



Tracing sustainable agriculture in Mozambique

From policy to practice

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The aim of the Natural Resources Group is to build partnerships, capacity and wise decision making for fair and sustainable use of natural resources. Our priority in pursuing this purpose is on local control and management of natural resources and other ecosystems.

Partner organisation

CARE is a major international humanitarian agency delivering emergency relief and long-term international development projects. CARE's programmes address issues such as emergency response, food security, economic development, climate change, agriculture, education, and health. Within these areas, CARE focuses particularly on empowering and meeting the needs of women and girls and promoting gender equality and social justice.

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This study examines the agricultural policies and strategies that have influenced agricultural development in Mozambique, the support structures that have been put in place, and the realities and challenges of their implementation. It was found that key stakeholders understand the concept of sustainable agriculture, that the most important contributing components are covered in the current policy framework, and that farmers are keen to adopt and adapt to more sustainable and profitable farming practices. A change in policy direction is needed so that priorities and resources favour support to the smallholder sector.

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Summary

Research trials and emerging evidence in Mozambique suggest that sustainable approaches help increase yields while making production systems more resilient and economically accessible. IIED has initiated research to help stakeholders in agricultural development arrive at a common understanding of sustainable agriculture, consider how this is reflected in policy and practice, and try to identify major constraints.

Mozambique is regarded as having great potential for agricultural production. The government considers commercial agriculture to be a major driver of transformation. However, the increase in agricultural production achieved over the past decade is unlikely to be sustainable, as it has been largely driven by land expansion. Politically driven priorities have also discriminated against the majority of smallholder farmers, who continue to be poor and vulnerable.

Sustainable agriculture is a difficult concept to discuss, as different actors emphasise different aspects of sustainability. Stakeholders in Maputo agree that it is not possible to define a single model or a technology for sustainable agriculture, but that technological solutions and approaches can help achieve the objectives of the concept to varying degrees. Agricultural-related policies, strategies and plans in Mozambique emphasise various components of sustainable agriculture, including promoting production and productivity; market access; food and nutrition; natural resources; and institutional reform.

While the policy framework supports initiatives to scale up sustainable agriculture, implementation is hampered by other priorities and by insufficient and unpredictable resources that greatly affect service delivery. There is an acute shortage of advisory services in Mozambique, and any additional staff are allocated to districts with the highest potential for growth, with donors and international NGOs supporting the more vulnerable areas.

Sustainable agricultural approaches, such as conservation agriculture, are increasingly being promoted through Farmer Field Schools. This system provides the necessary flexibility to adapt the initiatives outlined in national policies and strategies to local circumstances and needs. For example, the NGO CARE has been working with smallholder farmers and has established Farmer Field and Business schools (integrating skills development on marketing, gender and nutrition) and Climate Field Schools (integrating aspects of climate scenario planning).

Additional advantages of this system include the creation of a multiplier effect by establishing farmer groups and by training contact farmers. This helps to solve the problem of low extension coverage and encourages on-site and farmer-led research and development of appropriate technologies. Research at the CARE Farmer Field Schools found that farmers first adopt the techniques that have a high degree of 'observability' and offer immediate benefits. It was also observed that some farmers had adapted specific technologies to suit their own capacity (such as labour availability) and preferences.

Progress in achieving sustainable agriculture is being made, but is still hampered by smallholder farmers' poor access to inputs and markets. The involvement and interest of the private sector in marginal areas is limited, although there are a few encouraging reports of successful and locally developed value chains, such as for cashew nut.

Many institutions and organisations are involved in the agricultural sector in Mozambique, and while efforts have been made towards institutional reform and donor coordination, the involvement of the private sector and NGOs has been more the exception than the rule.

The recent developments in the approach to agricultural development in Mozambique provide a sound basis for scaling up sustainable agriculture in the country, thereby increasing the contribution of smallholder farmers to achieving national productivity and production targets. The main weakness is the lack and unpredictability of resources for implementation. It is suggested therefore that, rather than change the policy content, the policy direction could shift towards a stronger focus on the smallholder sector through more predictable and longer-term support for the provision of essential services. Key stakeholders can assist by sharing information and lessons learned to develop evidence-based proposals for government prioritisation and resource allocation. The government, meanwhile, can support the involvement of key stakeholders, such as donor agencies, NGOs and the private sector through the recently established coordination groups and platforms at national level. It is also suggested that coordination mechanisms at provincial and district level are encouraged and supported to coordinate and ensure coherence of technology transfer and encourage joint research and planning.

1

Background

Agriculture is the main source of income in Mozambique. On the whole, efforts to increase agricultural production have not been sustainable. IIED and CARE initiated research to help stakeholders in agricultural development arrive at a common understanding of sustainable agriculture, and investigate how this is reflected in policy and practice.

1.1 Agricultural production in Mozambique

Agriculture is the main source of income in Mozambique, providing income for more than 70% of the population, contributing 31.8% to Mozambique's gross domestic product (GDP) and absorbing 81% of the total workforce. The agricultural sector is dominated by smallholder farmers using family labour (99%), most of whom cultivate small plots of land ranging between 0.5 to 1.5 hectares (ha) (World Bank, 2015). The main food crops grown 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 and fruit. The main livestock are cattle, goats and poultry, although different livestock dominate in different regions. Low coverage of advisory services, lack of storage infrastructure, high post-harvest losses, poor transport facilities, high transaction costs and difficult access to financial services are amongst

the main constraints to smallholders' productivity (Silici et al., 2015).

Mozambique is regarded as having great potential for agricultural production. The government considers commercial agriculture to be a major driver of transformation and has been promoting large-scale investments in agriculture. This approach, however, can promote monocultures and technological packages that are inappropriate and that can damage the environment, and there is a great deal of uncertainty about the impact on smallholder farmer access to markets, land and employment. Smallholder agriculture, on the other hand, can be vulnerable and unsustainable in the long term due to low yields, labour-intensive technologies, and exposure to climate shocks (Silici et al., 2015).

Research trials, projects and emerging evidence in Africa (AGRA, 2015a) and in Mozambique (CARE, 2015) suggest that sustainable approaches can help increase yields while making production systems more resilient and economically accessible. There is wide support for sustainable approaches by the Ministry of Agriculture and Food Security (MASA),¹ development

¹ Ministério da Agricultura e Segurança Alimentar (MASA), previously called the Ministério de Agricultura (MINAG).

agencies, civil society and farmers' groups, but a consistent programme of work backed by adequate funds is lacking. Farmer adoption rates for sustainable agriculture practices remain low, and therefore links between the policies for sustainable agriculture and farmers' practices on the ground are unclear (Silici et al., 2015). This report aims to clarify these links.

1.2 Objectives and methodology

IIED and CARE have initiated research to help stakeholders in agricultural development arrive at a common understanding of sustainable agriculture, consider how this is reflected in policy and practice, and try to identify major constraints.

A previous scoping study and a stakeholder survey by IIED showed that the scaling-up of sustainable agriculture in Mozambique is limited by a mix of financial, technical and institutional constraints (Silici et al., 2015). Weak policy support was identified as another major limitation. CARE Mozambique, which has also been doing some work in this area, conducted a desk study with ActionAid Mozambique to explore the extent to which smallholder farmer interests are captured in national agricultural policies, plans and strategies (CARE and ActionAid, 2015). One of the aims was to assess whether the existing policy framework promotes sustainable agriculture practices, with a particular focus on climate resilience.

A workshop in May 2015 aimed to bring together CARE and IIED's work in this area (see Section 1.4). It enabled representatives of key agricultural institutions to discuss what type of policies, investments and incentives were needed to overcome constraints to scaling-up sustainable practices, and what the various actors could do to achieve the necessary changes. Through these exchanges it became clear that constraints for implementing sustainable agriculture policies in Mozambique have to be analysed in the context of the socio-economic transformations taking place in rural areas.

To build upon and deepen collaboration along these lines, a joint research study between IIED and CARE

was proposed, exploring the larger policy intentions for sustainable agriculture in Mozambique and their link with practices on the ground. The study aims to understand how policy and power dynamics at the national and regional level are affecting the options that farmers have and the choices they make, and to identify the key levers that could make a difference for promoting sustainability. The study traces national policies from their content and guidance for achieving sustainable agriculture to the way they are funded and implemented. The emphasis is on smallholder farmers, and how they can be supported to improve their practices and to enable smallholder agriculture to provide larger quantities of nutritious food for their families and for the country as a whole. The research set out to answer these questions:

- **Policy content and quality:** is policy content related to sustainable agriculture clear and sufficient (recognising that it may not be 'called' sustainable agriculture)? What is the quality of the policy in terms of the change that is sought (sustainable agriculture) and does it have sufficient guidelines for implementation and support?
- **Policy – how is it supported?** What value do stakeholders at different levels place on sustainable agriculture goals, and how much is implementation a priority for them? What resources are available to them to support implementation and how are they allocated?
- **Implementation – what are the realities?** Are the reasons for adoption or non-adoption of sustainable agricultural practices by smallholder farmers linked to policy? If so, what are the key factors in the policy or policy process that influence their decision making?

The research involved a combination of deskwork and fieldwork. The deskwork concentrated on answering the above questions on policies related to sustainable agriculture, how they are supported in strategic plans, work plans and resource allocation. The fieldwork took place between 25 November and 4 December 2015 and was hosted by CARE Mozambique. It consisted of a number of consultations with stakeholders at national level and semi-structured interviews with government officials at provincial and district level, and advisory staff and farmers from Homoine and Funhalouro districts in Inhambane Province.

1.3 Definition of sustainable agriculture

The concept of sustainable agriculture is difficult to discuss and comprehend by key stakeholders, as it is the result of the interaction of a multitude of components. In an attempt to describe the concept, the following formulation is usually used: 'from a holistic perspective, sustainable agriculture should be economically viable, environmentally sustainable, climate resilient, culturally sound and socially just' (Silici et al., 2015).

Earlier research by IIED found that whilst this definition is generally accepted and used, it is difficult to put into practice, as different actors will emphasise different aspects of sustainability. While some stress the need for agriculture that meets the food demands of a growing population and provides economic opportunities for all, others emphasise aspects of social justice, such as food sovereignty and land tenure security. Still others focus more on environmental and conservation issues (Silici et al., 2015).

