



Southern Agricultural Growth  
Corridor of Tanzania

# Investment Blueprint



This initiative is supported by the World Economic Forum

## The Kilimo Kwanza Growth Corridors initiative

Kilimo Kwanza Growth Corridors is an international public-private partnership launched at the World Economic Forum on Africa in May 2010 in Dar es Salaam, Tanzania. Its mandate is to mobilise private sector investments and partnership to help achieve the goals of Tanzania's Kilimo Kwanza strategy. By catalysing large volumes of responsible private investment, the initiative aims to deliver rapid and sustainable agricultural growth, with major benefits for food security, poverty reduction and reduced vulnerability to climate change.

Members of the partnership represent government, global business, the Tanzanian private sector, farmers, foundations and donor institutions. It is led by an Executive Committee co-chaired by the Minister of Agriculture of Tanzania; and the Executive Vice President (North and Central Africa) of Unilever.

The public-private partnership initial focus of the Executive Committee has been to prepare an Investment Blueprint for development of the Southern Agricultural Growth Corridor (SAGCOT). The report was compiled by a technical team of African agribusiness specialists jointly led by Prorustica and AgDevCo. The Tanzania Agricultural Partnership served as secretariat for the initiative and provided ongoing operational support for the blueprint development. The World Economic Forum provided indispensable support, including hosting key meetings and promoting the initiative internationally.

The technical team consulted with a broad array of stakeholders in Tanzania and internationally, too numerous to list here, receiving valuable input. The information presented herein is not exhaustive, however, and should not be relied upon for making investment decisions. Any inaccuracies are the responsibility of the technical team.

### Kilimo Kwanza Growth Corridors Executive Committee

- Government of Tanzania
- Unilever
- Yara International
- Agricultural Council of Tanzania (ACT)
- Alliance for a Green Revolution in Africa (AGRA)
- Confederation of Tanzanian Industries (CTI)
- Tanzania Sugarcane Growers Association
- United States Agency for International Development (USAID)
- Irish Embassy –Tanzania

### Kilimo Kwanza Growth Corridors (other) partners

- Diageo
- DuPont
- General Mills
- Monsanto
- SAB Miller
- Syngenta
- Standard Bank (Stanbic)
- National Microfinance Bank
- Norfund
- Norwegian Embassy – Tanzania
- Food and Agriculture Organisation (FAO)
- The World Economic Forum

### SAGCOT Technical Team

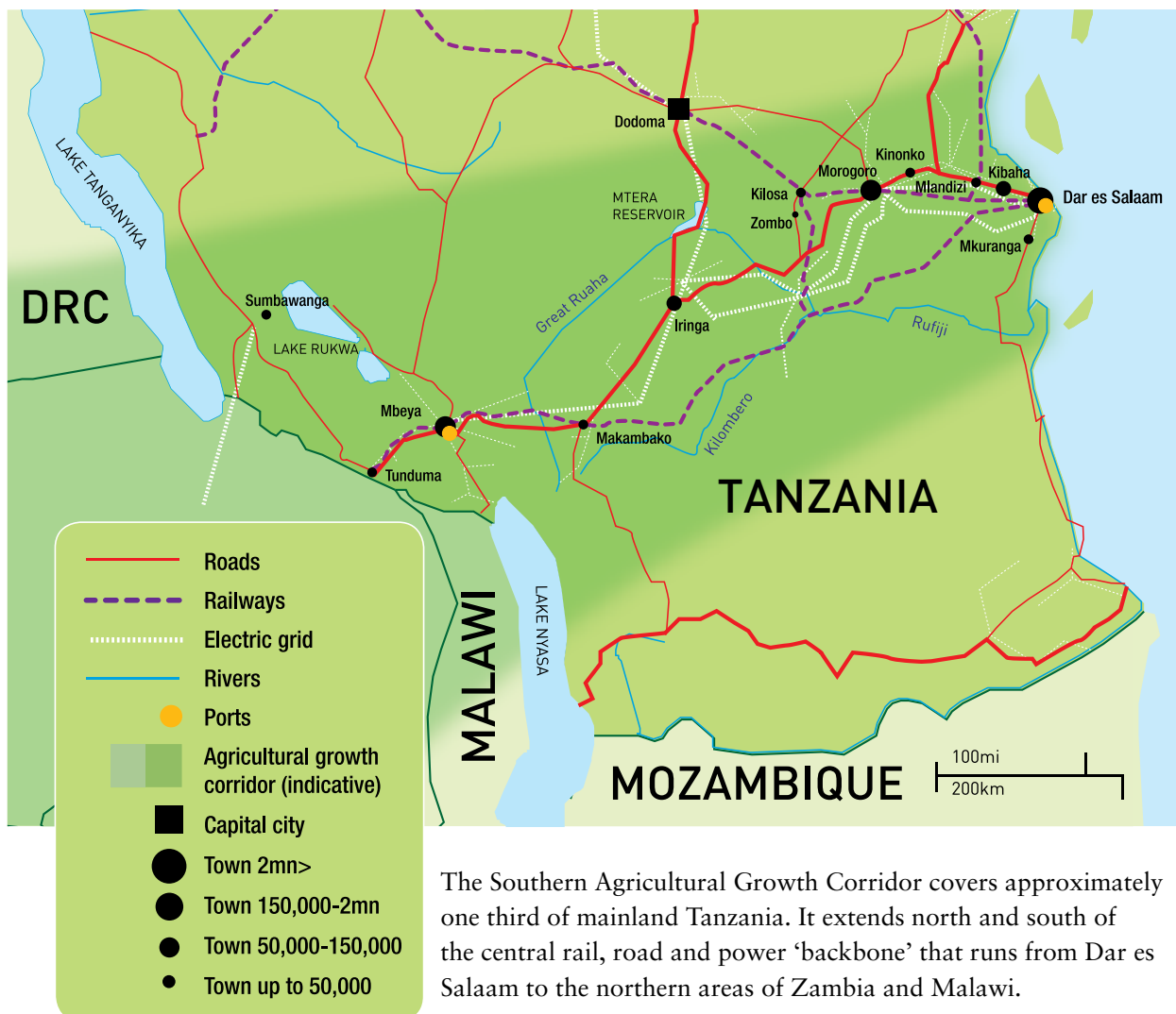
- AgDevCo (co-lead)
- Centre for Sustainable Development Initiatives (CSDI)
- Korongo
- Logistics Consulting Group
- Prorustica (co-lead)
- Tanzania Agricultural Partnership



# Southern Agricultural Growth Corridor of Tanzania

## Investment Blueprint

January 2011



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# Glossary

AfDB	African Development Bank
AECF	Africa Enterprise Challenge Fund
AGRA	Alliance for a Green Revolution in Africa
ASDP	Agriculture Sector Development Programme
ASDS	Agriculture Sector Development Strategy
BADEA	Arab Bank for Economic Development in Africa
CAADP	Comprehensive Africa Agriculture Development Programme
Catalytic fund	Fund to provide start-up finance for agriculture businesses incorporating smallholder farmers, provided as low-cost or interest-free loans, repayable as soon as the business attracts private finance
CIF	Cost, insurance and freight – charges paid by a seller of goods for maritime transport
Clusters	Geographic concentrations of interconnected companies, specialised suppliers, service providers, and associated institutions
CIP	Commodity Investment Plans
DADP	District Agricultural Development Plan
DANIDA	Danish International Development Agency
DRC	Democratic Republic of the Congo
EAC	East African Community
EU	European Union
FSDT	Financial Sector Deepening Trust
GDP	Gross domestic product
HAACP	Hazard analysis and critical control point, a system which identifies, evaluates, and controls hazards that are significant for food safety
IFAD	International Fund for Agricultural Development
JICA	Japan International Cooperation Agency
Kilimo Kwanza	Policy of the Government of Tanzania, meaning ‘Agriculture First’, which establishes agriculture as a top priority across all government ministries
Last mile infrastructure	Infrastructure necessary to connect agricultural businesses with backbone infrastructure, e.g. feeder roads, connections to electricity grid
MCC	Millennium Challenge Corporation
NMB	National Microfinance Bank of Tanzania
NTB	Non-tariff barriers to trade
ODA	Official development assistance
OFID	OPEC Fund for International Development
PASS	Private Agricultural Sector Support Limited
Patient capital	Long-term, low-cost, subordinated capital provided by donors and invested in the early stages of private sector agricultural ventures, used to finance the cost of ‘last mile’ infrastructure (e.g. feeder roads and irrigation connections to the farm gate)
PPP	Public-private partnership
SAGCOT	Southern Agricultural Growth Corridor of Tanzania; also “southern corridor” or “Tazara Corridor”
SAGCOT Partnership	A neutral coordinating body and focal point for SAGCOT planning, implementation and monitoring; also “the Partnership”
SAGCOT Secretariat	Support unit to the SAGCOT Partnership
SIDA	Swedish International Development Cooperation Agency
Social impact investors	Commercial investors who also seek non-commercial, social returns
TANESCO	Tanzania Electric Supply Company Limited
TANZAM Highway	Paved trunk road system of 1,762km linking Dar es Salaam Port to Kapiri Mposhi (Tanzania-Zambia Highway)
TAP	Tanzania Agricultural Partnership
TAZARA	Tanzania-Zambia Railway Authority

## Foreword: Kilimo Kwanza in motion

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The Southern Agricultural Growth Corridor of Tanzania (SAGCOT) initiative was born out of the deliberations of the World Economic Forum on Africa held in May, 2010 in Dar es Salaam, Tanzania. The idea behind the initiative was to support and bolster efforts being undertaken by the Government of Tanzania, the people of Tanzania and other stakeholders aimed at bringing about the green revolution.

Tanzania is, in essence, an agricultural country where agriculture means almost everything. Over 80 percent of the people live in the rural areas and agriculture is their main source of livelihood. Agriculture accounts for 95 percent of the food we eat, 25 percent of the GDP and 30 percent of the foreign exchange earnings. It is a major source of raw materials for agro-based industries. Agriculture, therefore, holds a unique position with respect to the socio-economic wellbeing of Tanzania and her people. It is a critical factor in efforts to reduce and, ultimately, eradicate poverty in the country. We cannot eradicate poverty, promote balanced socio-economic growth and achieve food security without transforming our agriculture.

Tanzania has immense opportunities for agricultural development. There are 44 million hectares of arable land, only 24 percent of which is being utilised. Many parts of the country have good rains but there are, also, other vast water resources in rivers, lakes and underground, which can be used for irrigation. There are ample opportunities for building dams to capture rain water in seasonal rivers and use it for

agriculture. Unfortunately, only 381,000 hectares are under irrigation. Tanzania's agriculture is predominantly small holder, characterized with very low productivity due to very limited use of modern technology and techniques of production. As a result, therefore, the country's huge agriculture potential remains unutilized.

Since independence, transforming agriculture has been the focus of government policies and actions of all administrations. Several policy initiatives and programmes have been put in place and implemented, at different times in the history of Tanzania. Two such landmark policy initiatives which were made during the time of the first President, the late Mwalimu Julius Nyerere, were the Villagisation Policy and the Iringa Declaration. The latter, famously known as "Siasa ni Kilimo" meaning Agriculture is Politics, underscored the use of irrigation besides other aspects of modernization of agriculture. These two policy documents shaped agricultural policy measures through the First, Second, Third and Fourth Phase Governments.

When we came into office in 2006, we completed the design of the Agriculture Sector Development Strategy (ASDS) and the Agriculture Sector Development Programme (ASDP). The former was the policy and the latter its action plan for a green revolution in Tanzania. The objective was to take bold actions to enable Tanzania to realize her aspirations of a modernized and highly productive agriculture. In 2009, a new strategy called '*Kilimo Kwanza*', meaning 'Agriculture

First' was designed. The new strategy, properly anchored the involvement of the private sector in the development of agriculture. It underscored the critical importance of the private sector participating actively in agricultural production, provision of agricultural inputs, crop marketing and in the agricultural value chain.

