FANRPAN
Food, Agriculture & Natural Resources Policy Analysis Network



POLICY BRIEF 02/2018

PATHWAYS FOR IRRIGATION DEVELOPMENT IN ZIMBABWE

INTRODUCTION

Outside of North Africa, irrigation is little practiced on the African continent in comparison to other regions (Neumann et al., 2011). In 2006, only 5.4% of cultivated land in African countries was under irrigation, compared to the global average of around 20% (FAO, 2011). In the next 30 to 40 years the equipped area could increase substantially due to increased investment from both the public and private sectors.

Irrigated agriculture has an important role to play in increasing the production of food in an uncertain and resource-constrained world. In 2005, the Commission for Africa called for a doubling of irrigation coverage on the continent within 10 years. Although momentum has since gathered, scepticism remains, especially given the disappointments of past irrigation investments.

Discourses related to the use of land and water resources and the respective role of the irrigation sector have evolved throughout Africa's history (Oates et al., 2015). Research has shown that changes in policy have been driven by political and ideological shifts, donor agendas and political projects, with objectives often being incoherent. These changes in irrigation policy have been mirrored in the fates of particular schemes.

Prior to large scale irrigation developments, irrigation in Africa had been practiced on a relatively small scale, using traditional technologies and practices. These technologies and practices have evolved over decades and are on the whole relatively well adapted to local conditions. However, performance problems have plagued public investments in irrigation from the start.

Enduring challenges remain in managing irrigation to increase agricultural output, ensure sustainability and contribute to national development objectives. Growth in the private sector has raised important questions around rights and regulation, the role of the state and who benefits from the development of land and water resources (Calow and Mason, 2014). There is a need to account for water at multiple levels, improve monitoring and sector coordination and manage trade-offs transparently. This all needs to be done in the context of climate change, which places an additional strain on sustainable water management and food production. New policies and structural changes will likely be necessary to address these challenges (Kadigi et al., 2012; Pavelic et al., 2013; Chiroro, 2015).

PRINCIPLES FOR GOOD PRACTICE TO PROMOTE IRRIGATION IN ZIMBABWE

ONE: Manage water across scales and sectors, ensuring that investments into expansion of the irrigation sector is coupled with measures to allocate water effectively and equitably, whilst at the same time taking land issues into account.

TWO: Develop contextualised, local solutions that account for the unique circumstances of farmers through collaborative processes.

THREE: Identify ways to make irrigation profitable and sustainable for smallholder farmers over the long-term – taking into account access to markets, price volatility, and the socio-economic realities of farmers.

FOUR: Ensure benefits reach the poor and marginalised by addressing constraints to participation for marginalised groups – for example, farmers in mid- to low-potential areas, as well as women and youth.

FIVE: In addition to irrigation technologies, investments are also needed in agricultural value chains, water resource management, and enabling institutions, to increase productivity, raise rural incomes and achieve growth in the agricultural sector.

ZIMBABWE IN CONTEXT

Zimbabwe has a subtropical climate and is divided into five agro-ecological regions on the basis of climatic conditions, farming potential, soil quality, vegetation and water resources. These range from semi-arid and arid regions, to regions with an annual rainfall of more than 1 000 mm. Climate change has however resulted in more arid regions, shifting these five main ecological zones (FAO, 2016).

There is one rainy season from November to March, with an average rainfall yield of 657 mm. The hottest and driest period is from September to mid-November, whilst a cool winter season prevails from April to August.

The country is divided into seven river catchments, namely the Gwayi, Sanyati, Manyame, Mazowe, Save, Runde, and Mzingwane catchments. The Save and Runde join at the border with Mozambique, from where it flows into the Indian Ocean. All the other main rivers drain into either the Zambezi or the Limpopo river (FAO, 2016).

ECONOMIC AND SOCIAL DEVELOPMENT

At the time when it gained its independence, Zimbabwe appeared to have strong economic potential. It was one of the most industrialised economies in sub-Saharan Africa with an extensive agro-processing industry (Carmody, 1998, in Mugabe et al., 2013). However, continued government deficits, unscheduled payments to war veterans, the cost of military involvement in the Democratic Republic of Congo, and the impact of land reform processes made GDP sharply decline after 2000 (Mugabe et al., 2013).