The Food and Agriculture Organisation (FAO) adds a few other dimensions to the concept, such as food security and the rights of future generations. It states that 'to be sustainable, agriculture must meet the needs of present and future generations for its products and services, while ensuring profitability, environmental health, and social and economic equity. Sustainable agriculture should contribute to all four pillars of food security – availability, access, utilization and stability – in a manner that is environmentally, economically and socially responsible over time' (FAO, 2014).

The FAO proposes a set of five interconnected principles that can guide a transition towards sustainable food and agriculture. The five principles, listed in Box 1, can 'balance the social, economic and environmental dimensions of sustainability in agriculture, and provide a basis for developing policies, strategies, regulations and incentives to guide the transition to sustainability, while promoting resilience through an adaptive response to shocks and opportunities' (FAO, 2014).

The FAO also further suggests that sustainable agriculture requires the development of strategies leading to wise choices in order to achieve those multiple objectives. However, they also point out that because of different contexts and scales, key stakeholders need to share a common understanding of what sustainable food and agriculture mean, and agree on the most appropriate strategies and approaches to its implementation (FAO, 2014).

BOX 1. FIVE PRINCIPLES FOR A TRANSITION TOWARDS SUSTAINABLE FOOD AND AGRICULTURE

Principle 1: Improving efficiency in the use of resources is crucial to sustainable agriculture

Principle 2: Sustainability requires direct action to conserve, protect and enhance natural resources

Principle 3: Agriculture that fails to protect and improve rural livelihoods, equity and social well-being is unsustainable

Principle 4: Enhanced resilience of people, communities and ecosystems is key to sustainable agriculture

Principle 5: Sustainable food and agriculture requires responsible and effective governance mechanisms

(FAO, 2014)

The above discussion demonstrates that sustainable agriculture is a concept that cannot be captured in a single definition. However, for the achievement of the multiple objectives an agreement or common understanding is needed by the various stakeholders on the various components.

1.4 The concept of sustainable agriculture in Mozambique

In order to investigate the concept of sustainable agriculture in Mozambique, IIED undertook a survey of 38 stakeholders to assess how local and national actors define 'sustainability' and how it is put into practice. The survey concluded that government institutions, including the National Institute of Agricultural Research institute (IIAM),² the Directorate of Extension Services (DNEA),³ and several development organisations such as FAO and CARE, see sustainable agriculture in Mozambique as 'an opportunity to improve the productivity of smallholder farmers, while promoting sustainable use of available resources and limiting the effects of drought and other climatic vulnerabilities' (Silici et al., 2015). The majority of the stakeholders interviewed see sustainability mainly from the perspective of the environment and climate change. There were others, however, who also stressed socio-economic issues, such as the affordability of inputs, the degree of labour intensiveness, and working conditions. Some also stressed aspects of justice, access and above all control over natural and economic resources, as well as the need to pursue food sovereignty. These answers clearly demonstrate that in Mozambique, as elsewhere, different actors have different understandings of what sustainability means. In general, however, they feel that all dimensions are important and that the concept of sustainable agriculture is complex and dynamic.

The results of this survey were later presented and discussed in a workshop organised by IIED and CARE. The workshop, 'Scaling up sustainable agriculture in Mozambique: challenges and opportunities', took place in Maputo in May 2015 and aimed to find out if stakeholders working in the agricultural sector in Mozambique could reach a consensus on the concept of sustainable agriculture, what it has to offer to the country and what the challenges and constraints are to the diffusion and adoption of sustainable practices. The participants agreed that it was not possible to define a single model or a technology, but that technological solutions and farming approaches can be considered sustainable when they help achieve the objectives mentioned above to varying degrees. Examples mentioned included biological pest control, integrated pest management, integrated soil management and organic agriculture. Participants also agreed that these practices are not mutually exclusive – they can be combined to create synergies and multiply benefits (Silici et al., 2015).

² Instituto de Investigação Agrária de Moçambique (IIAM).

³ Direcção Nacional de Extensão Agrária (DNEA).

2

Policy framework for sustainable agriculture in Mozambique

Agricultural-related policies, strategies and plans in Mozambique include various components of sustainable agriculture. However, studies suggest that efforts made so far are unlikely to be sustainable, as progress made has largely been driven by land expansion, and implementation has not considered smallholder farmers' needs and interests.

Mozambique is a multiparty democracy, and despite its abundance of natural resources, its agricultural potential is largely untapped. The sector has broadly underperformed since Independence in 1975. While the policies, strategies and plans that have been developed since Independence have all the ingredients, and the recipe, for transforming the agricultural sector into a productive and sustainable base for economic growth and poverty reduction, the country has not been able to deliver these results as yet.

This section first studies the agricultural policies and strategies that have influenced agricultural development in Mozambique since Independence and explains the key factors that have been at play in implementation. This is followed with a description and discussion of the current agricultural policy framework. Information

is based on existing studies by CARE International Mozambique and ActionAid Mozambique, by the International Food Policy Research Institute (IFPRI) and the World Bank, as well as the original policy documents. The main policies and strategies are summarised in Box 2.

2.1 Agricultural policies, strategies and plans since independence

After Independence, President Chissano initiated the development of Agenda 2025 in 1988, a participatory process involving citizens of all regions

and representatives of all interest groups to reflect on the future of Mozambique. In this document, published in 2003, the ideal scenario for agricultural development was based on a number of pillars (Republic of Mozambique, 2003):

- the commercialisation and development of agro-industry
- a more efficient extension service to respond to the immediate needs of farmers
- increased productivity through improved varieties
- initiatives to increase access to essential services (such as infrastructure, education, credit) to facilitate the production, conservation and export of agricultural products.

The Agricultural Policy and Implementation Strategy (PAEI)⁴ was developed in 1995, also under Chissano's presidency. This policy is still in place and is part of the current policy framework. While on paper the policy aimed at fighting food insecurity and poverty and achieving sustainable economic growth through support to smallholder farmers (among others), commercial farming was also a government priority (CARE & ActionAid, 2015). Foreign direct investment was considered to be the main engine of development and the government aimed to facilitate this process by providing land-obtaining mechanisms and other opportunities. The production of cash crops was seen as a source of government revenue, but it also provided an opportunity for rent extraction by the ruling elite and for consolidating Frelimo's power over the economy, state and rural space.⁵ At the same time, smallholder agriculture interests were neglected and services for smallholder farmers were confined to basic technical assistance for high commercial-value crops such as tobacco, cotton, tea, sesame and sugar (Do Rosário, 2011).

Another attempt to guide the development of an agricultural sector that was 'integrated, sustainable, competitive, diversified and the basis for wellbeing' was the formulation of Priorities for Development of the Agricultural Sector (2006–2009) by the Ministry of Agriculture and Food Security in 2006. In this document the ministry states that it will prioritise interventions and resources for those activities that have the potential for market competition (local, regional and international), for poverty reduction, for promoting diversification for food security, for building resilience to climate and market fluctuations, and for adopting improved technologies (MASA, 2006). Although these objectives are not

new, the value of this document is that it provides a more concrete and practical guide and sets specific production targets for the main crops. It also identifies the agro-ecological zones that have the highest potential for the major food and cash crops.

A year later, in 2007, the Alliance for a Green Revolution in Africa (AGRA), initiated by former Secretary General of the United Nations Kofi Annan, encouraged African nations to advance a green revolution in the continent. Apart from supporting traditional intensification strategies to increase food production and cut food insecurity by half in 2015 (to meet the Millennium Development Goal), AGRA also strongly defended policies that support small-scale farmers, rural development, environmental sustainability, and marketing that is favourable to poor farmers (AGRA, 2015b). With the formulation of its own Green Revolution Strategy (MINAG, 2007c), intensification of agriculture was looked at in a wider context than it had been previously. It included a greater focus on the family farming sector, the promotion of associations, the development of markets for inputs and agricultural commodities and the conservation and sustainable use of natural resources. In its outline for implementation it also emphasised the need for an integrated approach and encouraged the involvement of other state actors, the private sector and non-governmental organisations (MINAG, 2007c).

The agricultural programmes PROAGRI I (1998–2005) and PROAGRI II (2005–2009), developed with the government's donor partners, supported strategies for improved service delivery. However, during PROAGRI I support was targeted to institutional reforms within the Ministry of Agriculture. Although this was an important development, results and impact at local level were poor and demand for agricultural services have been largely unmet (CARE & ActionAid, 2015). Objectives in PROAGRI II tried to turn this round by focusing on impact rather than institutional development. Although the strategy intended to involve broad stakeholder consultations and involvement, it never managed to reach beyond government-donor relationships (CARE & ActionAid, 2015).

The government objective to improve service delivery, especially at district level, triggered the formulation of the Law of Local Institutions (LOLE),⁶ approved in 2005. The law supports a process of decentralised planning, resource allocation and management, and aims at integrating local communities in the decision-making process. A Supplemental Local Initiative Investment

⁴ Política Agrícola e Estratégia de Implementação.

⁵ Frelimo, the ruling party, has been in power since Independence.

⁶ Lei dos Órgãos Locais do Estado (LOLE).

Budget (OILL)⁷ was established to finance district development projects. Since 2006, the government provides over 7 million metais annually (approximately US\$300,000) from the State Budget to each of the country's 128 districts for projects to combat poverty. The District Development Fund, which was created in 2009 to manage the funds, helped to finance hundreds of thousands of farming and small industry projects, and to build Frelimo's reputation in rural areas. However, it did not produce any tangible results in terms of the development of smallholder agriculture or processing facilities. The explanation given for this was that the government was not involved in the implementation of those community projects, so financing and technical support were disconnected from central government, who could have provided the technical expertise through the district agriculture offices (Do Rosário, 2011).

The decentralised autonomy of the districts raised the need for a proper framework and vision for rural development: in 2007 the Rural Development Strategy (EDR)⁸ was approved. The strategy stresses that its additional value to the existing strategic framework is its focus on a rural development that is sound and sustainable in the long term (EDR, 2007). It is intended as an instrument that triggers action and mobilisation of the various actors for promoting rural development. The main goal is to reach a level of human development in rural areas by 2025 that is three times greater than 2005 through the promotion of a rural economy that is more competitive, sustainable, environmentally friendly and socially attractive (CARE & ActionAid, 2015).