It is in this context that, the Government welcomed the idea of the SAGCOT initiative. This is a public private partnership well-placed to achieve the objectives of *Kilimo Kwanza*, from Tanzania's coastal plains and the valleys of Kilombero and Ruaha, to the hills and valleys of the Southern Highlands and the Usangu flats. The Southern Agricultural Corridor can be the breadbasket of Tanzania and beyond. Food security will be assured and wealth creation for the smallholder farmers would become a reality.

Soon after the Dar es Salaam meeting, a Committee (The Executive Committee) was set up to develop an investment blueprint for SAGCOT. The Committee draws its members from the Government as well as from the private sector, both domestic and international. The Committee has successfully completed its work. The Investment Blueprint it produced shows what needs to be done to leverage the agricultural potential of the Southern Corridor. It sets out a clear roadmap for improving rural infrastructure, catalyzing private investment and facilitating better coordination and collaboration between the private and public sector as well as the small holder farmers. It recognises the role of the development partners. It also highlights investment opportunities that offer good financial returns and deliver benefits to smallholder farmers as well.

I am proud to say that because of the importance we attach to the SAGCOT initiative, my Government was the first to commit funding ahead of all partners. We, in Government are convinced that the initiative supports our objectives for a Tanzanian green revolution. Also, it is in line with our commitments under the Agricultural Sector Development Programme and the Comprehensive Africa Agriculture Development Programme (CAADP).

I know there will be challenges, but I am optimistic that through our cooperative endeavours and commitment, we will be able to overcome them. In the end, we will succeed to create a corridor of highly productive and competitive agriculture at the local, regional and global market place. We will also witness significant poverty reduction among the people who live in the corridor and its surroundings. Given the commitment and efforts of the Government coupled with the energy, experience, expertise as well as the financial and technological strengths of the private sector, plus the support of Tanzania's development partners, we should be able to deliver on our aspirations.

The SAGCOT Investment Blueprint is a call to action for all of us. Let us respond accordingly and make the SAGCOT initiative a reality. "It can be done, play your part".

*Jakaya Mrisho Kikwete*  
*President, The United Republic of Tanzania,*  
*December 2010*





## Executive summary

Tanzania's southern corridor links the port of Dar es Salaam to Malawi, Zambia and the Democratic Republic of Congo. It benefits from good 'backbone' infrastructure – including road, rail and power – and passes through some of the richest farmland in Africa. The area could become a globally important producer of crops and livestock. Today, however, its agricultural potential is largely dormant and the majority of the rural population remains poor and food insecure.

Building on Tanzania's *Kilimo Kwanza* ('Agriculture First' strategy), the SAGCOT Investment Blueprint describes how \$2.1 billion of private investment will be catalysed over a twenty year period, alongside public sector grants and loans of \$1.3 billion. The result will be a tripling of the area's agricultural output. Approximately 350,000 hectares will be brought into profitable production, much of it farmed by smallholder farmers, and with a significant area under irrigation.

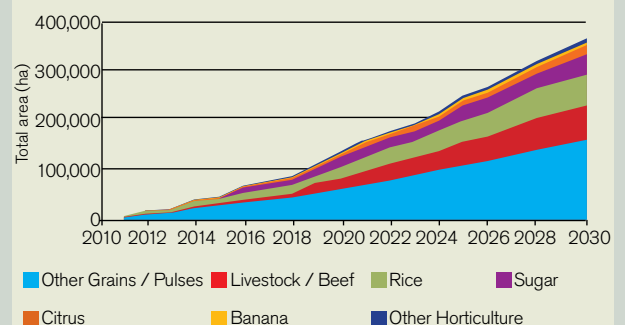
### Commercialising smallholder production

One of SAGCOT's main objectives is to provide opportunities for smallholder producers to engage in profitable agriculture. It will do this by incentivising stronger linkages between smallholders and commercial agribusinesses, including 'hub and outgrower' schemes that allow smallholders in the vicinity of large-scale farms to access inputs, extension services, value-adding facilities and markets. SAGCOT will also support smallholder producer associations, helping them enter into equitable commercial relationships with agri-processing and marketing businesses. In many cases, irrigation will be made available through professionally-managed farm blocks.

### Outcomes by 2030

- 350,000 hectares in profitable production, serving regional and international markets.
- Tens of thousands of smallholders become commercial farmers, with access to irrigation and weather insurance.
- At least 420,000 new employment opportunities created in the agricultural value chain.
- More than two million people permanently lifted out of poverty.
- Annual value of farming revenues \$1.2 billion.
- Regional food security would be assured.

### Build-up of SAGCOT commercial production 2011 - 2030



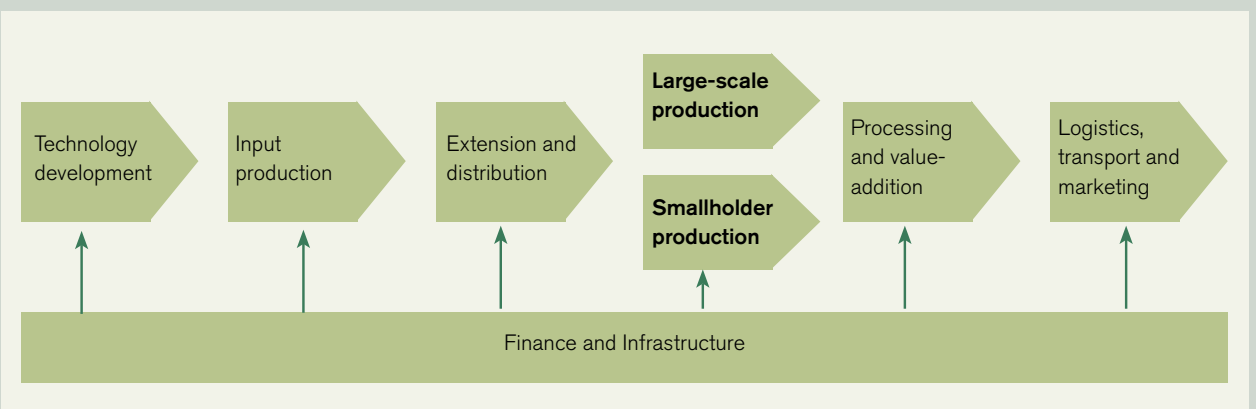
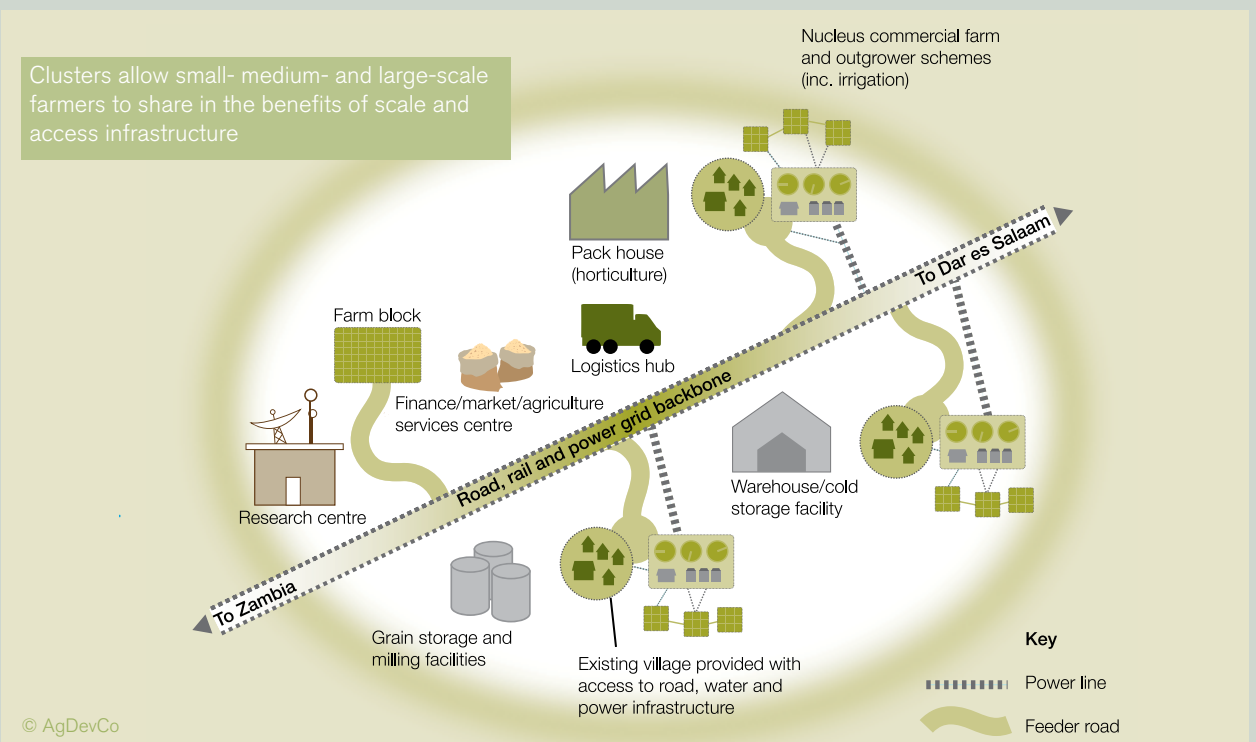
Source: SAGCOT technical team projections

### Competitiveness through ‘clustering’

Due to economies of scale, farmers and agribusinesses are most likely to be successful when they are located in proximity to each other and related service providers. SAGCOT focuses on an initial six ‘clusters’ within the southern corridor where there is the potential,

over time, for profitable groupings of farming and processing to emerge. Each cluster requires investment along the full agricultural value chain. Some of these investments are public goods (e.g. rural infrastructure) which must come from the government and its development partners; others can expect to earn a financial return and will come from the private sector.

#### Illustration of an agricultural cluster and a value chain



## Investment opportunities

As examples of the types of agribusiness that merit support, the investment blueprint highlights 15 ‘early win’ investment opportunities where rapid progress could be made. These include:

- **Mbozi seed farm.** A 3,000 hectare nucleus seed estate plus irrigated outgrower scheme for maize, soya, sunflower, sesame and pulses.
- **Ruvu cattle ranch.** Redevelopment of a 40,000 hectare government-owned ranch, with the introduction of fattening and slaughter facilities for local breeders.
- **Smallholder commercialisation and agro-dealer programme.** Providing extension services, inputs, weather insurance and market access to large numbers of smallholder farmers.
- **Sao Hill agri-centre.** Irrigated vegetable production linked to an agriculture processing centre (including a biomass plant) with storage and processing facilities.

## Making it happen

An agricultural transformation can be achieved if the public and private sectors (including development partners) work together to achieve shared goals. A SAGCOT partnership organisation will help coordinate and guide investments, focusing on the cluster areas. New financing facilities, including ‘social venture capital’ (for start-up businesses) and ‘patient capital’ (long-term debt for infrastructure), will help new farming and processing operations get established and become internationally competitive.

To ensure fairness and promote responsible investment, access to the SAGCOT financing facilities will come with strong conditions attached. Funding will only be made available to investors who demonstrate a commitment to building equitable and sustainable partnerships with smallholder producers. Compliance will be monitored and investment withdrawn if social or environmental obligations are not met.

By helping new businesses overcome initially high costs and risks, SAGCOT will help kick-start a virtuous cycle of lower production costs, increased productivity, higher profitability, more investment and rapid growth.

