort of quality control measure.

**Coordination and organisation**

According to União Nacional de Camponeses (National Union of Farmers, UNAC), there is no clear approach to the support provided to smallholder farmers, as it changes with different donors and programmes. UNAC believes that it is not transparent or regulated, and fails to increase yield as farmers experience more urgent issues.28 They argue that farmers have not been involved in designing such programmes and this has become a political issue in the country. Donor-funded programmes have filled the gap in government programming, offering a range of input subsidy projects that tend to be short-lived, and with a focus on a particular geographical area. These programmes tend to be sporadic and disconnected. Mr Fagilde from Casa do Agriculturo further reinforces this statement, saying that smallholder farmers are not organised, and the projects being implemented are not consistent.29 This said, there is clearly an overall value chain approach of commercially-oriented crops, embedded in a Green Revolution agricultural model, through both the PEDSA and the PNISA.

The relationship between government and civil society in Mozambique is highly limited and often conflictual, and in many cases there is limited participation of civil society, particularly peasants and peasant associations, in top-down decision-making processes (such as ProSavana30) and in accessing information.

Mosca and Abbas (2016) suggest that the instability of public institutions has established erratic public policies, persistent undemocratic and centralised methods of decision-making, concentration of resources in areas with little influence on production, and deficits in regulation and supervision.

**Issues for further consideration**

Looking forward, we outline a number of challenges as well as opportunities to develop, deepen and enhance policies and practices guiding farmer varieties and farmer seed systems.

**Building on work already being done on FFS, seed fairs and seed banks**

In Mozambique, the development of the formal seed sector is closely linked with the provision of relief seed (Longley et al., 2005). The feiras attract a variety of traders selling goods and promote trading activities in the rural areas, particularly certified, as well as farmer seed. Feiras have potential to decentralise the seed sector, by formally integrating farmers’ seed not only into the fair (where many farmers already display and sell seed), but also into the input subsidy programmes.

At the feiras a variety of inputs and produce are available, from both farmers and agro-dealers. A study by Longley et al. (2007) found that the certified seed available at these feiras was of low quality, and many farmers preferred purchasing farmers’ seed, much of which had gone through some sort of quality control processes and good seed handling practices. There is room to explore the feiras further.

There are also examples where rural associations have established seed banks,31 which could be further examined. Such seed banks could play a role in ensuring seed sovereignty and resilience of farmers to

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28. Interview with executive coordinator and programmes officer, UNAC, 3 April 2018, Maputo.
29. Interview with Antonio Fagilde, director, TECAP/Casa do Agriculturo, 28 March 2018, Maputo
30. ProSavana is a highly controversial project, funded through a partnership between Mozambique, Brazil and Japan, that also aims to transform peasant agriculture into commercial agri-business, through changing the production practices of peasants and contracting them into producing certain crops. ProSavana is vigilantly opposed by local civil society organisations that claim it to be a guise to facilitate large-scale land grabs across some 11 million hectares of land, in 19 districts in Zambeza, Nampula and Niassa.
31. Interview with ORAM, 29 March 2018, Maputo
climatic and economic shocks. A study could establish whether a network could be created to supply seed in cases of emergency.

With the significant investment in extension workers, there may be possibilities to form linkages between the FFS, participatory plant breeding, farmer seed multiplication, and seed banks. While the use of FFS is an innovative approach in the context of severely lacking extension services, it could be widened to provide a space for shared learning and the selection of appropriate technologies and practices based on sound comparative research. This could allow for meaningful farmer participation, rather than simply facilitating the adoption of predetermined technologies. It would also be useful to investigate the role of CA as a priority investment strategy, and how it can intersect with public sector programmes to support agro-ecological practices.

Seed research

UNAC has been working closely with IIAM in Manica Province to revive and enhance local varieties with farmers, particularly of maize, that now rival hybrid varieties in terms of productivity. Upscaling this work with farmers, and with national and other provincial IIAM centres, and developing linkages into the already normalised feiras could create an opportunity to enhance farmers’ access to farmer varieties, as well as integrate restoration, enhancement and multiplication processes. PNISAs’ allocations of resources to developing locally adapted varieties could be directed towards such farmer-based, collaborative, and participatory breeding and multiplication programmes.

It would be prudent to accommodate farmer priorities by widening the scope and range of crops and varieties beyond simply yield imperatives on commodity crops. Varieties and genetic materials can be sourced from amongst farmers and gene banks and work already being done by farmers could be built on, through encouraging farmer experimentation, selection and production. Technical support could come from IIAM, farmer associations, universities, government at various levels, and civil society organisations.