The arrival to power of President Armando Guebuza in 2005 did not change the general rhetoric of promoting investments in (mostly) large-scale commercial agriculture. However, the global food price crisis in 2007 triggered a change in direction from market-oriented cash and food crops to the production of food crops such as wheat, rice, cassava, potatoes and oilseeds for national consumption and to reduce dependence on imports. This strategy was outlined in the 2008 Plan of Action for Food Production (PAPA).⁹ Initiatives under this plan did not produce the expected results, however, as priority areas that were chosen for the production of food crops did not always have the right agro-ecological conditions, or issues such as post-harvest and marketing were not considered (Do Rosário, 2011).

Agricultural development in Mozambique is expected to contribute to poverty reduction. The Mozambican Poverty Reduction Strategy Paper 2010–2014 (PRSP/

PARP)¹⁰ became an integral part of the National Planning System and had a special budget which was requested each year through the state budget (IMF, 2011). The overall target of the PRSP was to reduce the incidence of food poverty from 54.7% to 42% by 2014. It aimed to achieve these targets by increased production and productivity in the agriculture and fishery sectors, promotion of employment, improvements in human and social development, and macro-economy and financial management. The last progress report indicated that up to 2013 most progress was made towards the human development objectives, and that the main challenges facing Mozambique still relate to increasing production and productivity in agriculture and fisheries (IMF, 2014). While the fisheries sector seems to have achievable targets, results have been less encouraging in agriculture, especially the production of cereals. One encouraging sign has been the slight increase in productivity of roots and tubers – an important component of poor people's consumption (IMF, 2014).

In recognition that sustainable farming practices should be environmentally sound and climate resilient, the Ministry of Land, Environment and Rural Development (MITADER)¹¹ has developed a number of instruments and strategies to promote environmental sustainability and climate resilience. These include the Environmental Law (1997), the Environmental Strategy for Sustainable Development (2007), the Action Plan for Prevention and Control of Soil Erosion (2007), the Action Plan for the Prevention and Control of Uncontrolled Burning (2007), the National Action Plan to Adapt to Climate Change (2007–2010) and the national Climate Change Adaptation and Mitigation Strategy (2012) for the period 2013–2025 (Silici, 2015). Coordination between the two ministries MASA and MITADER and the harmonisation of their strategies and plans has been a struggle, especially at national level.

A development that has strongly influenced the latest agricultural development strategies is Mozambique's commitment to the Comprehensive African Development Program (CAADP) in 2003. This is an initiative of African governments to accelerate economic growth and development in their countries. It provides a common framework and an opportunity for policy, technical and financial support to countries with strategies and investment plans aligned with CAADP principles. African Heads of State and governments, including Mozambique, adopted the Maputo Declaration in 2003, in which they aim to achieve a 6% annual

⁷ Orçamento de Investimento para Iniciativas Locais (OILL).

⁸ Estratégica de Desenvolvimento Rural (EDR).

⁹ Plano de Acção para a Produção de Alimentos (PAPA).

¹⁰ Plano de Acção para Redução de Pobreza (PARP).

¹¹ Ministério da Terra, Ambiente e Desenvolvimento Rural (MITADER).

growth rate for the agricultural sector and commit to an allocation of at least 10% of the state budget to the agricultural sector. Mozambique signed its CAADP compact in 2011, which is currently implemented through the Strategic Plan for the Development of Agricultural Sector and the National Investment Plan for the agricultural sector (Republic of Mozambique, 2011b)

2.2 Current policy framework for agricultural development

While the strategy documents described above provide overall direction, when it comes to implementation, government agencies base their plans on the following medium-term strategic documents (summarised in Box 2).

Five-Year Government Plan (PQG)¹²

The five-year electoral cycle requires each new government to submit to Parliament a five-year government plan. This presents the vision of the sitting government and sets out the priorities for each sector. The current plan runs from 2014 to 2019, but at the time of writing this report, it was not clear if the government of the new President Filipe Nyusi would make any significant changes in the priorities and direction for the development of the agricultural sector. The previous PQG (2010–2014) was developed under President Guebuza and envisaged a structural transformation from subsistence agriculture to an integrated, prosperous, competitive and sustainable agricultural sector. Traditional smallholder farmers were not however at the centre of the plan; initiatives supported under Guebuza continued to have a strong focus on attracting private domestic and foreign investments in the agricultural sector (CARE & ActionAid, 2015).

BOX 2. POLICIES, STRATEGIES AND PLANS GUIDING AGRICULTURAL DEVELOPMENT IN MOZAMBIQUE

Agricultural policy has been influenced and supplemented by a number of strategies and plans that have provided the structure and direction for future agricultural development in Mozambique. This list is not exclusive and more laws, strategies and plans have influenced the current agricultural policy framework, including regional initiatives.

POLICY	Agricultural Policy and Implementation Strategy (1995) (PAEI)
National strategies and plans that have influenced content and direction of current policy framework	Agenda 2025 Priorities for Development of the Agricultural Sector (2006–2009) Green Revolution Strategy PROAGRI I (1998–2005) and PROAGRI II (2005–2009) Law of Local Institutions (LOLE) Rural Development Strategy (EDR) 2008 Plan of Action for Food Production (PAPA) Poverty Reduction Strategy Paper 2010–2014 (PARP)
CURRENT POLICY FRAMEWORK	Five-Year Government Plan 2014–2019 (PQG) The Strategic Plan for the Development of the Agricultural Sector 2011–2020 (PEDSA) The National Investment Plan for the Agricultural Sector 2014–2018 (PNISA)
Regional development	Comprehensive African Development Program (CAADP)

¹² Plano Quinquenal do Governo (PQG).

The Strategic Plan for the Development of the Agricultural Sector, 2011–2020 (PEDSA)¹³

Incorporating the priorities of the PQG, the last PARP and CAADP, and based on the principles of the Green Revolution Strategy and the vision of Agenda 2025, the PEDSA is currently the main guiding document for the development of the agricultural sector (MINAG, 2011). It has replaced the former PROAGRI programmes (Benson et al., 2014). PEDSA has a 10 year perspective, and is implemented through the government's five-year plans and annual agricultural sector plans.

The government's response to meeting immediate food security needs through the Green Revolution approach and intensification for rapid yield increases has not delivered the expected results and is not sustainable. The government has therefore introduced the concept of sustainability in its new strategy. Its vision for the agricultural sector is now one 'that is prosperous, competitive and sustainable, capable of offering sustainable responses to the challenges of national food and nutrition security and global agricultural market targets' (MINAG, 2011).

The PEDSA aims to transform the agricultural sector from predominantly subsistence agriculture to a more competitive agriculture, integrating the vision of key stakeholders in the sector, fighting the factors that undermine investor confidence, while also doing more to encourage self-sufficiency. It mentions explicitly the sector's dependence on fertiliser imports, which is unsustainable, and encourages in-country production and provision of the necessary factors of production. It also intends to harmonise sectoral activities so as to introduce significant improvements in the sustainable use of land, water and forests (MINAG, 2011).

Implementation priority is given to areas that have agricultural potential or that have comparative advantages for productivity in terms of agro-ecological conditions, infrastructure and access to services, as well as areas that have market potential. On the other hand – in line with the PARP – priority is also given to areas that have high chronic malnutrition and food insecurity and where increased yield and job creation will contribute to poverty reduction (MINAG,

2011). Through this strategy the government tries to (i) increase the availability of food through growth in smallholder producer productivity and emergency response capacity; (ii) enlarge the area of land under sustainable management and the number of reliable water management systems; (iii) increase access to the market through improved infrastructure and interventions in marketing; and (iv) improve research and extension for increased adoption of appropriate technologies by producers and agro-processors (Suit et al., 2015).

The National Investment Plan for the Agricultural Sector, 2014–2018 (PNISA)¹⁴

This plan was developed in 2013 to operationalise the PEDSA, while at the same time implementing the CAADP. The PNISA's goals are to:

- achieve an average growth rate of at least 7% per year over the next 10 years
- reduce chronic malnutrition in children under 5 years of age from 44% in 2008 to 30% in 2015 and 20% in 2020
- reduce by half the proportion of people who suffer from hunger by 2015 (MINAG, 2013).

To achieve this, the plan has formulated 21 programmes and 65 sub-programmes under five components, which are aligned with the main strategic objectives of the PEDSA and pillars of the CAADP and PARP (Table 1). The five components are production and productivity; market access; food and nutrition; natural resources; and institutional reform and strengthening. In line with the PEDSA, investment priority is given to farmers and areas with the potential to produce for the market, and to enterprises that market agricultural inputs and/or technologies (MINAG, 2013).

PNISA's vision for achieving sustainable agriculture is illustrated in Box 3. Sustainable production systems, as formulated in the PNISA, depend on the efficient use of natural resources (amongst others), should have site-specific applications, and integrate natural biological cycles and controls. PNISA also expects that sustainable production systems will enhance the quality of life for farmers and society. All of these are sound components of sustainable agriculture.

¹³ Plano Estratégico de Desenvolvimento do Sector Agrário (PEDSA).

¹⁴ Plano Nacional de Investimentos para o Sector Agrário (PNISA).

Table 1: Components of the PNISA and PEDSA and their links with the PARP and CAADP

PNISA	PEDSA	PARP	CAADP
Component 1: Production and productivity	Strategic Objective 1: Agricultural production and productivity and its competitiveness increased	Objective I.1.: Improve and increase access to production factors	Pillar I: Extend the area under sustainable land management and irrigation Pillar III: Increase food production and availability and reduce hunger, increase productivity and response to emergencies. Pillar IV: Agriculture research, dissemination and adoption of technologies
Component 2: Market access	Strategic Objective 2: Infrastructures and services for markets and marketing improved	Objective 1.2: Facilitate access to markets	Pillar II: Access to markets through improved infra-structures
Component 3: Natural resources	Strategic Objective 3: Land, water, forest and wildlife resources used sustainably	Objective 1.3: Improved management of natural resources	Pillar I: Extend the area under sustainable land management and irrigation
	Strategic Objective 4: Legal framework and policies conducive to agricultural investment in place		Crosscutting pillars I,II,III,IV
Component 4: Institutional reform and strengthening	Strategic Objective 5: Agricultural institutions strengthened		Support to all pillars I,II,III,IV
Crosscutting Component 3: Food and nutrition security			

Adapted from CAADP compact 2011 (Republic of Mozambique, 2011b) with PEDSA (MINAG, 2011), PNISA (MINAG, 2013)

2.3 A policy framework supporting sustainable agriculture?

The PNISA states that ‘there is need to develop sustainable production systems capable of doubling output’, and ‘this requires attacks on all fronts...’ (Box 3). It is doubtful if this is possible, especially during the lifespan of the PNISA. Progress in agriculture over recent decades has been impressive; however, it is unlikely to be sustainable. A major reason for this is that it was largely driven by land expansion (Mogues et al., 2012). In addition, politically driven priorities since Independence have discriminated against the majority of agricultural producers, who continue to be poor, vulnerable and dependent on handouts from government, donors or NGOs (Do Rosário, 2011).