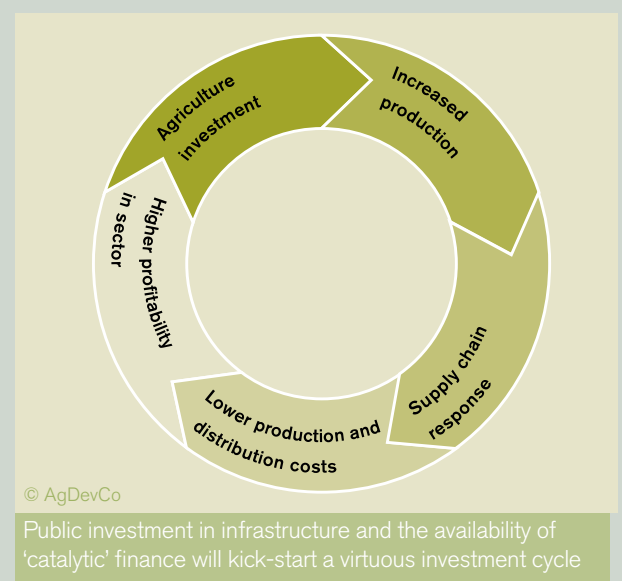
## Next steps

In 2011 the SAGCOT Partnership will move rapidly from the design to the implementation phase. Two key actions are needed to launch this process:

- Establish the SAGCOT partnership organisation<sup>1</sup> – supported by an independent and professional Secretariat – to act as a neutral coordinating body and focal point for planning, implementation and monitoring.
- Launch a catalytic fund, initially of \$50 million, with financial backing from the Tanzanian government and development partners. The catalytic fund will enable resources to be channelled into early stage investment opportunities, including some of the ‘early wins’ identified in the investment blueprint.

SAGCOT is a unique and powerful public-private partnership capable of delivering sustainable agricultural growth in the southern corridor. Demonstrating early results will establish a replicable model for agricultural development in the rest of Tanzania and the wider region.

### Virtuous agriculture growth cycle



<sup>1</sup> The Partnership will be guided by the lessons learned from the Tanzanian Agricultural Partnership (TAP), set up in 2005 to facilitate and coordinate public and private stakeholders involved in commercial agricultural development.



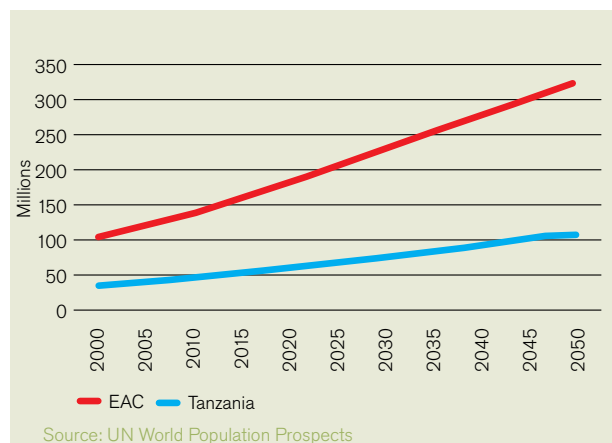
# 1. Why invest in Tanzanian agriculture?

Agriculture is the basis of Tanzania's economy. It is the major source of employment, a significant export earner and an important component of the national GDP. Approximately 85 per cent of the country's poor live in rural areas and rely on agriculture<sup>2</sup> as their primary source of income. But yields are low, for example averaging 1.5 tonnes per hectare for maize. Restricted access to profitable markets traps the majority of farmers in subsistence-level activities, where many earn less than US\$1 a day. Excluding a few specialised crops such as tea and sugar, there is no critical mass of profitable agriculture businesses.

With improved access to finance, infrastructure, modern farming inputs and know-how, Tanzania's smallholder farmers could achieve much higher yields, allowing them to sell into regional and international markets. At present, however, they are isolated and vulnerable to drought, floods and other risks. Population pressure, competition for land and water in some areas, and the impact of climate change will only make the situation worse, if nothing changes.

The future could be a lot brighter. Tanzania has vast natural resources that provide a base from which significant agricultural growth in crops, livestock and fisheries is possible. There are opportunities for major improvements in productivity on farm land, working in partnership with smallholder farmers and local communities. In the longer-term, there are large areas of land away from existing infrastructure, where population density is much lower, that could be opened up for productive agriculture.

Figure 1.1 East Africa Community Population



As in the wider East Africa region, Tanzania's population is expected to double by 2050, exceeding 100 million.

## Background on Tanzania's agriculture

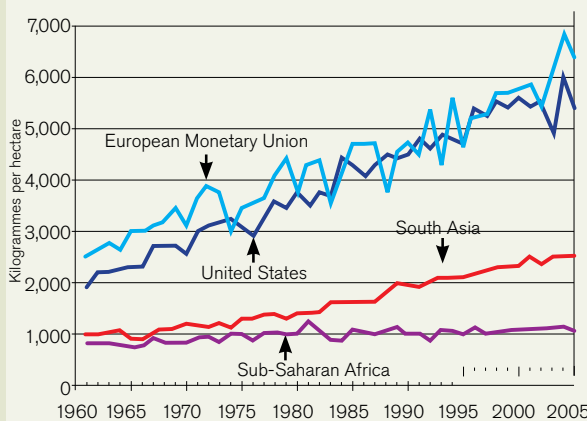
- Although Tanzania's economy achieved 7.4 per cent overall growth in 2008, this is highly skewed, primarily representing a few urban centres and the mineral sector.
- An estimated 85 per cent of the country's poor live in rural areas and rely on agriculture for their livelihood and their primary source of income.
- Ninety-eight per cent of rural women who are economically active are engaged in agriculture.
- Tanzania uses an average of 9kg of fertiliser per hectare, compared with 27kg in Malawi, 53kg in South Africa and 279kg in China.
- More than 90 per cent of the 2.5 million cattle, 14 million goats and four million sheep are low-yielding unimproved breeds.
- Tanzania has approximately 2,300m<sup>3</sup> of 'internal fresh water' per person. This is 1.4 times greater than that of Uganda and 3.6 times greater than Kenya.
- Although one of the largest herds in Africa, Tanzania's livestock sector accounts for only one per cent of national exports.

<sup>2</sup> In this report the terms 'agriculture' and 'farmer' refer to both crop and livestock production

**Box 1: Investment in African agriculture**

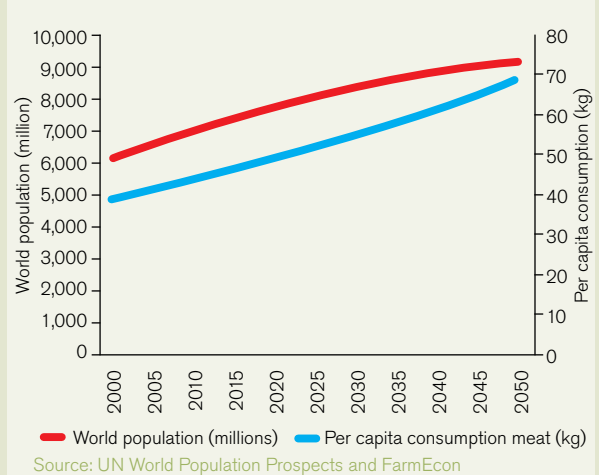
African agriculture is attracting increased interest from the private sector. With a rapidly rising global population, the world's grain output must rise by around 70 per cent and meat output will have to double by 2050. With the right type of investment and political support, Africa could switch from being a net importer to a major exporter of agricultural products, in particular to markets in the Middle East and Asia. However, for this to happen countries like Tanzania will have to become more competitive. There are other land-rich parts of the world – such as Brazil and Eastern Europe – which are already attracting the majority of private capital flows.

**Figure 1.2 International yields comparison**



Source: World Bank

**Figure 1.3 Global consumption and population growth**



— World population (millions) — Per capita consumption meat (kg)  
Source: UN World Population Prospects and FarmEcon

There is a risk is that Africa attracts the wrong type of investment. For example, the debate about 'land grabbing' highlights the dangers of industrial-scale farms that exclude local communities and smallholder farmers. For SAGCOT and similar initiatives the challenge is to attract private investment in a way that maximises social gains and allows smallholder farmers to become profitable producers and entrepreneurs with access to regional and international markets.

Tanzanian agriculture has a combination of factors that make it attractive for commercial investment, including:

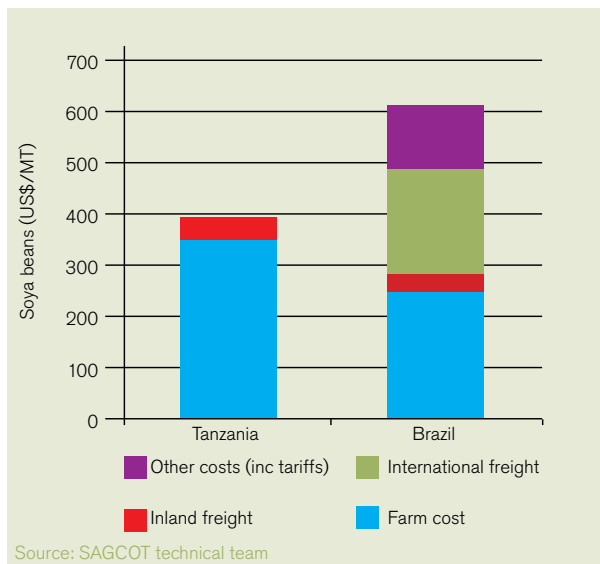
- shared borders with eight countries in the East Africa region, providing a large and growing regional market,
- a coastal location with an international port providing potentially low-cost access to rapidly expanding markets in the Middle East and Asia, and
- significant natural resources including good soils, under-developed land, and water resources suitable for agriculture, which could be opened up with more public investment in infrastructure.

*“The agricultural potential of the southern corridor is enormous, but remains largely dormant or highly underexploited. Serious market opportunities for agricultural produce abound. It is time for the Agricultural Sleeping Giant [Tanzania] to awake.”*

*Salum Shamte, Chairman,  
Agricultural Council of Tanzania*

To illustrate the market opportunity, the diagram below compares Tanzania’s current competitiveness against imported soya beans from Brazil. Although production costs are higher than Brazil’s, the international freight and other shipment costs to East Africa far outweigh this disadvantage (Figure 1.4). It should therefore be possible for Tanzania to compete effectively with foreign imports. A similar picture emerges for crops such as wheat and rice.

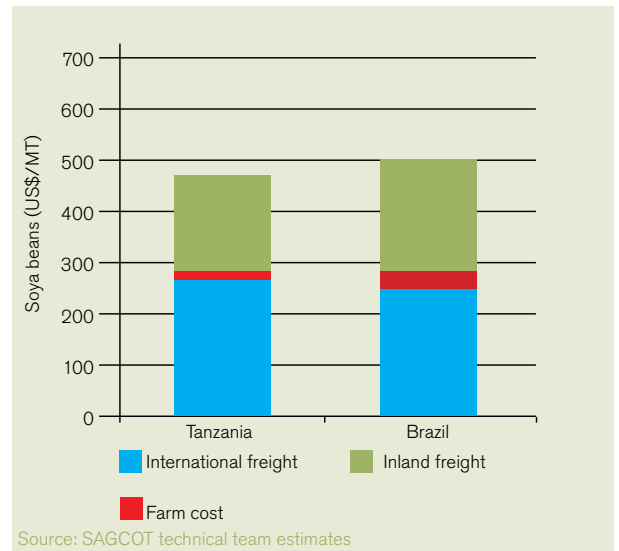
**Figure 1.4 Import substitution in short-term (CIF and landing charges, cost at Dar es Salaam)**



Today, the Tanzanian domestic market is relatively small. However, regional markets are larger and growing, and provide an important stepping stone for the expansion of agricultural exports. Over time, by developing new markets, it should be possible for Tanzania to achieve economies of scale, drive down production costs, and achieve lower freight costs to the Middle East, Asia and other markets. By 2030 Tanzania should be aiming to be competitive on price with international competitors in Europe, Asia and South America (Figure 1.5).