Diversification and flexibility in input packages and output markets

There are limited quantities of local seed currently that could be integrated into government or donor projects, but UNAC, and potentially others, have started the groundwork to restore local varieties. This activity could be expanded, and local seed could be multiplied and fed into public sector agricultural input supply programmes. A major barrier for this work is the new Mozambican seed law, which prevents the sale and even exchange of farmer seed, which by its (preferred) heterogeneous characteristics may not conform to restrictive Distinct, Uniform and Stable (DUS) criteria that must be met before seed may be sold. It is vital that civil society takes note of the increasing pressures on and criminalisation of farmer seed systems.

It is questionable whether increasing agricultural productivity, particularly of limited food and/or cash crops, should be the sole focus of farmer support, and whether there are not more urgent requirements for farmers. Producers in the north of Mozambique generate large surpluses but this produce cannot profitably be transported to the south of the country where it is needed (ACB, 2015). This is not an issue of low productivity, but of weak storage and distribution systems, leading to post-harvest losses. Therefore it may be prudent for scarce resources to be used to support the production of varieties that are more resilient to pests, post-harvest, to develop small-scale storage facilities, particularly for farmer varieties, and to grow local markets.

Protecting peasant agriculture, and farmer seed systems

Farmers respond to market needs (Mosca, 2012), and as mentioned by UNAC, many farmers (especially in the north of the country) do not always use all their land for production, “they grow what they know they

32. See forthcoming critique by ACB on Mozambique’s Seed Law
Production is constrained by poor market access to sell produce and fluctuating export markets that are accessible to only a few. The pigeon pea example illustrates that smallholders are responsive to market incentives, but that it is those farmers who maintain diverse agricultural systems, who are better able to withstand economic and climatic shocks. Important to note, farmers on non-irrigated farms, without the input subsidy, outperformed those who received the subsidy. A significant portion of smallholder farm are non-irrigated, and it requires an in-depth investigation into the methods, practices and seed types that are used to achieve this productivity and resilience, without any intervention by government and donor agencies.

There are differing political and ideological views of how development should benefit peasant families amongst government and farmer associations, such as UNAC, who are also looking at alternatives to the dominant development model. “Farmers should be integrated into the market, they have an important role to play there. But our main objective is that farmers must first produce for themselves. Now in Mozambique, small-scale farmers feed the country”.34

With the transformations taking place in the agricultural sector, the Associacao Rural de Ajuda Mutua (ORAM) emphasises the “need to protect the peasants, smallholder farmers, and family agriculture”.35 ORAM are calling for peasants to be integrated into the changes taking place, and to have access to affordable credit, including credit subsidies and rotational credit schemes. Peasants should be included in decision-making processes and seen as actors, not solely as beneficiaries of projects; they should be provided with the means of production, and not simply inputs, including land, appropriate machinery, extension services, and seed banks.36

The focus on commercialisation and value chain development tends to prioritise large-scale investments, benefiting “emerging” farmers, producing a pattern of exclusionary and unequal development in rural areas – particularly along the development corridors – and creating monopsonistic markets and local elitist behaviours as a result. According to Mosca (2012), this deepens the pattern of:

- extractivism;
- accumulation of resources from external actors;
- overexploitation of natural resources;
- the exclusion of smallholder food producers; and
- structural inequalities.

Projects such as the Fertiliser Subsidy Programme lead to increased marginalisation of family farmers. These projects are primarily for commercial crops, not for local food and therefore create risks for national food security by reducing the autonomy and sovereignty of farmers.37 With programmes either aiming to build on the survivalist needs of smallholders, or targeting smallholders indirectly through the investments in medium-scale emerging farmers, a financially driven approach may exclude the family sector from getting adequate farmer support. Therefore it is crucial to provide a differentiated and holistic approach to farmer support in Mozambique, including inter alia diversification of crops, farmers, and input and output markets.

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33. Interview with advocacy officer, UNAC, 18 July 2018, Lusaka, Zambia
34. Interview with advocacy officer, UNAC, 18 July 2018, Lusaka, Zambia
35. Interview with advocacy officer, ORAM, 29 March 2018, Maputo
36. ORAM and UNAC note particularly the parques de máquinas (machinery parks) programme that provide an array of agricultural machinery not suited to smallholder production, that is located too far and is too expensive for smallholders to access.
37. Interview with advocacy officer, UNAC, 18 July 2018, Lusaka, Zambia
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Input subsidies in Mozambique: The future of peasant farmers and their seed systems

March 2019

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