The question is, can the current policy framework correct this? CARE and Action Aid have studied this question in detail. They have formulated a set of 14 indicators (Box 4) representing the main elements and criteria that a policy should include and/or consider to effectively capture smallholder farmers’ needs and serve their interests (CARE & ActionAid, 2015). Indicator 10 is particularly targeted at sustainable agricultural techniques.

The study observes that the PEDSA fails to clearly define and identify smallholder farmers as a target group, including the most vulnerable groups such as traditional farmers, informal workers and women. The PEDSA distinguishes between small, medium and large farms according to the area of land, as well as quantity of livestock owned. It defines smallholder farms as those cultivating less than 10ha. The study argues that this does not highlight the heterogeneities of the group and – more importantly – is not representative

BOX 3. PNISA'S VISION FOR SUSTAINABLE AGRICULTURE

'The sustenance of production systems would require an efficient utilization of natural resources. This implies "an integrated production system having a site-specific application that will last over the long term" in terms of satisfying human food and fibre needs, enhancing environmental quality and the natural resource base, making the most efficient use of non-renewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls, sustaining the economic viability of farm operations and generally enhance the quality of life for farmers and society as a whole. There is need to develop sustainable production systems capable of doubling output; this requires attacks on all fronts, ecology, soils, agronomy, breeding, farm management, pest management, etc.: all in a systematic way which increases the productivity of complex farming systems. Productivity improvements in cereals, root and tubers, livestock, and high-value export crops may have significant effects on poverty reduction and economic growth. However, increasing productivity is better achieved through investments in agricultural research, roads, farm credit, and irrigation than through input and output subsidies.'

PNISA 2013 Component 1, Production and Productivity (MINAG, 2013).

of smallholders, as their average landholding is only 1.1 ha. In the PNISA, the family sector, defined as combining small and medium farms, is the target group for initiatives under the conservation agriculture sub-programme (see Section 3.3). This focuses on food production and subsistence agriculture and places special emphases on women and the arid and semi-arid areas of the southern region. However, beyond the component of conservation agriculture, extension services and technology transfer initiatives do not

seem to target the most vulnerable smallholder farmers specifically, nor do they focus on nutrition, traditional or indigenous crops. Priority areas are also clearly not targeted to the needs of smallholder farmers and vulnerable groups, but to areas with potential for agricultural growth. The study questions what will happen to the zones with less potential, such as arid and semi-arid sandy land areas in the southern region, if they get even less support from government (CARE & ActionAid, 2015).

BOX 4. INDICATORS FOR ASSESSING AND COMPARING HOW AGRICULTURAL POLICIES, STRATEGIES AND PLANS TARGET THE MOST VULNERABLE SMALLHOLDER FARMERS

1. An explicit definition of smallholder farmers, taking into account their heterogeneity and vulnerability
2. A clear goal targeting smallholder farmers.
3. Clear identification of the government and other actors' roles to meet smallholder needs.
4. The promotion of inter-sectorial coordination and collaboration
5. The promotion of intra-sectorial coordination and collaboration.
6. Clear system of monitoring and evaluation with some indicators on smallholder farmers.
7. Considers local specificities (local knowledge, attitudes and practices).
8. Considers the different agro-ecological regions.
9. Is sensitive to gender issues and promotes the empowerment of women through special focus on women smallholders.
10. Promotes sustainable agricultural practices, with a particular focus on climate resilience.
11. Promotes access of agricultural technologies to smallholder farmers through quality extension services.
12. Encourages research focused on developing new knowledge, practices and technologies adapted to vulnerable smallholder needs.
13. Promotes access to credit and financing for smallholder farmers.
14. Encourages conservation/storage, processing and the access to markets for smallholder food production.

Source: CARE & ActionAid, 2015

3

Approaches, strategies and support for agricultural practices

Initiatives to scale up sustainable agriculture are hampered by various factors, including insufficient and unpredictable financial resources and an acute shortage of advisory services. The promotion of conservation agriculture and establishment of Farmer Field Schools in Mozambique offer solutions to some of the problems identified and provide opportunities for smallholder farmers to improve their livelihoods.

3.1 From policy to action plans

The list of policies and strategies that provide a basis or have a bearing on the development of the agricultural sector is long, and the current policy framework expresses the vision and provides an elaborate list of initiatives to achieve a transformation to a more sustainable agricultural sector. Annual operational plans form the basis of the implementation of the strategies.

At national level, the Ministry of Agriculture and Food Security prepares its Annual Action Plan in Agriculture (PAAO).¹⁵ This plan is based on the contributions it has received from the offices in the provinces and districts,

and in turn is meant to feed into the annual National Socio-Economic Plan (PES)¹⁶ (Mogues et al., 2012). Due to Mozambique's substantial dependence on foreign aid, the action plan preparation process includes consultations with the main bilateral and multilateral development partners, who provide support either directly to the government budget (budget support), to a particular sector (sector-wide approach or SWAP) or to particular projects and programmes.

At provincial level a similar process takes place. The provincial government prepares its annual Socio-economic Plan (PESP)¹⁷ based on its own strategic plan (PEP)¹⁸ and on the priorities and activities proposed by the various district plans. Consultations with development partners also take place at the

¹⁵ Plano Annual de Actividades e Orçamento (PAAO).

¹⁶ Plano Económico Social (PES).

¹⁷ Plano Económico Social da Província (PESP).

¹⁸ Plano Estratégico Provincial (PEP).

provincial level as donors, NGOs and the private sector make a considerable contribution to provincial development. The development partners, such as bilateral donors and international NGOs, typically provide support to programmes and projects in a specific number of focus provinces.

At district level, the 10-year District Development Plan (PEDD)¹⁹ sets the tone for the annual district Socio Economic Plan (PESOD).²⁰ At this level, however, not all sectors are represented, and the smaller sectors are integrated into the larger departments, such as agriculture, that have a full resident representation and can take on the extra responsibilities.

The planning process in Mozambique is, in theory, bottom up. District proposals are prepared after a consultation process with the local authorities, who provide local content in terms of concerns and priorities. All district plans are presented to the province, where they feed into the national sectoral plans which are to be presented in June. The overall national PES is then presented, discussed and approved by the Mozambican Parliament or Assembly of the Republic. At this point, the process feeds back down the levels. Priorities and budget ceilings are determined, influencing resource allocation to the various sectors, which in turn set the ceilings and priorities for implementation in the provinces and districts.

It cannot be disputed that resource shortages mean that actions have to be prioritised. It is difficult to prepare a plan that perfectly balances all the initiatives to meet the immediate needs and demands expressed in the provincial and district plans. Prioritising can, on the other hand, be an opportunity to focus on those components that have a profound impact on and contribution to sustainable farming systems.

An opportunity to fill in the gaps and respond to the immediate needs of the rural communities was created by the Mozambican Government through the Law of Local Institutions, which was approved in 2005. It designates district administrations as the focal point for socio-economic development of the country. A direct transfer of public funds supports the decentralised decision making and management by district officials. Use of these funds is to be strictly based on the priorities of the district. They are decided upon by the District Administrator after a series of consultative meetings held in each locality of the district, wrapped up by a general consultative meeting at district level. Members of the community therefore have the

opportunity to voice their concerns and to present project proposals on any subject, but it is ultimately the District Administrator – a political appointment – who decides which projects will be funded by the special fund which is referred to as ‘7 *millioes*’.²¹

The above illustrates the point that although structures are in place to respond to the immediate needs of farming communities and to correct failures in the support mechanism, political support is needed to make the system work. Other factors are also at play, as illustrated in next section.

3.2 Resource allocation and public expenditure on agriculture

For implementing the PEDSA, budgets were established for each of PNISA's programmes and sub-programmes. At the time of formulation, the total financial resources required to implement the PNISA between 2013 and 2017 came to around 4 billion United States dollars (USD). While some financing was secured through existing or planned donor projects, when PNISA was launched it still had a financing gap of 78% of the total budget. This financial gap remains a challenge for its implementation (Benson et al., 2014).

Mozambique's dependence on external funding is high. Between 2001 and 2007, donor funding for the agricultural sector was either through traditional projects or channelled through the common donor fund established under PROAGRI. The external contribution to the total investment budget for the agricultural sector amounted to an average of 76% between 2005 and 2007 (CARE & ActionAid, 2015). A recent FAO study found that over the period 2009–2014, the externally financed budget for agriculture showed a downward trend, but that donor funding still made a very significant contribution. In 2014, donor funding reached 53% of budgeted expenditures (CARE & ActionAid, 2015).

While it is clear that there are not enough financial resources available, of even greater importance is how these scarce resources are allocated. Public expenditures in agriculture reflect the clear impact of donors, but analysis of the use of the budget and investments in rural areas points to geographical targeting, and indicates political influence and gain (Mogues et al., 2012).

¹⁹ Plano Estratégico de Desenvolvimento Distrital (PEDD).

²⁰ Plano Económico Social do Distrito (PESOD).

²¹ Seven million, reflecting the amount of *meticaís* (national currency) initially dedicated to be transferred directly to each district (see Section 2.1).

A budget and expenditure primarily dominated by external funds and by politics is not sustainable. Service providers are especially affected, as they have no indication when funds will become available, and what proportion of the budget they can count on. This is reflected in expenditure rates, as an indication of implementation. Between 2009 and 2013, public expenditure on agriculture averaged 93%, indicating that all (scarce) resources were used, while execution rates for activities funded by external sources were only 62%, due to the often erratic nature and complex procurement procedures followed by donors (CARE & ActionAid, 2015).