Countries such as Brazil and Vietnam that successfully transformed their agricultural economies over a 20-year period show what can be achieved, if public and private sector resources are channelled into agriculture. But Tanzania is going to have to move rapidly to catch up because international competitors continue to innovate. International agricultural markets that are characterised by highly efficient, sophisticated value chains (e.g. the

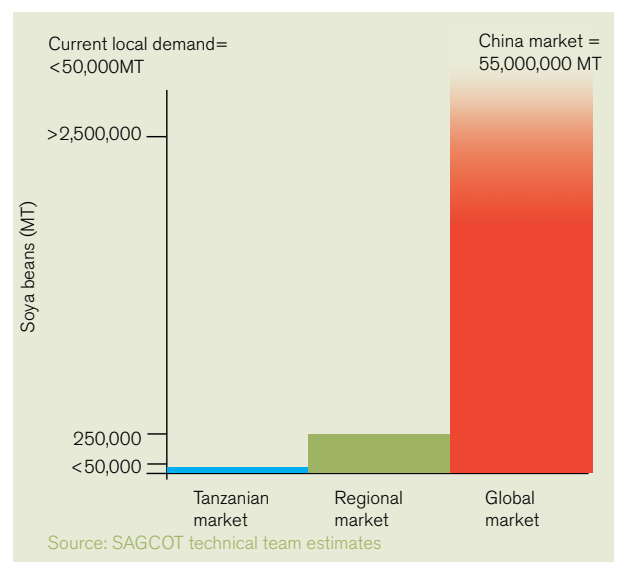
**Figure 1.5 Export competition in long-term (CIF cost China) by 2030**



demanding product specifications and timeliness of delivery required by expanding supermarkets) remain beyond the reach of smallholders without specialised knowledge and market linkages that only the private sector can provide.

Over the past 30 years, Tanzanian agriculture has lagged behind other sectors of the economy. Agricultural exports have remained flat for the past 20 years, resulting in an overall decline in the agriculture sector’s contribution to the GDP. Over the same period there has been no significant reduction in rural poverty.

**Figure 1.6 Size of market opportunity for soya beans**



There are multiple reasons for this poor performance. In the past, agriculture has not been seen as a priority sector. Land tenure policy and its application remains complex and bureaucratic. Skilled management capacity and practical experience in commercial agriculture are limited. Also, poor rural infrastructure and limited access to long-term finance make it very difficult to establish an agriculture business and reach an efficient scale of operation. Section 4 (page 27) explores these and other constraints in more detail.

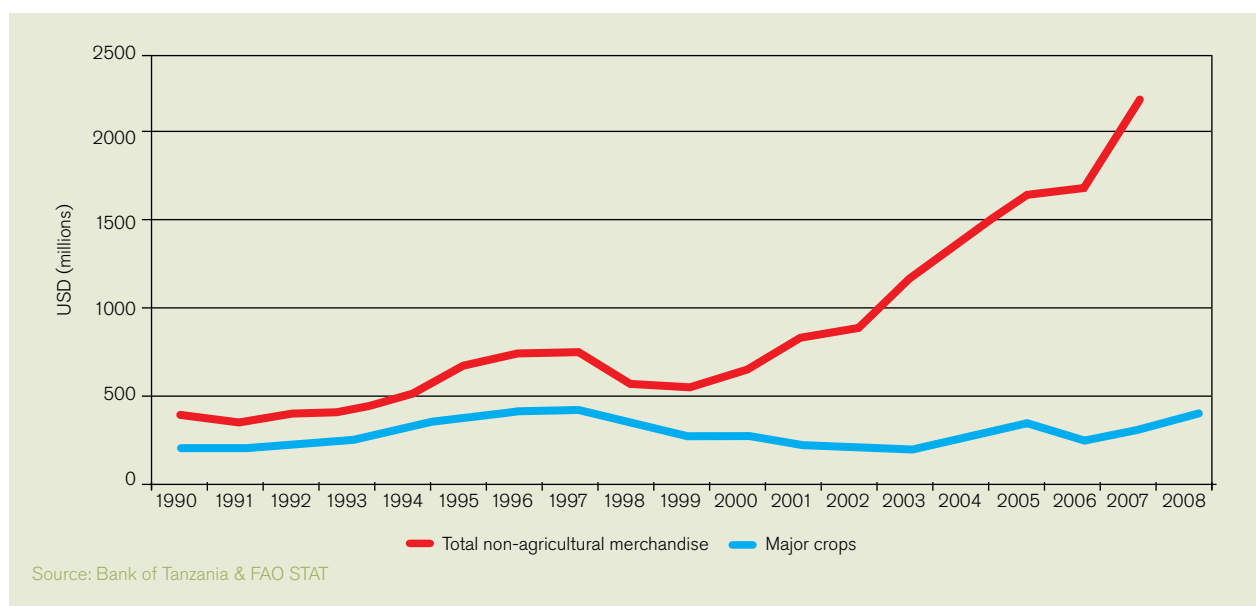
The government has recognised the opportunities and challenges facing the agriculture sector and is doing something about them. For example:

- Initially developed by the Tanzanian private sector, and then taken up by the government, the *Kilimo Kwanza* initiative establishes agriculture as a top priority across all government ministries. *Kilimo Kwanza* calls for action by all stakeholders on a set of

10 priority areas (the ‘Pillars’) to develop opportunities and reduce constraints to rapid future agricultural growth: Tanzania’s Green Revolution. *Kilimo Kwanza* builds on the country’s Agricultural Sector Development Programme (ASDP), which coordinates public investments by the Agricultural Sector Lead Ministries, supported by some of the donor agencies.

- Tanzania is a recent signatory of the Comprehensive Africa Agricultural Development Programme (CAADP), which commits the government to allocating 10 per cent of budgetary expenditure to the agriculture sector and establishes a target of a minimum of six per cent per annum agriculture growth. SAGCOT can play an important role in helping implement Pillar II of CAADP, which calls for increased private investment in infrastructure and value chains.
- The Prime Minister’s Office has prepared a roadmap for the improvement of the investment climate.

Figure 1.7 Exports of major crops and non-agricultural merchandise from Tanzania





## Tanzania Development Vision 2025 and Agriculture Sector Development Strategy (ASDS)

Both Tanzania's Development Vision 2025 and ASDS establish clear priorities for the transformation process towards a modern commercial Tanzania to be private sector-led.

### CAADP

The CAADP has four pillars covering the key elements in future agricultural growth: (i) land and water resources management, (ii) infrastructure and market access, (iii) food security and nutrition, and (iv) science, technology and human resource development. As SAGCOT develops, it will become one part of the CAADP compact for Tanzania.

### Kilimo Kwanza

This home-grown, private sector-led initiative focuses on Tanzania's agriculture. Coordinated by the Tanzania National Business Council it will stimulate a private sector-led Tanzanian Green Revolution. The 'Ten Pillars' of *Kilimo Kwanza* propose activities to reinvigorate market-driven agricultural growth. The initiative, which proposes a radical shift in the approach to agriculture, has the support of both the government and private sector apex organisations such as the Agricultural Council of Tanzania. SAGCOT will be the first major initiative to be launched under *Kilimo Kwanza*, and will establish a model for future agricultural growth partnerships that can be replicated throughout the country. By looking at global market opportunities as well as local markets and the necessary producer incentives, SAGCOT will bring an additional element to the *Kilimo Kwanza* range of activities.

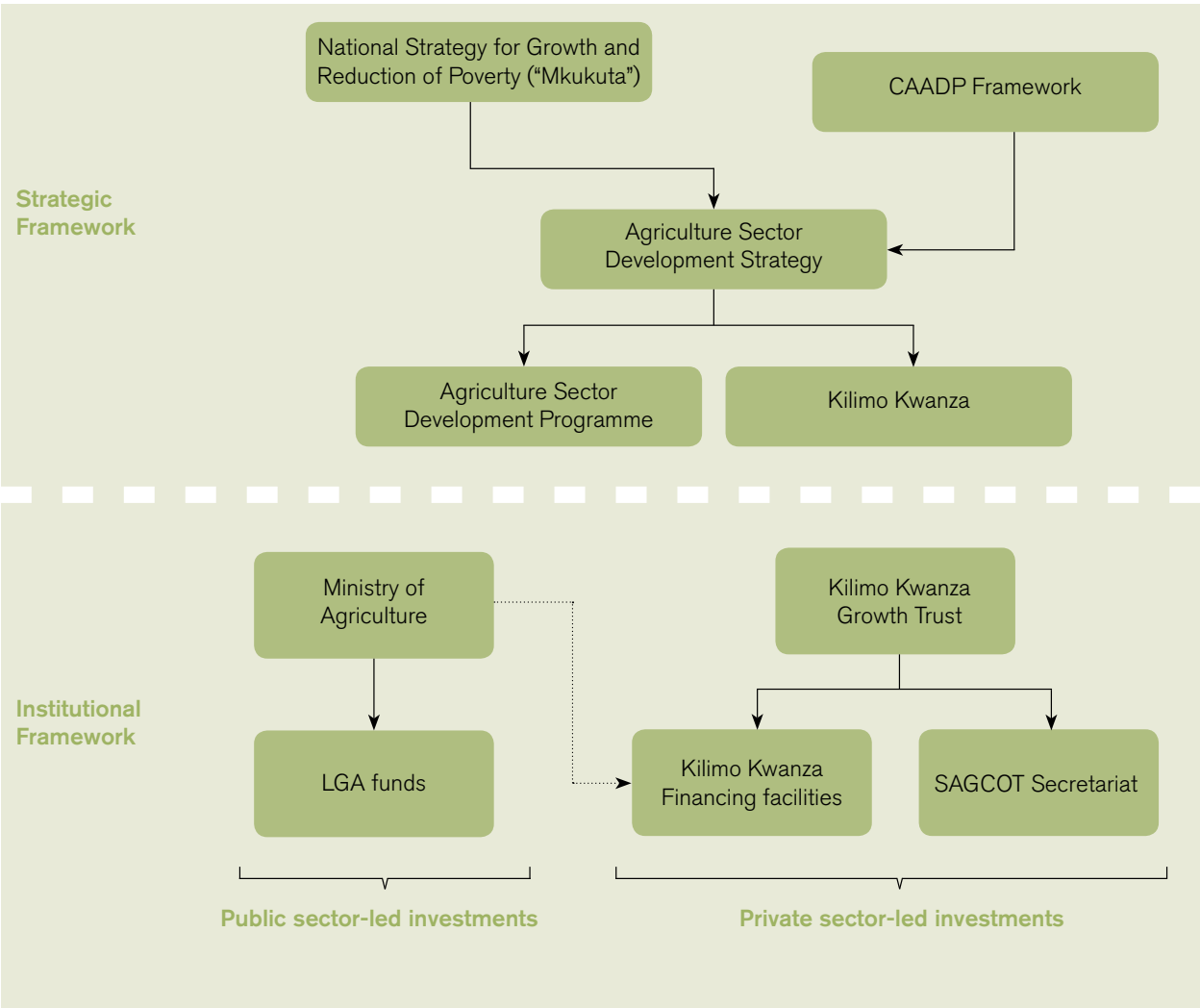
### ASDP

ASDP is designed to implement the ASDS. It is implemented by the five Agricultural Sector Lead Ministries and 132 local government authorities under the overall coordination of the Ministry of Agriculture, Food Security and Cooperatives. The objectives are (i) to enable farmers to have better agricultural knowledge, technologies, markets and infrastructure, and (ii) to increase private sector investment in agriculture. The overall budget is US\$1,780 million over eight years of which 75 per cent is earmarked for irrigation development. Market and private sector development accounts for about two per cent. ASDP has helped increase crop and livestock production and growth in agricultural exports due to the adoption of new technologies, better extension services, increased use of irrigation, and greater access to mechanisation. However, involvement of the private sector in ASDP is "still weak"<sup>3</sup>. This is an area where SAGCOT will be able to provide significant support and complementarity.

### Linking to SAGCOT

SAGCOT will operate within the dual, complementary frameworks of *Kilimo Kwanza* and ASDP. Cooperation between SAGCOT and ASDP will include support to smallholder irrigation and improving land-use planning. Also, local Commodity Investment Plans (CIP) will establish district-level partnerships, mobilising ASDP support through the local government's District Agricultural Development Plans (DADP). SAGCOT will help *Kilimo Kwanza* move from concept to reality. It provides a replicable model showing how private investment can promote socially responsible and ecologically sustainable commercial agriculture.