The adoption of a multicurrency regime in 2009 ushered in macroeconomic stability and positive economic growth. During 2009 to 2012 the economy rebounded. Inflation stabilised, and revenues and bank deposits recovered sharply. However, due to the economy's vulnerability to climate change and trade shocks, growth has once again slowed sharply since 2012.

According to the World Bank, 21.4% of Zimbabweans were poor in 2011, living with less than $1.90 per day, whilst 33.5% of the population was undernourished. This high level of poverty has been attributed to adverse climatic conditions, low agricultural productivity, insecure land and housing tenure, economic crisis, and declining access to local and national markets, agro-inputs and public services (Bird and Shepherd, 2003; Bird and Prowse, 2008; Pindiriri, 2015).

AGRICULTURE IN ZIMBABWE

The semi-arid and arid agro-ecological regions of Zimbabwe are characterised by semi-extensive and extensive farming of maize and drought-resistant crops, whilst the high rainfall areas are suitable for a broad range of agricultural activities, including dairy farming, tea, coffee, intensive livestock production, tobacco, maize, cotton, and horticultural crops.



Once known as the 'breadbasket' of the Southern African region, Zimbabwe is now characterised by chronic food insecurity and is dependent on international aid, particularly food aid.

CLIMATE CHANGE AND VARIABILITY

Zimbabwe is already beginning to experience the effects of climate change, with increases in the frequency and intensity of extreme weather events, including tropical cyclones and droughts. Daily minimum and maximum temperatures have also increased over the past century (Mugabe et al., 2013).

The country is also prone to periodic droughts correlated to El Niño events, which have had dramatic impacts on agriculture in several farming seasons. These conditions are expected to cause water stress, rendering land marginal for agriculture, and threatening Zimbabwe's economy and livelihoods, which are heavily dependent on rain-fed agriculture and climate-sensitive resources (Boko et al., 2007; Brown et al., 2012; Mugabe et al., 2013;).

MAPPING IRRIGATION IN ZIMBABWE

PREVALENCE AND TYPES OF IRRIGATION

Prior to independence, Zimbabwe relied on a network of dams and irrigation systems to manage its highly variable climate and grow the economy (Davis and Hirjj, 2015). Following independence, the focus shifted from government managed irrigation schemes to farmer- or private-managed irrigation schemes (Zawe, 2006).

Following the implementation of the Fast-Track Land Reform Programme (FTLRP) in 2000, agriculture comprises four major farming sectors and irrigation schemes, namely large-scale commercial schemes, A1 and A2 irrigation schemes, government-managed schemes, and smallholder irrigation schemes.

Large-scale commercial schemes are owned by private individuals or groups, including estates and plantations (FAO, 2016). A1 and A2 irrigation schemes split the commercial schemes and increased the area under smallholder irrigation. In A1 schemes, each household was allocated between 3 ha and 5 ha of arable land. A2 schemes comprise small-, medium and large-scale commercial farms with 99-year leases (Anseeuw et al., 2012). Government-managed schemes are developed and maintained by the Department of Agricultural Technical and Extension Services. Smallholder irrigation schemes are owned by the state, but managed by groups of farmers, with each farmer controlling irrigation and farming activities on an area of between 0.1 and 0.5 ha of land (Makadho, 2008).

Estimates from the Department of Irrigation of Zimbabwe indicate that 150 000 ha of land is equipped for full control irrigation, of which 124 000 ha is actually irrigated. Of these, there are 26 550 ha of surface irrigation, 112 500 ha of sprinkler irrigation and 10 950 ha of localised irrigation. However, satellite imagery reports that in 2012, only 102 000 ha were equipped for irrigation and operational, of which 51 000 ha were actually irrigated (World Bank, 2014; FAO, 2016).

A lack of maintenance of the network of dams and irrigation systems due to financial and institutional resource constraints, economic instability, the political prioritisation of land reform programmes, and the declining macro-economic context of the 2000s, has deeply affected irrigation development, resulting in many of the country's irrigation schemes falling into disrepair.

POLICY ENVIRONMENT

With food security and nutrition being fundamental priorities for the Government of Zimbabwe (GoZ), irrigation remains one of the most prominent topics on the governmental agenda, with a strong focus on the building and maintenance of irrigation infrastructure.

Zimbabwe does not currently have an irrigation policy, although irrigation is covered in other sectorial strategies and policies. The Ministry of Lands, Agriculture, and Rural Resettlement, supported by the FAO, is leading the process to develop an irrigation policy, a draft of which was ready for consideration by Parliament as of March 2016.