3.3 Scaling up sustainable agricultural practices

The PEDSA and PNISA have listed a number of initiatives that could scale up sustainable agriculture for large, medium and small farms. These include training in the safe use of agro-chemicals, and in water management, including the collection, conservation and management of rainwater to expand irrigation in drier areas for agriculture and animal production. Farmers are expected to benefit from initiatives that provide access to improved seeds, veterinary care and credit. Natural resource management and practices such as conservation agriculture, agro-forestry for regenerating degraded land, biological methods for pest and disease control, and the use of drought-resistant crops are also specifically mentioned. There is also provision for post-harvest storage, including training, the construction of improved granaries and the rehabilitation and maintenance of public silos (MINAG, 2011).

The government has reported in the PNISA that Mozambique's cultivated area increased by 45% between 1999 and 2010 to reach about 15.7% of the estimated 36 million ha of arable land in the country.²² It recognises that more than 97% of the cultivated area is worked by the family sector, which is characterised by the low use of improved technologies (MINAG, 2013). Between 2000 and 2011 agricultural value added grew at an average rate of 8.4% per year, surpassing the Africa-wide CAADP target of achieving 6% annual average growth. While this may give the impression that continuing on this pathway may be desirable, evidence suggests however that it is unlikely to be sustainable, as agricultural growth in Mozambique has been driven largely by factor (particularly land) expansion, with very little or no technical change (Mogues et al., 2012).

It is well documented that the use of improved technologies can scale up sustainable agriculture, but introducing improved technologies requires knowledge, management and external inputs. They will only contribute to sustainable agriculture if they are appropriate and attractive to farmers, and if there is sufficient support available. In addition, political will is needed to provide the incentives to make such efforts sustainable.

At the IIED/CARE workshop in May 2015, representatives from key agricultural institutions discussed the constraints to scaling-up sustainable practices and the type of incentives that were needed to overcome them. They suggested that sustainable agriculture could be enhanced by:

- 1) ensuring immediate benefits
- 2) providing intermediate, appropriate technology
- 3) carrying out research and technical assistance
- 4) increasing coordination and planning
- 5) increasing policy support and leadership.

The following sections will look in more detail at some of these, and other key factors that have been identified during the fieldwork for this study.

Appropriate technologies and approaches

Initiatives to enhance the sustainability of agriculture in Mozambique have increased, with research and advisory services trying to keep up in providing appropriate and attractive packages that are adapted to the local agro-ecological circumstances and, of increasing importance, climate variability. The approach that has gained most support in Mozambique is conservation agriculture. It is also the approach that is most articulated in policies, strategies and plans in Mozambique. Other approaches – such as agroforestry, integrated pest management and, to a lesser extent, biological pest control – are also researched and promoted (Silici et al., 2015). Mozambique's vulnerability to climate change has seen a growing focus on the development and promotion of drought-resistant crops in the last decade, and interest in new approaches such as climate smart agriculture is growing too. Each of these is described in turn below.

Agroforestry initiatives in Mozambique gained a new impetus from late 2002 when the World Agroforestry Centre initiated its activities in the country. Mozambique

²² Mozambique has a vast land area; much of the farmland had fallen out of use as it was abandoned during the war. People returning from the war and gifts by the government to demobilised soldiers have meant more land is now being farmed, leading to increased production.

was part of the Zambezi Basin Agroforestry project, covering five countries in Southern Africa. After having tested the technologies on-station, participatory research with farmers was initiated. This saw the project scaled up, with knowledge and planting materials more widely disseminated (Silici et al., 2015). Since 2013 Mozambique has also been a beneficiary of the Large Evergreen Agriculture Network for Africa (BLEANSA),²³ aimed at building research and development capacity and supporting tree seed production by smallholder farmers in a number of selected provinces.²⁴

Most **integrated pest management** initiatives in Mozambique are addressed through basic research projects and are concentrated in the central and northern provinces. Ongoing research is trying to develop potential training and education strategies to enhance farmers' knowledge and overcome constraints to adoption (Silici et al., 2015).

Sustainable **soil fertility practices** have been promoted through dissemination projects undertaken by several national and international organisations working in Mozambique. The practices have been applied mostly in maize-based farming systems. The type of practices promoted and the point of view of some project co-ordinators indicate a focus on economic sustainability, seeking soil fertility enhancing measures that are locally available at lower costs than inorganic fertilisers, and reducing input costs (Silici et al., 2015).

Conservation agriculture (CA) is an approach rather than a particular technology. All of the approaches listed above can be part of or integrated into conservation agriculture. Typically, it is based on minimum or no mechanical soil disturbance, permanent organic soil cover, mixed cropping and crop rotations (Silici et al., 2015). CA has been promoted by various organisations as an approach with tremendous potential for all sizes of farms and agro-ecological systems to combine profitable agricultural production with environmental concerns and sustainability. It has been proven to work in a variety of agro-ecological zones and farming systems.²⁵ The Government of Mozambique and several national and international organisations have promoted CA through different combinations over the past ten years. Technological packages combine technical assistance for existing or new crops and improved varieties of food and cash crops, training of both farmers and advisory staff, and promotion of research and experimentation (Silici et al., 2015).

Results from CA interventions that were applied in the Farmer Field Schools established by CARE International Mozambique, show substantial increases in yields, increased crop diversification and greater efficiency in water use and conservation. The impacts on labour are less clear, however. In spite of the positive outcomes, there has not been widespread adoption of CA by farmers. Common lessons learnt include difficulties in preparing land to switch from conventional methods to alternative agricultural practices. There were also difficulties retaining crop residues in the field due to the traditional practice of free grazing, particularly in areas where large numbers of cattle are raised (Silici et al., 2015).

Climate smart agriculture (CSA) is also gaining increasing interest in Mozambique as farmers face growing challenges from climate change. Adaptation to climatic changes mostly tends to be spontaneous rather than reflecting a conscious response to climatic change. Coping strategies consist of expanding the area of cultivation; reducing fallows; switching crops; engaging in wage employment; vegetal charcoal, timber and brick production; and temporary or permanent migration to access land or markets (Mucavele, 2014). CSA addresses the interlinked challenges of food security and climate change by working simultaneously towards three objectives: (1) sustainably increasing agricultural productivity, to support equitable increases in farm incomes, food security and development; (2) adapting and building resilience of agricultural and food security systems to climate change at multiple levels; and (3) reducing greenhouse gas emissions from agriculture (FAO, 2013). The major stakeholders in promoting CSA activities in Mozambique are the government, the FAO and other international multilateral organisations and NGOs.

Extension services²⁶

Extension services are the backbone of rural development. A widely available and good quality, working extension service is essential for scaling up sustainable agriculture. However, there is a huge shortage in Mozambique. In 2013 only 11% of the 4.9 million farm families in the country were covered by extension services (MINAG, 2013). The PEDSA envisages an increase in extension services through both public and non-public channels, including the private sector and NGOs, so that public extension workers can be mainly allocated to districts with

²³ Building a Large Evergreen Agriculture Network for Southern Africa.

²⁴ From World Agroforestry website: <http://blog.worldagroforestry.org/index.php/2015/04/20/bleansa-the-makings-of-an-evergreen-agriculture-hub-for-southern-africa/>

²⁵ From the FAO website: <http://www.fao.org/ag/ca/>

²⁶ Some organisations and sources have replaced 'extension services' by 'advisory services', to reflect the change in approach from the linear 'transfer of technology' to a more 'participatory' approach. Extension is used in this study, as it is still commonly used in Mozambique.

highest potential for growth (PEDSA, 2013). This system has already been in place for a while, with donors and international NGOs providing the service through their own programmes. In addition, they provide substantial support for training and the supply of inputs and equipment.

This is not a sustainable situation. PEDSA however also promotes the establishment of farmer groups and associations. These can make extension services more efficient and provide the opportunity for a multiplier effect. In each group or association, a '*chefe do grupo*' or chairperson is selected to act as the contact person for the extension agent. In addition, the more advanced farmers in each group are trained to be '*produtores de contacto*' or contact farmers. They receive extra training to assist the community with new techniques, the multiplication of plant material, vaccinations of chickens, etc. In turn, these farmers are given some incentives, ranging from labour assistance for preparing multiplication plots to a bicycle to allow them to easily visit other members of the community. This farmer-to-farmer approach to creating training and monitoring capacity within the community is a strong building block for advancing agricultural development. Continued monitoring of this system is needed, however, to ensure that the principles are respected when external assistance is no longer available. Personal interests and gain, and the exclusion of more vulnerable or timid members of the community, need to be avoided.

The training & visit approach to promoting new technologies has been abolished in Mozambique and replaced by an approach involving three key principles: de-concentration, participation and partnership (DNEA, 2007). The use of approaches such as CA and the establishment of Farmer Field Schools (Box 5) have significantly increased over the past few years.

The techniques that are promoted by extension services are in general those that are promoted in the national policy. They aim to improve productivity, profitability and food security. The techniques suggested for achieving these objectives, however, are not always suited to the local context. In Inhambane Province, the multiplication of certified improved seed, demonstration of and support for mechanisation and irrigation, which are all priorities for the Mozambican Government, can only work for a selected number of private farmers. And even so, such techniques are not always suited to the local agro-ecological conditions. For example, water is in short supply in some areas, hence techniques such as irrigation or growing crops with improved certified seeds are not suitable. Promoting such techniques

also requires the necessary skills for operation and maintenance. Subsidised energy that in the past was promised but not delivered is another reason that existing irrigation schemes are no longer in use. The capacity of farmers and farmer associations to manage irrigation infrastructure is often inadequate to justify investment in such techniques. The policy should therefore make a clear distinction between commercial and non-commercial farmers.

With the high share of external contributions to extension services, especially from NGOs, there is need for coordination. Approaches and techniques promoted by NGOs are not always consistent with those promoted by government. The lack of coordination is a problem that is felt and expressed both by the government and other stakeholders and has been given attention in the PEDSA and also in the National Extension Master Plan (MINAG, 2007a).