Figure 1.8 SAGCOT within Tanzania’s developmental and agricultural strategic framework



ASDP is already backed up by significant resources (about US\$150 million per year over eight years) and there is potential access to additional funding through CAADP. However, questions remain about whether it will be possible to catalyse significant amounts of private investment alongside government and development partner commitments. SAGCOT is

an attempt to address this challenge. Starting in a few high-potential areas and working with a wide range of partners, SAGCOT will promote sustainable agricultural growth by attracting socially and environmentally responsible private investment from domestic and international sources. The following sections describe how this will be done.

## 2. Agricultural growth corridor approach

In countries where commercial agriculture has been successful there are four common features. Firstly, there is ample suitable land available for commercial development, with benign climatic conditions and a reliable supply of water for irrigation and other uses. Secondly, there is adequate access to agriculture-supporting infrastructure, in the form of low-cost transport links to markets and, in drier climates, irrigation powered by reliable, affordable grid electricity. Thirdly, there are ‘clusters’ of farming, processing and service firms concentrated in specific geographical areas. By creating economies of scale, these clusters increase efficiencies and drive down production and marketing costs in the value chain. Fourthly, in each case, the private sector takes the lead in developing the sector, but with strong, complementary support from the government (e.g. through business-friendly policies and publicly-funded research and development and infrastructure). When these four elements are combined, the result is a profitable agricultural sector able to compete in global markets.

*SAGCOT aims to facilitate the development of clusters of profitable agricultural businesses within the southern corridor.*

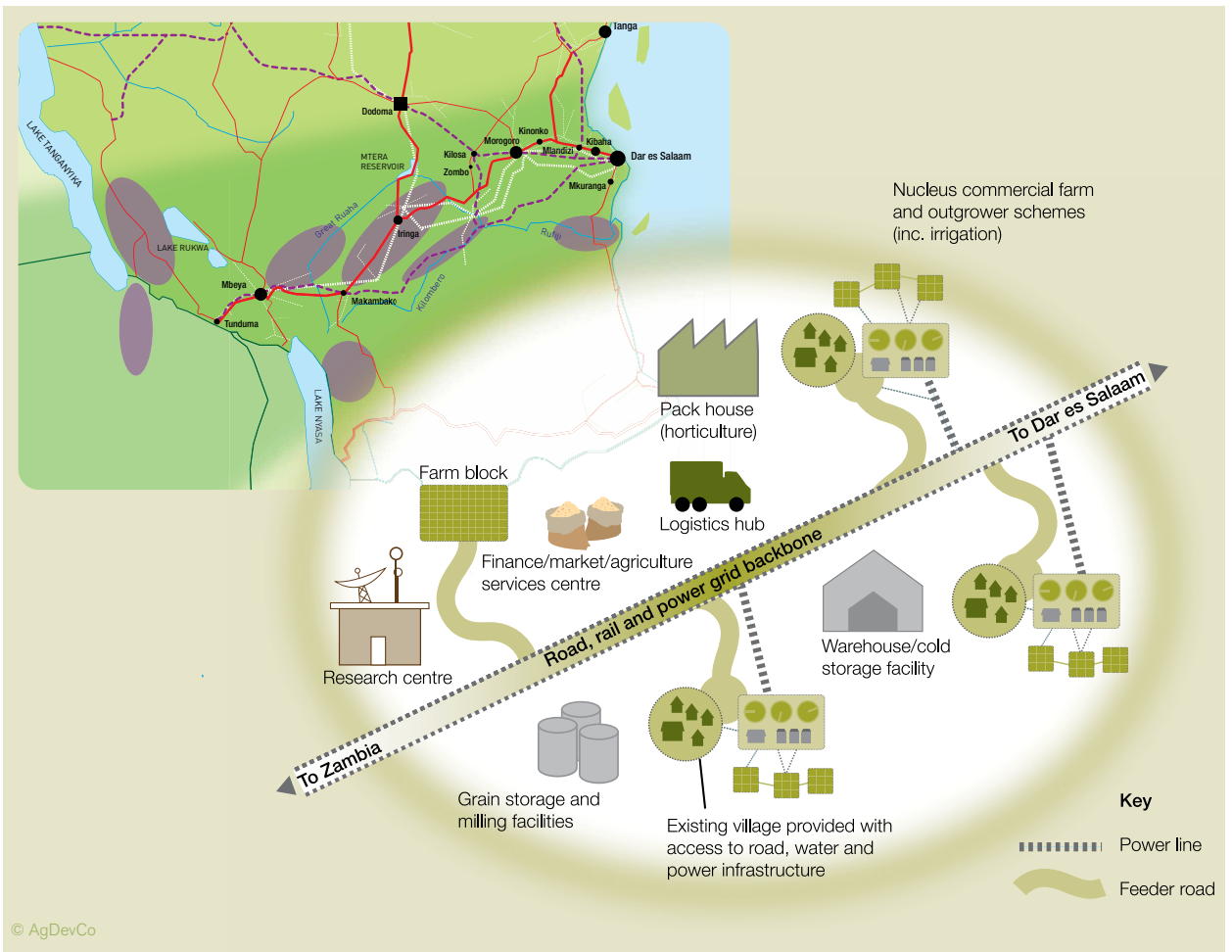
The agricultural growth corridor model is a way of focusing public and private sector resources on areas with high potential for agriculture where there is existing backbone infrastructure. The model recognises the importance of incorporating smallholder farmers within commercial agriculture businesses, which has happened successfully in some countries (e.g. Vietnam, Malaysia and

Thailand), but less so in others (e.g. Brazil). By promoting the development of profitable ‘clusters’ of farming and other related agribusinesses along the corridor, the approach can help countries like Tanzania catch up with international competitors. This is achieved through:

- taking a long-term approach to agricultural development, recognising that transformation occurs over a 10 or 20-year period,
- commissioning robust analysis of the constraints on commercial agriculture and showing how these can be addressed,
- establishing an independent public-private partnership organisation, which helps to coordinate and target agricultural development programmes and investments, and
- using government and development partner resources to catalyse socially and environmentally responsible private investment.

SAGCOT aims to facilitate the development of clusters of profitable agricultural businesses within the southern corridor. Building on existing operations and planned investments, the clusters are likely to bring together agricultural research stations, nucleus larger farms and ranches with outgrower schemes, irrigated block farming operations, processing and storage facilities, transport and logistics hubs, and improved ‘last mile’ infrastructure to farms and local communities. When taking place in the same geographical area, these investments result in strong synergies across the agricultural value chain, helping create the conditions for a competitive and low-cost industry.

Figure 2.1 Agricultural growth corridor clusters



### Box 3: Cluster development

'Clusters' are defined as geographic concentrations of interconnected companies, specialised suppliers, service providers, and associated institutions. For SAGCOT, this includes suppliers of farm inputs, machinery, and agriculture support services (extension agents, financial services), commercial farmers (large and small), processors and providers of infrastructure such as irrigation and rural roads. Clusters also include governmental and other institutions, such as universities, vocational training providers, and trade associations, which provide specialised training, education, information, research, and technical support. The proximity of companies and institutions in one location, and the repeated exchanges among them, fosters better coordination and trust. It also drives increased competitiveness. A cluster allows each member to benefit as if it had greater scale. Poor countries typically lack well-developed clusters; they compete in the world market with cheap labour and natural resources. To move beyond this stage, and to add value and share benefits with producers, the development of well-functioning clusters is essential.

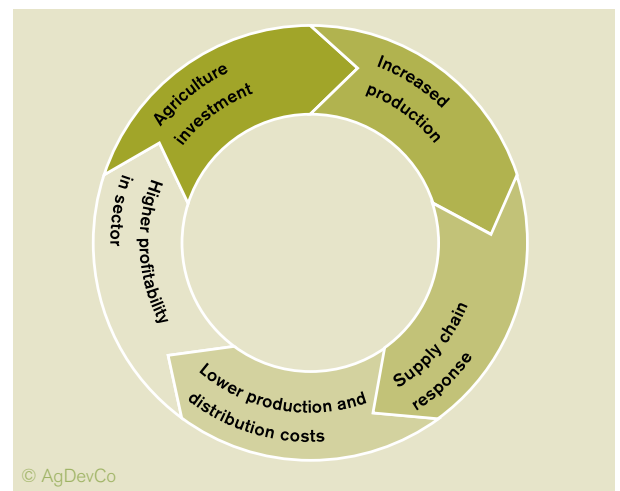
Successful development of the clusters will benefit the Tanzanian economy on a number of levels:

- Smallholder farmers will have the opportunity to become profitable producers linked to markets, with affordable access to irrigation and other agricultural support services.
- Local entrepreneurs will have the opportunity to set up new businesses in the agriculture services sector, e.g. agro-dealers, logistics services, storage, processing, and marketing.
- Rural communities will benefit from improved access to infrastructure (e.g. feeder roads, electricity and potable water), while also gaining employment opportunities with agricultural firms throughout the value chain.
- The East and Central African region will benefit from improved food security, and the Tanzanian economy will benefit from increased tax revenues and an improved balance of payments.
- Large numbers of smallholder farmers continuing to operate under rain-fed conditions will have improved access to inputs, value-adding services and markets.

As development within each cluster reaches a critical mass, Tanzania will experience a virtuous

agricultural growth cycle, with increased investment leading to more production, generating a supply chain response and economies of scale that further increase competitiveness, encourage more investment and results in accelerated growth. The challenge is how to ‘kick-start’ private investment in the clusters, in a situation where there is limited commercial agricultural activity today, to get the growth cycle moving. Later sections in this report show how new institutional and financing mechanisms can help achieve this goal.

**Figure 2.2 The virtuous agriculture growth cycle**



**Box 4: What is ‘commercial agriculture’?**

In the context of SAGCOT, the term ‘commercial agriculture’ includes farming, ranching, processing and agribusiness activities and investments that use modern planning, production, processing and marketing techniques. Commercial farms – large, medium or small – operate as financially sustainable businesses with the primary objective of selling crops and livestock products into the market. In terms of turnover and in the context of Tanzanian agriculture, smallholder farms can be defined as those with a turnover of less than US\$5,000 per year, emergent farmers with a turnover of between US\$5,000 and US\$500,000, and large farms with a turnover of more than US\$500,000. Although a farm of any size can be commercial, economies of scale generally mean that there is a minimum efficient size of commercial enterprise for a given product that may either come through a single or collective farm or by a combined aggregated approach of individual farmers farming collectively to reach appropriate levels of scale. For commodities such as grains, the area is likely to be upwards of 200 hectares (although this might be sub-divided into smaller plots, e.g. in an irrigated block-farming development or as part of a producer association), but five hectares of well-managed irrigated flowers or vegetables would provide a viable business. A viable ranch in a semi-arid area would require a lot more land – more than 10,000 hectares. Other players in the commercial agriculture value chain include input suppliers, logistics companies, financial services providers and marketing agents.



### 3. What is the Southern Agricultural Growth Corridor?

The Southern Agricultural Growth Corridor (also known as the ‘Tazara Corridor’) is formed along the traditional trade route linking Tanzania to landlocked countries in south-eastern Africa. Within Tanzania it covers an area of about 287,000km<sup>2</sup> and incorporates a population of nine million. Regionally, the corridor reaches mining industries in the Northern and Central Provinces of Zambia, Malawi and the Katanga Province in the Democratic Republic of Congo (DRC). Although currently operating well below its potential capacity, the Port of Dar es Salaam has a pivotal role in regional trade.

The majority of goods through the port originate from, or are destined for Tanzania. Trade with the mineral-rich areas of Zambia and the DRC accounts for about a third of all shipments.

The corridor has a diverse range of climates, from the wet coastal plains through semi-arid savannah and tropical lower-mountain valleys, into extensive temperate highlands. This variety in climate and altitude, as well as the diverse nature of the soils, allow for the cultivation of a large range of crops and different types of livestock.