In light of the current drought, irrigation has been discussed as a strategy for increasing the resilience of farmers to climate change, climate variability and drought. Zimbabwe's Agenda for Sustainable Socio-Economic Transformation (ZIMASSET) has set out a plan to increase the area under irrigation to 2.2 million ha by 2018 from a current xx ha??

MANAGEMENT OF IRRIGATION SCHEMES

At the national level, irrigation is under the mandate of the Department of Mechanization and Irrigation Development of The Ministry of Lands, Agriculture, and Rural Resettlement. Ministry of Lands, Agriculture, and Rural Resettlement is responsible for the overall implementation of GoZ's Agriculture And Irrigation Policy, whilst the Department of Mechanization and Irrigation is charged with the provision of irrigation services to farmers.

At scheme level, the relevant governance structures vary by scheme type. Large-scale commercial schemes are managed and run by their private owners. The Agriculture and Rural Development Authority (ARDA) is responsible for the operation of government-owned irrigated estates and farms. In a few jointly managed schemes, the farmers and GoZ share the financial responsibility for operation and maintenance.

PRINCIPLES FOR IRRIGATION POLICY AND PRACTICE IN ZIMBABWE

Based on interviews with irrigation experts, staff of GoZ, NGOs, donor agencies, and farmers, the following 'drivers of change' were identified, which have shaped the raft of policy and institutional reforms in the Zimbabwean irrigation subsector: politics and ideology, macroeconomic conditions, climate and environmental concerns, and foreign assistance. These drivers of change, in turn, have had an impact on irrigation investments and performance in a series of ways, producing 'bottlenecks' to increased agricultural productivity in the country.

The success of Zimbabwe's future irrigation efforts will depend heavily on the extent to which these bottlenecks can be overcome and replaced with evidence-backed good practices.

KEY BOTTLENECKS TO SUCCESSFUL IRRIGATION DEVELOPMENT AND INCREASED AGRICULTURAL PRODUCTIVITY

Based on key interviews with relevant role players, several key bottlenecks limiting the successful implementation of irrigation projects in Zimbabwe, and thereby limiting agricultural productivity, have been identified.

- **Lack of irrigation policy/strategy** guiding the sector has left it open to *ad hoc* interventions, reacting to ongoing socioeconomic and political developments, often serving individual interests at the expense of the collective ones.
- **The fixation on irrigation for food security** led to the government providing small-scale schemes with large subsidies, conditioning them to the production of maize. After the 2000 FLTRP, government institutions continued to act as if they were managing the schemes, providing subsidies to farmers especially to produce maize. This means farmers were not free to demand, and had little incentive to maintain the schemes, resulting in production figures going down.
- **Irrigation in Zimbabwe is an expensive business**. Severe constraints in accessing adequate irrigation funding and inputs result in low productivity and sustainability for the smallholder farmers.
- **Insecurity over land tenure** discourages farmers from investing in infrastructure maintenance, leading to the irrigation infrastructure falling into disrepair in many parts of the country.
- **No clear management model for irrigation infrastructure.** Uncertainty over who is responsible for infrastructure management has resulted in the schemes falling into disrepair.
- **Lack of functioning and accessible markets especially for small farmers.** Farmers can only sell their produce on local markets, where prices are low. Distant markets are inaccessible to smallholders because of the high transport costs and competition from other sellers.

Improving performance in Zimbabwe's irrigation sector will require a range of solutions at different scales. Some of these will be technical or managerial in nature, but many relate to the political or institutional environment and are likely to be more challenging to implement. The sections below describe five principles and actions to address the identified key bottlenecks and improve irrigation in Zimbabwe.

ONE

Managing water across scales and sectors (taking land issues into account)

In water-scarce basins, irrigation schemes pose a risk to other water users and are themselves vulnerable to water shortages – problems that climate change will exacerbate. Investments to expand the irrigation sector should therefore be coupled with measures to allocate water effectively and equitably.

The case of Zimbabwe demonstrates that water management is inevitably linked to land management. Therefore, efforts at reforming water management practices must follow the establishment of a fair and secure land tenure system and rights. Giving farmers secure land ownership rights may serve as an incentive for them to increase agricultural production.