Research

The main agricultural research organisation is the Mozambique Institute for Agricultural Research (IIAM).²⁷ Apart from traditional research into techniques to increase production and productivity, the PEDSA expresses the need to develop locally suited techniques and varieties. In this context, the Ministry of Agriculture has established – in addition to a series of specialised technical departments – four location-specific research centers in the south, centre, northeast and northwest of the country. They have been a real asset for the development and adaptation of new technologies and crop varieties to local agro-ecological conditions. They also offer a key opportunity for initiating research based on local priorities and demands. The main priority, however, for research funding is mostly for the adaptation of commercial, market-oriented crops rather than the adaptation of local varieties traditionally used by smallholder farmers.

Related to the above, and one of the weaknesses also recognised in the PEDSA, is the lack of coordination and coherence between research and extension services. Several structural and organisational reforms have been introduced to strengthen the links. These include the creation of the Mozambique Platform for Agricultural Research and Technological Innovation (PIAIT)²⁸ and the Directorate for Training, Documentation and Technology Transfer (DFDTT). At the moment, the IIAM, DFDTT and Directorate of Agricultural Extension (DNEA) are all based in the Ministry of Agriculture, making coordination and communication easier (CARE & ActionAid, 2015).

²⁷ Instituto de Investigação Agrária de Moçambique (IIAM).

²⁸ The Agriculture Research and Technological Innovation Platform (PIAIT) is an instrument to support the management of agricultural research programmes and projects, and to improve coordination between the various research institutions in the country. It was established in October 2009.

At local level, adaptive research has been encouraged through the Farmer Field Schools approach (described below). These provide a forum to bring research and extension together, and more importantly, encourage farmer participation. In Mozambique, CARE, the Ministry of Agriculture, and local partners have used Farmer Field Schools to identify combinations of local crops that are tolerant to drought, provide more food and build up soil fertility and organic matter with minimal financial and labour inputs (Silici et al., 2015).

Farmer Field Schools

There has been a growing interest in Farmer Field Schools (FFS) in Mozambique. The approach was developed by the FAO and partners nearly 25 years ago in Southeast Asia as an alternative to the prevailing top-down extension method of the Green Revolution (Box 5).

BOX 5. WHAT ARE FARMER FIELD SCHOOLS?

According to the FAO, 'In a typical FFS a group of 20–25 farmers meets once a week in a local field setting and under the guidance of a trained facilitator. In groups of five they observe and compare two plots over the course of an entire cropping season. One plot follows local conventional methods while the other is used to experiment with what could be considered "best practices". They experiment with and observe key elements of the agro-ecosystem and at the end of the weekly meeting they discuss findings in a plenary session, followed by discussion and planning for the coming weeks. It is up to the farmers to decide what works best through his or her testing and observations. What the FFS does is provide a risk-free setting in which to discuss, dissect, modify and experiment with new agricultural management ideas. Hence, the learning-by-doing approach promotes farm-based experimentation, group organization and decision-making; thereby increasing the likelihood that farmers will eventually "own" and adopt improved practices'

Source: FAO, 2015a

The first FFS in Mozambique was established in 2001. The next four years saw 243 schools established, and more than 158 facilitators and approximately 1,605 farmers trained (Braun and Duveskog, 2008). A project supported by the FAO and implemented by the Ministry of Agriculture between 2004 and 2009 established a total of 907 FFSs, involving 26,000 farmers. It trained 930 facilitators, of whom 823 were farmers (MASA, 2015). Recently the Ministry of Agriculture and FAO announced a new project aimed at the further extension of the FFS approach in four provinces, incorporating new approaches and practices targeted to cope with climate change. This project is expected to benefit 80,000 farmers through the establishment of 3,200 FFSs and through the training of 1,500 facilitators and 200 extension workers (FAO, 2015b).

CARE International is one of the NGOs that has been using and developing the FFS approach for its development programmes in various countries, including Mozambique. Recognising that strong local institutions are a critical element of adaptive capacity at community level, they have adapted the FFS model and also developed a number of other schools in Mozambique, such as the Farmer Field and Business Schools, which integrate agriculture, marketing, gender and nutrition components; and the Climate Field Schools, which integrate aspects of climate scenario planning (CARE, 2015b)

It is positive that not only is the number of FFSs increasing in Mozambique, but there is also a realisation from the government that coordination in this area is important. In this context, in July 2015 the Department of Extension of the Ministry of Agriculture organised a workshop to review the strategies and implementation of the FFS approach in the country and to reflect with partners on its further development to harmonise strategies and share experiences. As a result of this workshop it was decided to establish a team of representatives to work on the development and approval of a common approach and action plan (MASA, 2015).

Such developments offer a number of opportunities to support and further develop the FFS approach in Mozambique, and to scale up sustainable agriculture. Joining efforts to develop a curriculum for FFSs,

designing common indicators and forging a much stronger programme to replace parallel FFS projects can for example result in a better use of existing resources. They also offer the opportunity for non-public extension staff at provincial and district level to work more closely with public extension staff. While both work more regularly together and are involved in each other's annual planning and training work, there is still a large gap in harmonisation and cooperation at that level (CARE & ActionAid, 2015). Another aspect that can be worked on is participatory technology development and inclusiveness (especially for women and vulnerable groups). Training in this area is needed for farmers and extension workers to become better adapted to the teaching methodology and in field monitoring (Ljungkvist, 2012).

Other support

The PEDSA promotes partnerships with the private sector. It sees their value in various areas, such as complementing the public advisory services, construction, rehabilitation and maintenance of rural infrastructure, seed multiplication and distribution. Private sector investments in agriculture have largely been for export cash-crop production such as sugar, cotton, cashew and tobacco. Medium-scale private producers have mainly targeted the urban centres and invested in the production of horticultural crops, potato and cattle (CARE & ActionAid, 2015). There has been a growing number of out-grower schemes, but these have had mixed results.

Communities do in some cases benefit directly from private investment through fees and fines. For example, under the Forestry and Wildlife Law, 20% of all annual fees from timber cutting licences have to be returned to the communities. These funds are paid to the district governments, who then allocate them to the Community Management Committees. These funds are expected to finance projects that will improve the well-being of the inhabitants. While they could be used to contribute to and invest in technologies for sustainable agriculture, as these funds originate from deforestation or timber cutting, caution has to be taken with this approach. More research is needed into how to involve the private sector in sustainable enterprises.

Access to inputs and markets by smallholder farmers is still one of their main constraints in Mozambique. Apart from the informal markets and stalls along the main roads, farmers can avail of the special local markets or '*feiras*' organised by the government in rural areas. They have the dual objectives of seed distribution and as a venue for smallholders to sell their produce. In most cases there are two such markets organised each year – the first at the start of the agricultural season, when improved seeds are offered, and the second at the end of the season so farmers can sell their produce. Where relevant, extra market days are organised, such as for horticultural crops to avoid them from getting spoilt. These markets have the potential to attract external agricultural traders and local entrepreneurs, whose interest encourages farmers to invest and increase their production for sale. This development can shift the focus of smallholder farmers, especially those who have been able to produce enough for home consumption but lack the incentives to increase productivity. The development of value chains for certain locally grown crops and livestock has been promoted and supported by various donors and NGOs.

3.4 Stakeholder involvement, communication and coordination

Although the Ministry of Agriculture is the main institution responsible for the agricultural policy process in Mozambique in terms of formulation, implementation, monitoring and evaluation, there are many other public institutions involved in implementing or supporting agricultural activities. These include the National Directorate of Water; and the Ministry of Land, Environment and Rural Development. In addition, the Ministry of Agriculture itself includes a large number of specialised directorates and institutes responsible for supporting the planning and implementation of activities. With so many public institutions involved in the agricultural sector in Mozambique, good coordination, collaboration and cooperation are needed. While some efforts have been made, collaboration to date has

been more the exception than the rule, and should be practised more consistently (CARE & ActionAid, 2015).

Coordination and collaboration with donors have been on the national agenda for a long time, and were the main outcome of PROAGRI, the predecessor of PEDSA. Coordination mechanisms encouraged included coordination workshops and meetings and sectoral working groups for joint programming. Another tool that was created in 2006 is the Official Development Assistance to Mozambique Database (ODAMOZ),²⁹ which lists all externally funded projects and programmes.

Other initiatives by the Ministry of Agriculture that encourage involvement and participation of stakeholders, including NGOs and private sector, are the Conservation Agriculture Working Group (CAWG) and the Platform for the Development and Transfer of Technologies (PIAIT).³⁰

There are only a few private agricultural sector providers, but they have been underrepresented in agricultural policy discussions. The Federation of Economic Associations of Mozambique (CTA),³¹ a confederation of small private agricultural service providers, has been promoting the interests of these groups in policy making. However, the national private sector and civil society organisations seldom play a leading role and consultations are seen more as obligatory and rarely result in significantly new perspectives (Benson et al., 2014).

At provincial and local level coordination is easier, but also needs strengthening. At this level it is also more important that the programmes of the various directorates and external stakeholders such as NGOs are complementary. The messages and approaches of the public advisory services and those provided by NGOs need to be streamlined.

²⁹ The database was created in response to the Paris Declaration on Aid Effectiveness, and advocates for strengthened coordination and harmonisation among donors and their alignment with the Government of Mozambique.

³⁰ Plano Estratégico da Plataforma de Geração e Transferência de Tecnologias Agrárias (PIAIT).

³¹ Confederação das Associações Económicas de Mozambique (CTA).

4

Implementation realities and challenges

Field visits revealed that farmers are keen to practise more sustainable and profitable farming practices if they have the necessary support. The ‘appropriateness’ of techniques does not always guarantee adoption; changes in practice have to be attractive and bring clear benefits to the farmer. Their impact will be more sustainable if they have been developed by and decided upon by the farmer him or herself, taking traditional and cultural aspects into account. Public services and those provided by NGOs and the private sector need to be streamlined and coordinated.

Policy has content, and it also has process – policy making, implementing and reviewing. There is a need to understand the complicated area between policy pronouncements and practice and to explain the difference between ‘what people say they will do and what people actually do’ (Mayers and Bass, 1999). Formulating policies and plans has its challenges, but it is only when it comes to implementation that the factors that influence progress or failure become clear. More studies and research are needed into the realities and challenges for small, medium and large-scale farmers. The results should be disseminated so that they can encourage policy makers and other stakeholders to reinforce or change ‘the way things can be done’.