#### Box 5: Crop and livestock value chain potential in the southern corridor

The natural potential of the southern corridor offers commercial farmers, large, medium and small, a broad spectrum of crops to grow, both for local consumption and export. The major crop opportunities include cereals (wheat, barley, maize, sorghum, rice), horticulture, sugar, citrus, soya beans, coffee, tea, potatoes, bananas, beans, vegetables and sunflower. In terms of livestock, beef, goats, poultry, sheep, pigs and dairy operations all have great potential.

**Maize:** The majority of the maize in Tanzania is produced by smallholder farmers from retained seeds. Average yields are generally below a tonne per hectare for subsistence farmers and five tonnes per hectare in the commercial sector. The introduction of better seeds and access to inputs could increase yields significantly. A national surplus would provide Tanzania with the opportunity to export to neighbouring countries, and could encourage agencies such as the World Food Programme Purchase for Progress (P4P) to secure their maize requirements for the region from Tanzania. They are already actively doing this in Zambia, which recently boasted an annual surplus of maize.

**Wheat:** Tanzania only produces five per cent of its wheat requirements and imports in excess of 500,000 tonnes of wheat annually at a cost of US\$175 million per year. There is significant potential for import substitution

**Rice:** In areas such as Kilombero, there is huge potential for increasing rice production. With the introduction of better varieties, improved water regulation and commercial management, Tanzania could supply a large portion of Sub-Saharan Africa’s requirement of five million tonnes, including much of East Africa’s current annual imports of 740,000 tonnes.

**Horticulture crops:** The temperate climate of many parts of the corridor is ideal for horticulture crops, such as fine beans and other high value legumes. Tanzania produces approximately 250,000 tonnes of dry beans at yields well below 500 kilogrammes per hectare. Dry beans, with the correct production methods and screening of varieties to ensure the required purity and uniformity for exports, could offer the Tanzanian farmer yet another cash crop option in their grain rotation.

There is also large demand for Irish potatoes in Tanzania, which fetch very good prices.

**Bananas:** Tanzania has the potential to export about 255,000 tonnes of bananas each year to established export channels in regional and international markets. Based on average yields of 50 tonnes per hectare, this requires approximately 4,000 to 5,000 hectares. Banana plantations reach commercial maturity quicker than other fruits such as mangoes and lychees, and therefore start to generate positive annual income flows earlier.

**Livestock:** With Africa's third largest livestock herd, extensive rangelands and significant feed resources, Tanzania could have a highly productive and profitable livestock industry. However, the livestock industry remains undeveloped and unproductive. There are about 2.5 million cattle in the corridor and recently almost 900,000 hectares of land has been allocated by village governments to livestock development. The potential can be achieved by improving the quality and management of the animals, through improved animal health and by developing modern animal production and marketing systems. For example, 80 per cent of Tanzania's hides are exported (mainly to Kenya) unprocessed. There are tremendous opportunities for local added value, using immediately available resources.

**Fisheries:** Tanzania has one of the largest fisheries sectors in Africa, ranking in the top 10 countries in terms of total captured fisheries production. The country has an average annual fish landing of more than 300,000 tonnes and an estimated production potential of 730,000 tonnes. Tanzania has extensive freshwater fisheries, some of which, such as those on Lake Victoria, have been developed for export. There is potential for further development, particularly in the southern corridor, e.g. aquaculture in small dam sites.

Tanzania has the second largest volume of inland fresh water resources in Africa and it is estimated that only one per cent of total irrigable land is currently developed. A recent study by Japan International Cooperation Agency (JICA) for the Ministry of Agriculture suggested there is approximately three million hectares of medium-

to high-potential land suitable for irrigation in the corridor. However, with inefficient technology and poor controls, in some areas water resources are already being over used (see Section 9 and Appendix VII). All moves to develop future irrigation will require careful assessment of the hydrological and environmental impact.

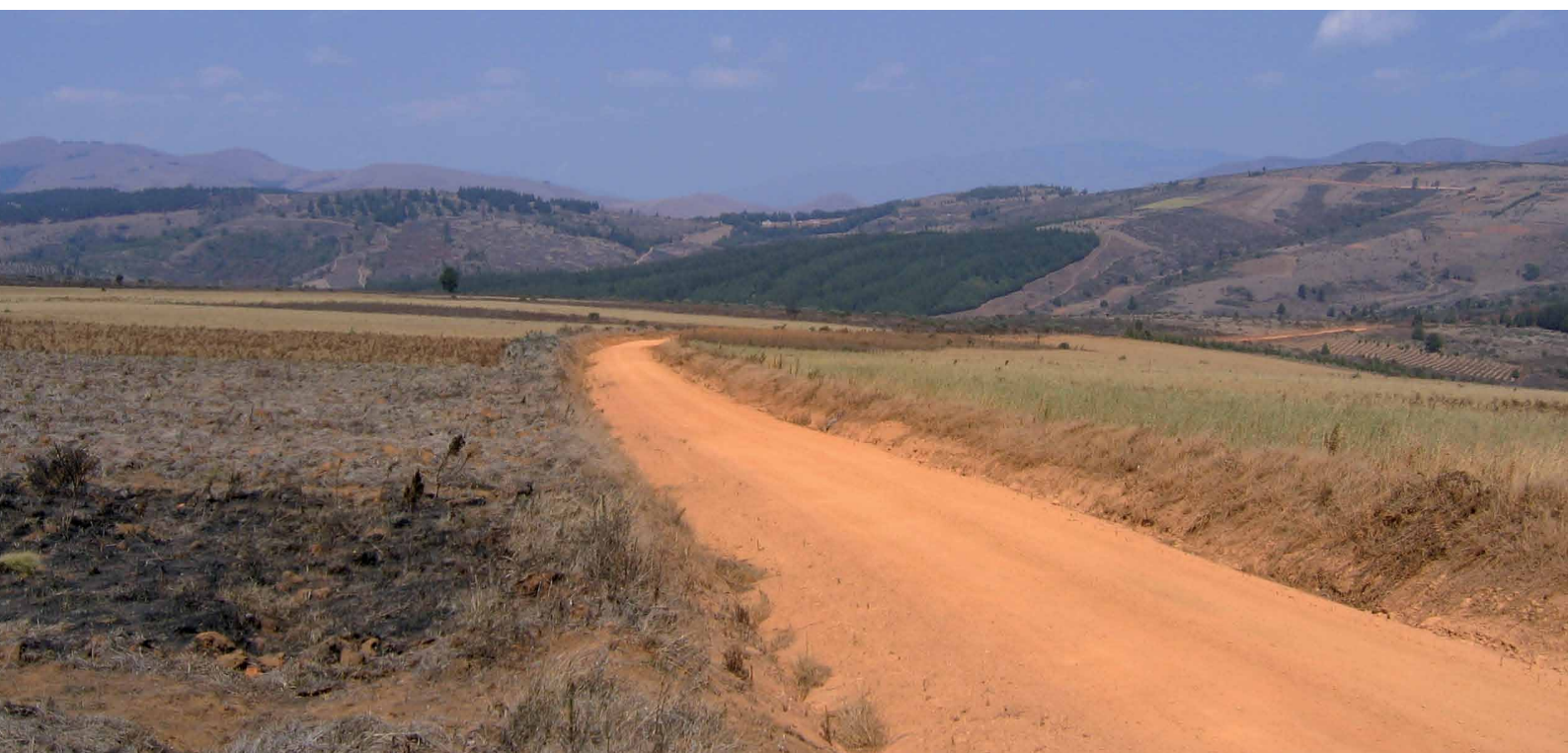
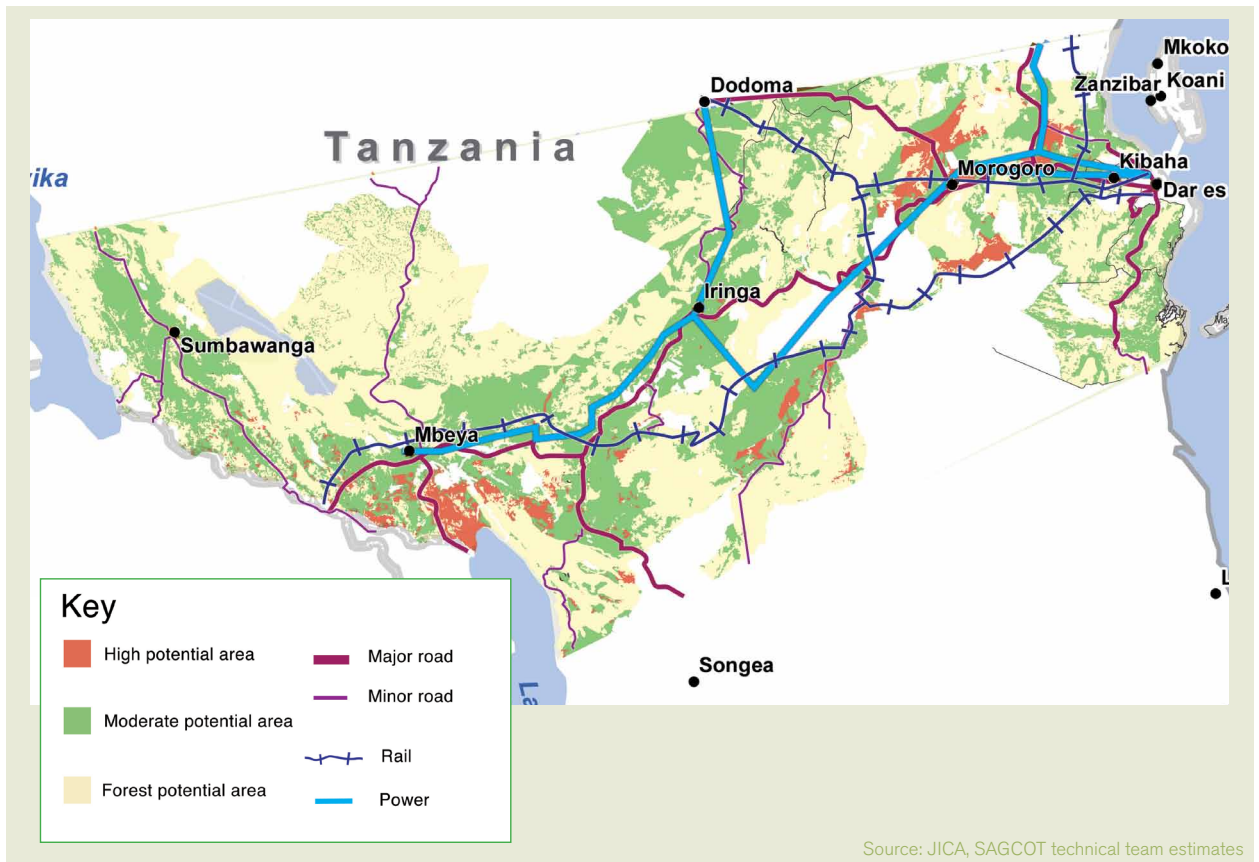




Figure 3.1 Agricultural potential and backbone infrastructure



Source: JICA, SAGCOT technical team estimates

SAGCOT’s backbone infrastructure provides a reasonable but incomplete platform upon which to develop commercial agriculture in the southern corridor. The majority of infrastructure was built after Tanzanian independence as an alternative to the South African and Mozambican transport links to Zambia, and includes:

- the Port of Dar es Salaam, which currently handles approximately eight million tonnes per year,
- the Tanzania-Zambia Railway Authority (TAZARA) network of 1,870km of rail, commissioned in 1976 to link Dar es Salaam Port to Kapiri Mposhi and then to the Zambian Railways (and the DRC and Southern African rail networks),
- The Tanzania-Zambia (TANZAM) Highway, a paved trunk road system of 1,762km linking Dar es Salaam Port to Kapiri Mposhi,
- the TANESCO electricity grid servicing major towns along the corridor within Tanzania, and
- total renewable water resources amounting to 93km<sup>3</sup> per year, of which 84km<sup>3</sup> per year is produced internally.