The current model of water management in Zimbabwe, is not working as it was conceived to. In this model, which is implemented through a series of nested institutions, the interests of 'powerful' stakeholders, like commercial farmers, overshadow that of smaller farmers and other stakeholders.

A critical step to identifying solutions is to establish shared understandings of water management

practices, problems, and goals. This can happen at ministerial level, entailing better communication between sectors, but also at the local scale, bringing together different water user groups around a specific set of issues. In addition, ensuring that investments are designed with flexibility to respond to changing circumstances will aid in coping with the uncertainties around water supply and demand.

There is a need to move away from simplistic understandings of irrigation efficiency and to consider how efforts to increase 'crop per drop' at scheme level might affect basin-level equity. To change mind-sets, this must be done through participatory processes and together with the relevant experts.

Negotiating trade-offs between different interests is an inevitable part of the process and will need to be dealt with collectively and transparently to ensure that risks and benefits are distributed between stakeholders at multiple levels and across sectors.

TWO

Develop contextualised, local solutions

Attention to local irrigator institutions is a significant gap in current approaches to the irrigation sector development in Zimbabwe. Establishing new structures for water management is time consuming and challenging, especially in contexts where irrigation is new and there are few existing arrangements to build on. Blueprint approaches to institutional design are unlikely to work, given the diversity of socio-cultural contexts. New institutions can conflict with traditional ones that have been in place for longer and are accepted and respected by the people.

Clear roles and responsibilities, enshrined in policies and strategies, and reflected in the mandate and resources of local-level institutions, are needed. Responsible ministries at the national level have a key role to play in this sense, as well as in providing institutions with the resources they need to perform their role.

Social learning approaches, which will entail cycles of knowledge sharing and joint action, can be a useful alternative to build the capacity of farmers and local government staff. There is a need to recruit the relevant expertise to facilitate such processes. Donors can provide support in this sense by introducing and reinforcing the learning and capacity-building components of their irrigation programmes with small-scale farmers and local governments in Zimbabwe.

THREE

Identify ways to make irrigation profitable

Unless the Government is willing (and able) to continue subsidising repairs and rehabilitation, irrigation must do more than meet farmers' subsistence needs. Irrigation is an expensive business and will be sustainable only if it is financially viable. Moreover, farmers are unlikely to see the value of investing in managing and maintaining infrastructure unless they make a profit.

The costs of production are perceived to be relatively high when compared with market prices, and the risks of investing are considerable for farming households, given that markets are unreliable. Improving transport, storage, processing, and market information systems, alongside policies to regulate market and input prices, will be necessary to make irrigation viable for smallholder farmers.



FOUR

Ensure benefits reach the poor & marginalised

Evidence from Zimbabwe suggests that farmers who irrigate are generally better off than other farmers, especially in times of drought. However, lack of access to land and other capital can hinder participation in irrigated production, especially for poor or marginalised groups like women and youth.

High profile initiatives have tended to target districts that already have high potential, meaning that less public money goes towards the semi-arid areas of Zimbabwe, where populations are highly vulnerable to drought. At the local level, political concerns and patronage networks have influenced investments. Investments should instead be based on assessments of agro-ecological conditions, resource availability and people's needs.

While irrigation investments can have spill-over effects for the local economy, certain groups inevitably lose out. More research is needed to understand the nature of these effects and trade-offs, and how more equitable outcomes might be achieved. This, in turn, is crucial for tackling extreme poverty.

FIVE

Irrigation is not the only answer

Irrigation technologies are not the only answer to increasing productivity, raising rural incomes, or achieving growth in the agricultural sector. Investments are also needed in agricultural value chains, water resource management and enabling institutions. Yet current initiatives have failed to learn from past experience.

Policy makers should be held accountable for their decisions through performance monitoring. Success cannot be measured just in terms of canals lined or weirs built. There is a need for a clear framework to evaluate performance outcomes at both scheme and sector level. Through assessing livelihood benefits and the sector's contribution to national policy objectives, more sensible decisions can be made regarding future investments.



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About FANRPAN

The Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN) is an autonomous regional stakeholder driven policy research, analysis and implementation network that was formally established by Ministers of Agriculture from Eastern and Southern Africa in 1997. FANRPAN was borne out of the need for comprehensive policies and strategies required to resuscitate agriculture. FANRPAN is mandated to work in all African countries and currently has activities in 17 countries namely Angola, Benin, Botswana, Democratic Republic of Congo, Kenya, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe.

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