CARE, for example, has been combining implementing development projects and programmes with research and using the results to improve techniques and approaches. The information in this section is based on a visit, hosted by CARE, to Inhambane Province between 25th November and 5th December 2015, which aimed to understand the realities of implementation. Questions explored included: Are the reasons for adoption or non-adoption of sustainable agricultural practices by smallholder farmers linked to policy? If so, what are the key factors in the policy or policy process that influence their decision making? The visit consisted of discussions with officials of the Ministry of Agriculture of Inhambane Province and of Homoine and Funhalouro districts, and with farmers and extension workers from a number of Farmer Field Schools in those two districts.

4.1 Understanding sustainable agriculture

District-level contact with and support to smallholder farmers begin with the extension staff. Hence, it is important to find out how they understand and interpret the concept of sustainable agriculture. Provincial and district staff in Inhambane did not hesitate when asked to explain the concept of sustainable agriculture and how it is supported through their efforts in the province. Their views on the various components of sustainable agriculture were as follows:³²

Economic viability. Staff felt that economically profitable agriculture is only for a minor part of the communities. Most farmers cannot survive on agriculture and only a small part will make a profit from agriculture. Productivity is low and is in the first place to satisfy the basic needs, to achieve food security. New perspectives are being introduced at central level, new ways of doing agriculture, new high producing varieties, but these techniques and varieties have been developed for commercial agriculture, high-input agriculture, not for smallholders.

Environmental sustainability. Smallholder agriculture is always 'environmental', as it is mainly targeted to rural households who respect nature and have close links with it. Intensification is pursued by techniques such as mulching and zero tillage. The government plays their part by promoting organic farming, with hardly any use of pesticides or herbicides. The only non-environmentally sound technique that is practised widely in the province is uncontrolled burning; while efforts are being made to explain the damaging effects, it remains a common practice.

Climate resilience. Smallholder farming systems are being developed to be climate resilient. The techniques promoted – such as mulching, and intercropping with short duration varieties – are targeting adaptation to drought and climate resilience.

Cultural appropriateness and social justness. New varieties are mostly improved local varieties, those that farmers like to use for consumption. These varieties are not developed by national research institutes but through local selection and by NGOs. They are adapted to local circumstances.

Smallholder agriculture can be sustainable, according to local stakeholders. What is lacking is economic viability, which is only possible when farming systems raise production above subsistence level, and farmers can participate in more commercial and market-oriented production as promoted and supported by current agricultural policies.

4.2 Financial resources and variable action plans

Financial resources to support activities at provincial and district level are provided by the national government based on annual plans and budgets, but adjusted to national priorities. These are supplemented by direct funding to the budget or for particular programmes from donor agencies and NGOs. Usually the total amount received is not sufficient to cover the proposed annual action plan and initial priorities have to be discussed and decided upon again. The various sectoral departments harmonise their own action plans with the Provincial Plan, and with the financial resources that are available for the year from various sources. Plans continue to be revisited and readjusted during the year in response to local circumstances and events.

In terms of agricultural expenditure in the province, on average the highest expenditures are on agricultural production, functional support, and advisory services. Under the category of agricultural production, most is spent on commercial and market-oriented agriculture in the form of inputs, purchase of poultry and treatment of cashew. There is a limited amount of resources spent on drought-resistant seed varieties that are distributed to the districts with highest potential.

At district level, priorities are aligned with the priorities of the province and with the financial and human resources available. In addition, the District Development Fund provides credit to individual projects for food production, as well as job and income generation. National guidelines state that 50% of the funds should be used to finance agricultural initiatives, but projects benefitting from this fund are usually those that ensure a good return on investment. Climate change means that agricultural projects have not been considered as a good investment.

The problem with the current financing process is that while in principle it is bottom up, requests are consistently adjusted on the way down, so that at the end of the process it is the national targets which are primarily supported. To make things even more complicated, funds are not made available in a timely way. The public agricultural budget is only available in March, which is in the middle of the growing season when activities and support for farmers are most critical (CARE & ActionAid, 2015). Those activities and programmes funded externally by donors, either through budget support or direct funding, are often delayed or the timing of funding release is uncertain. This has a direct impact on implementation, meaning the timing of activities must often be adjusted. A particular example of how people cope with this situation is the chemical

³² The statements are those of staff interviewed and are not necessarily the opinion of the author.

treatment of cashew trees. This treatment needs to be done three or four times a year. Whereas the first treatment is done for all trees, the second treatment is only done for those trees that are doing well; treatment is excluded for trees that are not likely to produce enough. The same principle is used for the next two treatments. At the end of the season, only the healthy and high-potential trees get the full treatment.

Such experiences underline the *ad hoc* nature of financing activities and projects that support sustainable agricultural practices: public and donor priority setting is inconsistent and resource flows are unpredictable. The long-term nature of approaches and techniques that support sustainable agriculture demands a more strategic and long-term approach to essential services and support. Instead, flows of funds are usually erratic and insufficient and end up being used to respond to immediate needs, rather than for longer-term support and follow up.

4.3 Extension services

Extension services are in short supply. Resource constraints mean there is not sufficient provision for recruiting new staff, or for housing, extra training, or transport. As mentioned earlier, extension services by public extension staff are complemented by the services of other extension workers supported by donors, the private sector and NGOs. The 2010 annual report of Inhambane Province for example mentions that in total, 109 public advisory workers were active in the province. Of these, 56 were government staff and 53 were provided by NGOs. In 2009, NGOs provided more than 50% of extension staff – 56 advisory workers compared to 42 provided by the government (MINAG, 2010b).

The extension services in Inhambane Province have concentrated on three areas over the last few years: conservation agriculture, cashew production and promotion of small livestock. This is in line with the national policy to promote the increase of market-oriented production and productivity. Taking into account the arid and semi-arid conditions in the province, extension staff have strongly encouraged farmers to use drought-resistant food crops as part of the conservation agriculture package. Production of cashew and raising small livestock are considered viable commercial options for smallholder farmers in the area. Natural resource management and reducing uncontrolled fires are also on the programme, but are more difficult topics to tackle due to the many traditional and cultural aspects associated with them.

In line with government policy, and to facilitate their work, extension staff have been promoting the establishment of farmer groups and associations. Fixed field days and phone communication with the chairperson of the groups or associations mean that extension staff are less likely to arrive after a long journey and find no farmers are available. The assistance of contact farmers has also greatly improved service delivery to farmers. Following their training they have been assisting with treating cashew trees and vaccinating chickens against Newcastle Disease, providing these services to their own community members.

4.4 Technology adoption

As we have seen, conservation agriculture is the approach that has gained most support in Mozambique. CARE Mozambique has been actively promoting CA in the two provinces in which they work, Nampula and Inhambane provinces. They promote this system through the establishment of Farmer Field Schools.

The Farmer Field Schools that we visited in Homóine district had not yet benefitted as this was the first year they had received any external support. Insufficient rain over the past couple of years has caused farmers' production to decline considerably. This had not only affected food security, but also meant they had no seeds to plant. Farmers were eager to learn about new techniques, approaches and alternative crops or varieties of crops, especially those that are drought resistant. The farmers who we interviewed in Funhalouro district, on the other hand, had been members of the CARE Farmer Field Schools for two years. They are now seeing positive results in their own fields after trying some of the techniques that they had learned. For example, they had observed that mulching had increased the humidity in the soil. It was too early to draw any conclusions about the adoption of CA techniques, but the extra support in terms of vaccinations of chickens and the supply of improved seeds had had an immediate impact on their livelihoods.

These observations confirm that it is important that techniques that show benefits over a longer timeframe are complemented with practices that provide immediate benefits. A student at the Lund University in Sweden who worked with CARE in Nampula has documented the adoption of conservation agriculture in CARE's FFS in Nampula Province. The purpose of her study was to gain an in-depth understanding of farmers' perceptions and decisions as to why they adopt or reject CA. She concluded that farmers adopt those CA

technologies that have a high degree of 'observability'. These are techniques whose advantages can easily be observed, such as increased yield or improved quality. Other techniques that have no immediate benefit or whose advantages are harder to understand (such as improved soil structure or improved soil fertility) have a lower rate of adoption (Ljungkvist, 2012).

Ljungkvist also observed that the CA techniques are not always practised exactly as they were introduced by CARE. Instead, they are implemented according to farmers' individual preferences and capacities. She found that farmers who have not learned CA via the programme, but have learned the techniques through observation of association members, have made adaptations. She also found that some techniques were no longer applied. This was the case for mulching. Various reasons were given, but the main challenge seems to be the increased labour requirements. This is also the case for the technique of planting crops in lines and using seed spacing. To reduce the labour requirements of this technique, many farmers use what is referred to as 'mental lines' instead of applying ropes and seed spacing when intercropping. She concluded that labour constraints have not necessarily generated a rejection of CA, but instead encouraged farmers to experiment and adapt those techniques which suit them best. The author suggests that farmers' adaptations should be considered for future CA implementation as a means to improve uptake. Care should, however, be taken that soil conservation is not negatively affected by such adaptations.

Another finding of interest in Ljungkvist's study is how the further diffusion and adoption of CA by other non-member farmers can be limited by the communities' social network. Farmers who are not members of the association and who have a lower socio-economic status felt hesitant about seeking advice from those members of the community who have adopted CA. To ensure that such farmers do not become late adopters, lead farmers have a role to play in actively promoting CA.

At the other end of the spectrum, she found that non-adoption of CA by farmers of higher socio-economic status was due to a lack of incentives. Households which already meet their food requirements had no direct incentive to change farming practices or invest in more labour-intensive technologies, unless by increasing yields they could sell more produce and earn higher incomes. However, poorly functioning markets constrain them from earning higher incomes and from adopting new technologies (Ljungkvist, 2012).