If this backbone infrastructure is going to provide the services that are needed for agricultural growth, several important improvements are needed. Firstly, Dar es Salaam Port’s capacity needs to be expanded and customs procedures accelerated. Secondly, the road system requires rehabilitation and maintenance. Thirdly, even though rail transport is less expensive than road haulage, it is currently slow, unsecure and unreliable. Interchange facilities must be improved and railway wagon and locomotive stock upgraded to make it more competitive. Fourthly, the power grid will need upgrading in places and national shortages in generating capacity will need to be met.

Investments in some of these improvements are already taking place (see Figure 3.4 Anchor investment map). The government and development partners, with cooperation from the private sector, must be committed to see proposed infrastructure investments completed, including cooperation from state-owned enterprises.

**Box 6: The Brazilian success story**

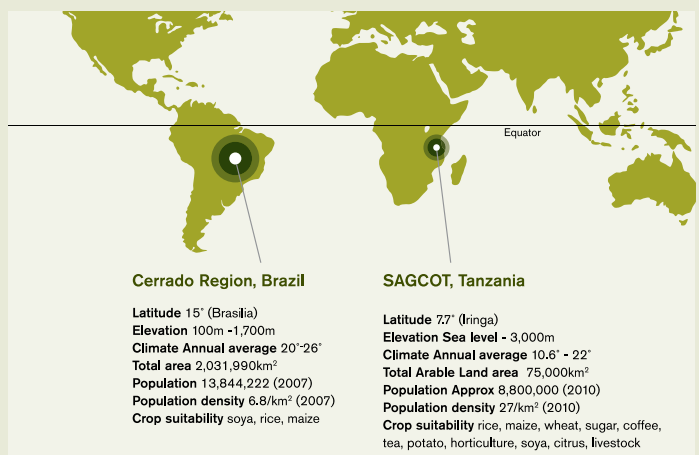
There are similarities between the southern corridor and the Cerrado region of Brazil as it was in the early 1970s, before it became a major global agriculture producer. Climatic and soil conditions are broadly comparable and many of the same crops can be grown (e.g. maize, soya, rice, sugarcane). SAGCOT has an advantage over the Cerrado in having direct access to the Port of Dar es Salaam and relative proximity to Asian markets.

In the Cerrado, soya bean production increased fivefold from 9.9 million tonnes in 1975 to 51.4 million tonnes in 2005. The success of the Cerrado is commonly attributed to a combination of:

- public sector support for research, infrastructure and low-cost finance for farmers, supported by minimum price guarantees, and
- significant private investment, which created economies of scale and scope for all players in the agriculture value chain.

The Cerrado experience shows that, where the natural conditions are suitable, investment in commercial agriculture can result in rapid growth of profitable production and farm incomes. However, rapid development and agricultural growth of the sort achieved in Brazil is accompanied by risks. For example, in the Tanzanian context rapid modernisation of the farming sector could disrupt traditional livelihoods, exclude smallholder farmers and have unintended environmental impacts. For this reason SAGCOT promotes a form of agricultural development that directly benefits smallholder farmers and rural communities (see Section 6). It is also why SAGCOT will undertake careful environmental impact assessments (see Section 9).

**Figure 3.2 The Brazilian success story**

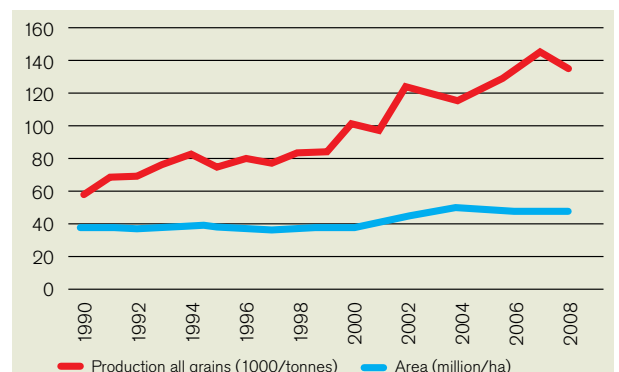


During the 1990s, Brazilian net exports of soybeans, soybean meal, and soybean oil increased 444, 65, and 288 per cent, respectively, giving Brazil a 30 to 40 per cent share of world trade in these commodities.<sup>4</sup> Over the same period, Brazil switched from being a net importer of maize to being a net exporter, providing 7.7 million tonnes of global maize traded in 2003. Similarly, Brazil is currently the second largest net exporter of beef and broiler meat and the third largest exporter of pork. Strong performance has continued through the 2000s, with major gains in efficiency as well as land expansion of five million hectares.

Brazil's success shows what can be achieved in a relatively short period of time if there is properly coordinated public and private investment in commercial agriculture. But it also poses a challenge for

Tanzania and other countries yet to realise the potential of their agriculture sectors: competition in international markets is intense. To compete successfully in those markets Tanzania will have to catch up with the likes of Brazil and match their levels of efficiency and scale.

**Figure 3.3 Brazil efficiency improvements**



Source: Conab

<sup>4</sup> Matthey, Fabiosa and Fuller, 2004, "Brazil: The Future of Modern Agriculture?", MATRIC Briefing Paper 04-MBP 6

Figure 3.4 Anchor investment map

## Infrastructure

### Railway:

The Peoples Republic of China, the original sponsors of the railway construction, has provided a USD\$39m interest free loan for the rehabilitation of the Tanzania-Zambia Railway Authority (Tazara) Railway. The Chinese Civil Engineering and Construction Company (CCECC) has secured a US\$5m contract to build 90 wagons for Tazara.

### Roads:

AfDB has committed US\$230m and JICA has committed US\$87.7m for the upgrade of 450km of trunk roads including the Dodoma–Iringa road. The Millennium Challenge Corporation (MCC) has committed US\$373m to transport, including the upgrade of the Tunduma–Sumbawanga road and DANIDA has committed US\$84.8m for the repair and upgrading of the Tanzam highway for 149km between Iyovi–Iringa.

### Power:

The EU is investing US\$4.7m on the construction of the Mwenga 3 MW hydro power project, in Mufindi district of Iringa, and the AfDB is currently constructing a 667km 400kV full AC transmission line split into three individual construction lots, including an Iringa–Dodoma 225km 400 kV AC line. The MCC has committed US\$206m to the energy sector in Tanzania, including the Distribution Systems Rehabilitation and Extension Projects in Morogoro, Iringa, Dodoma and Mbeya regions. Sida is investing US\$70m to install a Makambako–Songea 132 kV transmission line and the electrification of Songea district in Ruvuma and Iringa. Under the Kilimo Kwanza initiative, the Rural Energy Fund plans the electrification of irrigation schemes in the Southern Highlands and Eastern Zones, with a budget of US\$6.8m.

### Ports:

#### Port of Dar es Salaam:

The Tanzania Ports Authority has invested US\$18m in modern handling equipment, the construction of additional paved storage yards, and the relocation of container scanning facilities, all of which hope to rationalise traffic flow, assist the port to handle greater throughput volumes and reduce container import dwell time. They are also building a new liquid bulk terminal for an estimated US\$80m and are at the feasibility stage for another five major expansion projects.

#### Fertiliser terminal:

Yara intends to invest US\$20m to build a dedicated fertiliser terminal at the Dar es Salaam Port, increasing handling rates at the ship to shore interface, allowing greater throughput. DSM Corridor Group has begun the US\$4m construction of a bulk/ fertiliser terminal that will be linked to the port by a bulk conveyor system, increasing ship handling rates, reducing berth occupancy, and cutting port costs.

#### Dry port Mbeya:

DSM Corridor Group and East Africa Trade House Company are planning a dry dock in 2013 with a proposed budget of US\$10m.



### Agriculture:

The World Bank (\$155m), AfDB (\$56m), IFAD (\$92m), JICA (\$6.86m) and Irish Aid (\$5.75) are supporting the Agriculture Sector Development Programme (ASDP) to assist farmers' access to agricultural knowledge, technologies, marketing and infrastructure. The World Bank is providing US\$45m on export development and competitiveness, and US\$170m on the Seventh Poverty Reduction Support Credit Programme that includes agriculture. The AfDB, IFAD and AGRA will provide approximately US\$155m for the development of a Marketing Infrastructure, Value Addition and Rural Finance Support Programme. The EU is providing US\$26m budget support and US\$15m to non-state actors as Food Facility Grants for the provision of agricultural inputs, rehabilitation of seeds farms, and promotion of agricultural mechanisation, rural based agro-processing, agricultural marketing and household food storage.

National Microfinance Bank (NMB), FSDT and AGRA are providing US\$6.3m for an agricultural loan programme for outgrower input finance. NMB, in partnership with Tanzania Breweries Limited is also supporting a Barley Input Purchase Loans scheme. Yara and Syngenta are currently developing three Climate Change Mitigation projects with a focus on increased farm productivity driven by improved land use and optimal use of proper agricultural inputs. Additional projects include the 470 hectare irrigated Mkula rice cooperative and mill and the 1,600 hectare Mtanga commercial farm for wheat, barley and maize. The Tanzania Agricultural Partnership (TAP) is working with private sector partners on the development of two grain partnership projects (rice and maize) and is also rolling out a Commodity Investment Programme that links ASDP funding to agribusiness development in the districts.

### Airports:

#### Julius Nyerere International Airport (JNIA):

JNIA, also known as Dar es Salaam International Airport, is the main gateway to Tanzania, and a link to countries inside and outside the region. The Government is planning the rehabilitation and expansion of JNIA in order to improve airport security and to handle a greater volume of traffic. This five-year project is expected to commence in 2011 and is estimated to cost US\$300 million. Funds have not yet been secured but would potentially be obtained through multilateral financing, bi-lateral financing and/or a PPP.

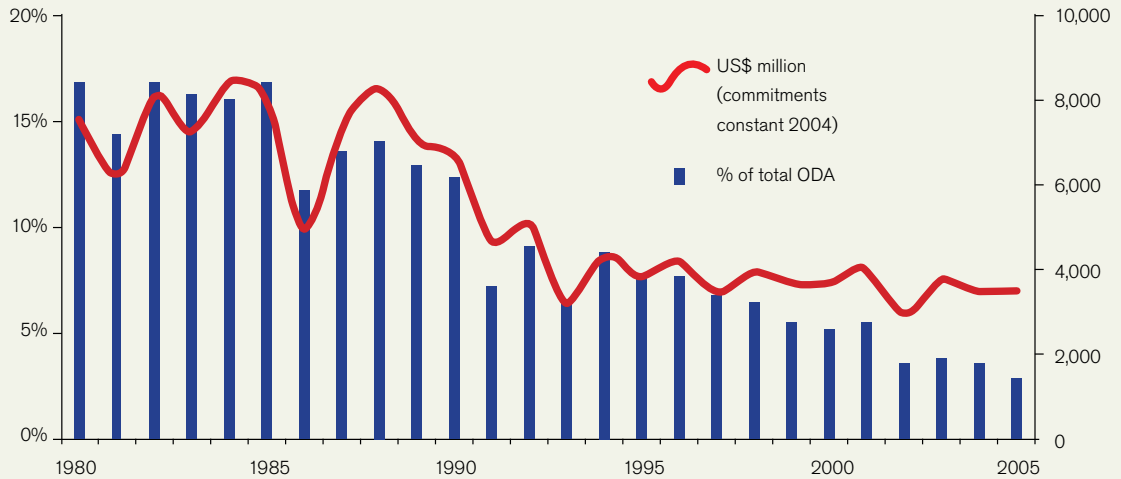
#### Songwe International Airport:

Construction is currently underway at Songwe (Mbeya Region) for a new international airport that will enable capacity for Boeing 737 aircraft. In addition to providing convenient links with regions in the southern parts of Tanzania, it will also link Tanzania to Malawi, Mozambique and Zambia. The project is expected to be completed by May 2011. BADEA/OFID and the Tanzanian Government are co-financing the project.