Technology adoption is also influenced by cultural and traditional factors, as observed during the field visit:

- In Funhalouro district, advisory staff had been promoting short duration (three-month) varieties of cassava. These varieties are very appropriate for this area, due to the lack of rain and very short cropping season. However, this short duration variety is not sweet, and uptake has been low as it is less attractive to the farmer.
- Maize is the other staple crop, and is the favoured crop for consumption. Unfortunately, it does not yield well in these semi-arid conditions, and without access to fertilisers and irrigation it can only be grown at subsistence level. Despite advice to stop growing it, farmers are likely to continue to grow it unless they have the income to purchase it from other sources.
- Extension staff have also found it difficult to change the traditional technique of slash and burn. This technique is used by communities as a method to increase access to uncultivated land for creating "hunting corridors", to clear land of long grasses and bushes, and to control pests such as the TseTse fly and bovine tuberculosis parasites. It serves multiple objectives, so replacing it with a mix of other techniques (such as cutting and using pest control) is not attractive to farmers because it would involve a huge increase in labour or costly inputs.

These findings and examples show that 'appropriateness' of techniques does not, on its own, guarantee adoption, and that adaptive research needs to take traditional and cultural aspects into account. Changes in practice have to be attractive, bring extra benefits to the farmer, and be seen as a stepping stone towards a more sustainable system with potential for growth. Impact and results will also be more sustainable when new or alternative techniques are developed by and decided upon by the farmer him or herself.

Reporting and research by the extension workers who work directly with farmers are needed. These are being promoted in Mozambique through the Farmer Field School approach. There is however much more training needed in participatory research, especially for extension staff.

5

Conclusion and recommendations

Recent developments in the approach to agricultural development, its support and coordination mechanisms provide a sound basis for scaling up sustainable agriculture in Mozambique. At the same time, a shift in policy direction towards the smallholder sector is needed, together with more predictable and coordinated service delivery.

This study has tried to understand how policy and power dynamics at the national and regional level are influencing farmers' choices and to identify the key levers that could make a difference in promoting sustainability.

The review of agricultural policies and strategies influencing agricultural development in Mozambique since Independence reveals that the overarching priority and drive of the Mozambican Government has been for rapid production increases. To achieve this, the government is prioritising support and investment in high-potential production areas and for a select number of cash crops, as well as attracting foreign investment. Yet despite the impressive results in terms of production figures, this system does not provide a solid base for sustainable agriculture. Agricultural growth has been driven by the expansion of the cultivated land area, rather than by increases in productivity. More importantly, government support only benefits a small minority of commercial farmers and political elites, rather than the majority of the rural population.

The policies, strategies and plans that have been formulated do, in terms of content, contain the components to achieve sustainable agriculture. They encourage the conservation and sustainable use of natural resources, the promotion of farmer associations, the involvement of other stakeholders (Green Revolution Strategy), and the cultivation of crops that are suited to specific agro-ecological zones and climate and to market fluctuations (Priorities for Development of Agricultural Sector). They also plan for an improvement in service delivery (PROAGRI). Mozambique's decentralisation and rural development policies further encourage human development in rural areas through local decision making and resource management, while the action plans for food production and poverty reduction promote agricultural production for the local market. However, different interpretations and priority adjustments during implementation have hindered progress in some essential areas and agricultural development continues to move in a direction that is not sustainable.

The national strategic plan (PEDSA) and its investment plan (PNISA) serve as the main guiding instruments for Mozambique's agricultural development planning. They include an impressive list of initiatives and components, which underline several of the principles required for a transition to sustainable agriculture. Approaches to scaling up sustainable agriculture are being discussed and implemented, and increasingly involve conservation agriculture, which is listed as one of the initiatives under the PEDSA. Extension staff are being trained in the concept and it is increasingly implemented through the Farmer Field School approach. The shortage of extension staff makes the FFS approach attractive through its ability to create a multiplier effect by organising farmers into groups and associations and training farmers as facilitators in extension work. International agencies and NGOs such as CARE have been supporting and using the approach for a while in their own programmes, and the government recently established a special CA working group and will also establish a FFS working group to harmonise interventions and exchange information and experiences.

These recent developments in the approach to agricultural development, together with the support and coordination mechanisms that have been put in place, provide a sound basis for a significant improvement and scaling up of sustainable agriculture in Mozambique. The greatest weakness is the scarce and unpredictable nature of resources for implementation. Hence, the most urgent need is not for a change in policy content, but for a shift in policy direction towards the smallholder sector and towards a more predictable and longer-term series of events and resources for implementing essential services.

The following may be considered to support this:

- **Introduce evidence-based proposals for prioritisation.** The standard monitoring and evaluation of policy implementation is based on a set of quantitative monitoring indicators that provide little evidence on the impact of policy interventions. Independent studies by international research organisations, donors and international NGOs provide more evidence-based and qualitative information on the impact of agricultural policies. More evidence and research are needed, especially on the extra support needed for smallholder farmers to increase production and productivity: the potential is there, but the support is not sufficient. As the CARE research shows, adoption of improved technologies is influenced
- by many factors, such as the achievement of clear and immediate benefits, or the lack of markets that prevent these benefits from being captured and the technologies from being adopted.
- **Involve key stakeholders.** Information and research on the impact of agricultural policies have not been able to influence government's priority setting. It is therefore proposed that such information be presented and discussed with the government before new priorities are decided upon. This should involve key stakeholders at all levels, not only at national level. At national level, the Directorate for Training, Documentation and Technology Transfer (DFDTT) provides such an opportunity. The general objective of its recently launched second strategic plan for 2015–2020, is 'to promote the development, transfer and adoption of sustainable agricultural technologies and policies through dialogue and active participation of its stakeholders.' At provincial and district level, structures and modalities to involve key stakeholders are not clear, and it is recommended that the involvement of key stakeholders at these levels is also reinforced and supported, either through the DFDTT or other forums.
- **Ensure longer-term and more reliable funding.** Financial resources for activities and projects supporting sustainable agriculture are not enough and are unpredictable. The National Investment Plan for the Agricultural Sector (PNISA) began with a financing gap of 78%. Ideally funding should be based on a solid medium to long-term plan or roadmap, but it might be more feasible for financing to be allocated to a couple of strategic actions for improving agricultural sustainability. Such funding is especially needed at provincial and district level, where efforts will have more direct impact.
- **Increase the coordination and coherence of appropriate technologies and technology transfer.** Conservation agriculture is gaining support in Mozambique and is being promoted by both public and private advisory services. Coordination and coherence are needed so that efforts are complementary and do not cause confusion due to inconsistencies in the approach or techniques being promoted. It is also recommended that public advisory staff are more involved in training and implementation, so that they are informed of new approaches and technologies, and that the FFS approach is integrated into the curriculum of advisory training programmes.

- **Develop the role of the Conservation Agriculture Working Group.** Although this working group has been created, it does not yet play a prominent role. It is suggested that the working group encourages its members to come up with a number of strategies and actions to support and encourage efforts in the area of conservation agriculture and liaise with other coordination groups and platforms, such as the Mozambique Platform for Agricultural Research and Technological Innovation.
- **Encourage and support joint research, planning and programming.** Last but not least, more research is needed by national and international research institutes, local and international NGOs, and farmers, to provide the necessary information to guide decision making and priority setting at all levels. More research is especially needed on appropriate technologies, farmers' traditional knowledge and innovations, crop productivity and suitability for local circumstances, and the development of value chains at local level, just to name a few. It is suggested that research gaps and priorities should be discussed at the coordination forums so as to avoid overlap and to encourage cooperation or joint research, programming and planning by various key stakeholders.

Acronyms

AGRA	Alliance for a Green Revolution in Africa
BLEANSA	Building a Large Evergreen Agriculture Network for Southern Africa
CA	Conservation agriculture
CAADP	Comprehensive Africa Agriculture Development Programme
CAWGN	Conservation Agriculture Working Group of Mozambique
CTA	Federation of Economic Associations of Mozambique (Confederação das Associações Económicas de Mozambique)
DNEA	National Directorate of Agricultural Extension (Direcção Nacional De Extensão Agrária)
DFDTT	Directorate for Training, Documentation and Technology Transfer
FAO	Food and Agriculture Organisation of the United Nations
FFS	Farmer Field Schools
GDP	Gross domestic product
Hectares	ha
IFAD	International Fund for Agricultural Development
IIAM	National Institute for Agricultural Research (Instituto de Investigação Agrária de Moçambique)
IIED	International Institute for Environment and Development
IMF	International Monetary Fund
MASA	Ministry of Agriculture and Food Security (Ministério da Agricultura e Segurança Alimentar)
MINAG	Ministry of Agriculture (former name)
MITADER	Ministry of Land, Environment and Rural Development (Ministério da Terra, Ambiente e Desenvolvimento Rural)
NGO	Non-government organisation
ODAMOZ	Official Development Assistance to Mozambique Database
OIIL	Supplemental Local Initiative Investment Budget (Orçamento de Investimento para Iniciativas Locais)
PAAO	Annual Action Plan in Agriculture (Plano Annual de Actividades e Orçamento)
PAEI	Agricultural Policy and Implementation Strategy (Política Agrícola e Estratégia de Implementação)
PARP	Poverty Reduction Action Plan (Plano de Acção par Redução de Pobreza)
PEDSA	Strategic Plan for the Development of the Agricultural Sector (Plano Estratégico de Desenvolvimento do Sector Agrário)
PIAIT	Platform for Agricultural Research and Technological Innovation of Mozambique
PNISA	National Investment Plan for the Agricultural Sector (Plano Nacional de Investimentos para o Sector Agrário)
PQG	Five Year Government Plan (Plano Quinquenal do Governo)
SWAP	Sector-wide approach
USD	United States dollars

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FFS 25 de Junho in Mucuíne	District of Funhalouro	
FFS Guija	District of Homoine	
FFS Fanha Fanha	District of Homoine	
FFS Chirrenguete	District of Homoine	

This study examines the agricultural policies and strategies that have influenced agricultural development in Mozambique, the support structures that have been put in place, and the realities and challenges of their implementation. It was found that key stakeholders understand the concept of sustainable agriculture, that the most important contributing components are covered in the current policy framework, and that farmers are keen to adopt and adapt to more sustainable and profitable farming practices. A change in policy direction is needed so that priorities and resources favour support to the smallholder sector.

IIED is a policy and action research organisation. We promote sustainable development to improve livelihoods and protect the environments on which these livelihoods are built. We specialise in linking local priorities to global challenges. IIED is based in London and works in Africa, Asia, Latin America, the Middle East and the Pacific, with some of the world's most vulnerable people. We work with them to strengthen their voice in the decision-making arenas that affect them – from village councils to international conventions.



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