The implementing authority for both airports is Tanzania Airports Authority (TAA).

Box 7: Decline in official development assistance (ODA) flows to agriculture

Figure 3.5 Official development assistance (ODA) to agriculture, 1980-2005



Source: OECD International Development Statistics - Creditor Reporting System

Aid to the agriculture sector has been in decline for 30 years. At the Aquila summit in Italy in 2009, global leaders committed to providing an extra US\$20 billion of official development assistance (ODA) to agriculture. This led to the establishment of the Global Agriculture and Food Security Programme (GAFSP), managed by the World Bank. Initial resources are beginning to flow, but so far committed funds are far short of promises made. SAGCOT illustrates the potential development gains that can be achieved from coordinated public and private investment in agriculture. For too long it has been assumed that the private sector can solve the problems facing the agriculture sector on its own. It cannot and will not while major barriers to profitable entry remain, such as poor rural infrastructure, an uncertain policy climate, and the lack of an experienced workforce. Governments and the international community need to find ways of leveraging private finance into agriculture by helping kick-start private investment, in particular by providing 'patient capital' with conditions attached to ensure social and environmental responsibility.



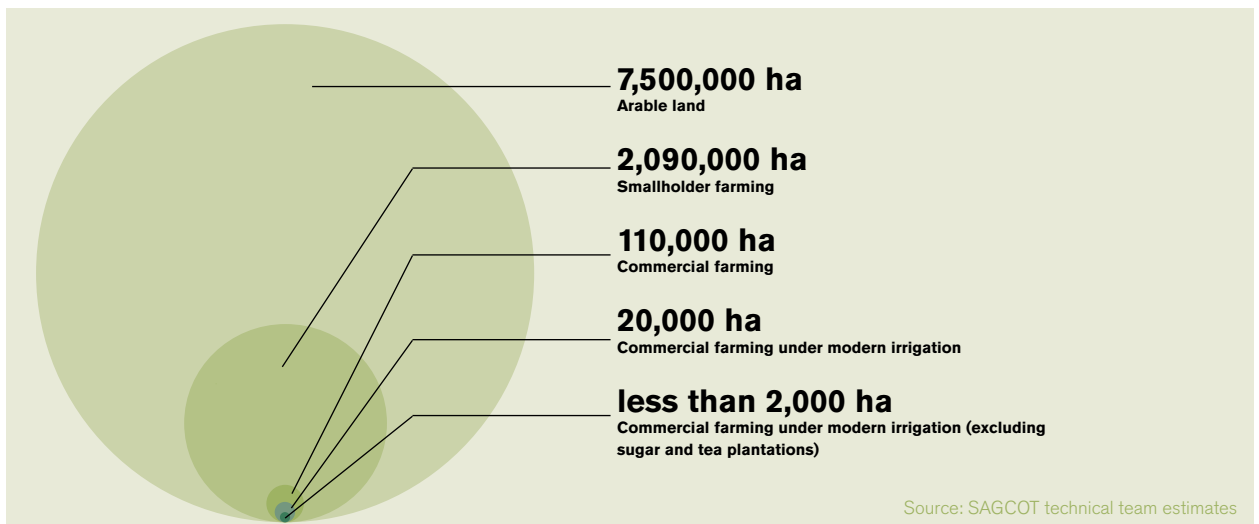
## 4. The Southern Agricultural Growth Corridor: current status of agriculture

Despite its huge potential, there is currently very limited large-scale farming in the southern corridor. Of the 7.5 million hectares of arable land, less than two per cent is farmed under irrigation; mainly public irrigation schemes for smallholder rice production. Excluding two large sugar and tea estates, the total area under year-round irrigation for food and horticulture crops is below 2,000 hectares.

Of the 2.1 million hectares that are under production, 95 per cent are farmed by

smallholders using traditional methods, primarily for subsistence. The principal smallholder crops, apart from rice, are maize, cassava and pulses. In addition to field crops, farmers keep large numbers of livestock, including cattle (2.5 million head), goats (0.8 million), and poultry (3.4 million). Yields are low, with grain and pulse crops averaging less than one and a half tonnes per hectare. In the rice sector, where reliable irrigation is still available, yields are higher but still well below potential because of a lack of suitable varieties and water storage.

Figure 4.1 Current use of land



### Box 8: The impact of irrigation investment in Vietnam

In many places of the Mekong Delta, paddy yield increased from 4.5 tonnes per hectare in 1975 to 9.5 tonnes per hectare in 1990 and 10 to 12 tonnes per hectare in 1999 thanks to stable irrigation and drainage. Because of the increase in yields, production and crops, average per capita food consumption increased from 328kg per year (in 1980) to 400 to 500kg in 2000 despite a fast growing population. Agriculture has become an export sector. Agricultural GDP in 2000 increased 5.3 times compared with that of 1990.

Source: Nguyen Xuan Tiep, Water Resources with Food Security in Vietnam, 2002.

There is currently limited use of specialist knowledge and modern farming methods in the corridor. Chemical and mineral fertiliser applications are some of the lowest in the world. The hoe remains the main tool of production and very little improved seed is used. Due to low yields and uncompetitive markets, a high proportion of food crop production is consumed on-farm and almost the entire rural population remains poor.

Large-scale commercial farming in the corridor is restricted to sugar and tea, except for a few medium-sized farms that produce a mix of dairy, red meat, sisal cereals, flowers and high-value horticulture crops. New private sector investments are underway in irrigated rice and sugar (e.g. in the Kilombero Valley) and teak, but these are currently in the early stages of development. Others are planned but as yet not operational, for example the South Korea Rural Community Corp (KRC) has signed a memorandum of understanding with the

Rufiji Basin Development Authority (RUBADA) to develop 15,000 hectares of irrigated food crops in the lower Rufiji Valley. The environmental impact of some of these investments will need to be carefully assessed.

The tea and sugar estates have outgrower arrangements with about 10,000 smallholder farmers, providing modern inputs and access to markets. By introducing opportunities to earn reliable cash incomes, these schemes have delivered important development benefits to the surrounding areas, and yet smallholder farmers receive low incomes (e.g. an average of less than US\$250 annual income per farmer for tea). The benefits could be larger if smallholder farmers were able to have a greater share in the value addition that comes from processing, as they do in Kenya for example, rather than simply providing the raw product, usually immediately after harvest for a low price, to contract buyers.

Annual smallholder production (2009)	Hectares (ha)	Volumes (mt)	Value (US\$'000)
Maize	1,000,000	1,835,000	195,000
Cassava	200,000	385,000	12,000
Paddy rice	100,000	280,000	84,000
Pulses	300,000	260,000	27,000
Beef	n.a.	5,000	25,000
Tea	8,000	8,000	10,000

Sources: Regional DADPs, Ministry of Agriculture Food Security and Cooperatives, and SAGCOT technical team estimates

Annual commercial production (2009)	Hectares (ha)	Volumes (mt)	Value (US\$'000)
Sugar	10,000	300,000	6,000
Tea	8,000	18,000	22,500
Rice	12,500	45,000	15,000

Sources: Regional DADPs, Ministry of Agriculture Food Security and Cooperatives, and SAGCOT technical team estimates

For other crops, smallholder and large-scale farmers tend to operate independently. Existing large-scale farmers who are willing to work with smallholder farmers are sometimes deterred from doing so because of the high costs of setting up and managing outgrower schemes.

All farmers in the southern corridor face enormous challenges in realising a profit from their investment. Because the practice of modern farming remains an ‘infant industry’ there are high barriers to entry<sup>5</sup>, inadequate supporting infrastructure, few economies of scale, and low levels of clustering. Furthermore, areas of uncertainty in the policy environment, such as periodic export bans, mean that farmers are reluctant to make long-term investments, for example in improving land fertility through proper application of lime or investing in improved breeds of livestock. Those farmers who are prepared to take a longer-term perspective are generally unable to access long-term finance on affordable terms.

The combination of these factors pushes up production costs, making the agriculture sector uncompetitive with international rivals. International and domestic investors tend to favour other sectors in Tanzania such as the property, entertainment and leisure, tourism and mining sectors where financial returns are easier to obtain. The fundamental issue for SAGCOT is therefore reducing costs and risks in the early stages to stimulate growth of production, resulting in lower unit costs and improving competitiveness in the medium term.

Despite its enormous natural promise, the agricultural potential of the southern corridor remains unrealised – one of Africa’s Sleeping Giants.

5 For example, working with local authorities to identify suitable land and acquiring leasehold rights can take a long time, even for investors who are willing to share the benefits with local smallholder farmers.

Figure 4.2 Transport costs

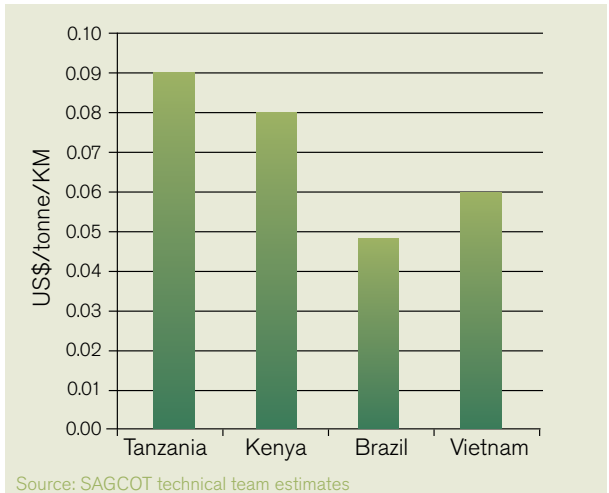


Figure 4.3 Fertiliser costs at farm gate

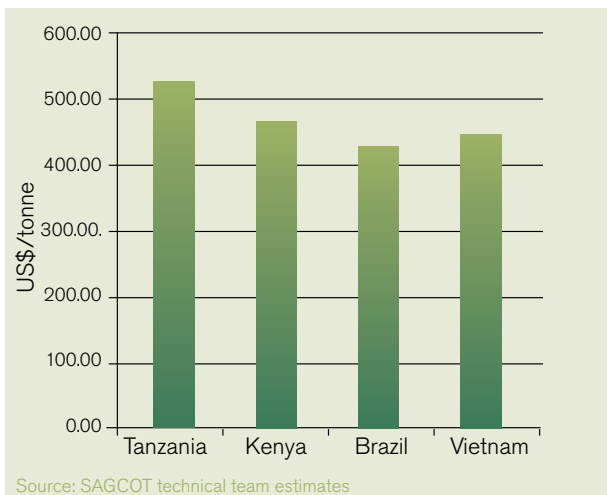
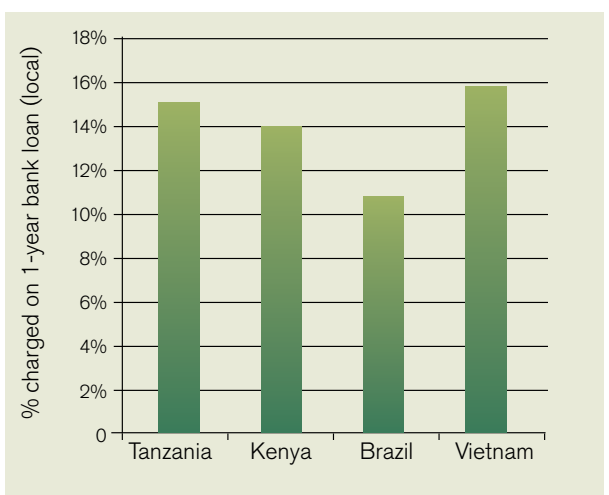


Figure 4.4 Finance costs



### Box 9: Constraints on productive agriculture

#### Poor infrastructure

- The port, local roads and the lack of use of the railroad all lead to transport obstacles that significantly increase the cost of bringing local production to market.
- Large-scale dams, irrigation and electrification systems are generally not available and are beyond the capability of individual farmers to finance and install. Farmers have to use expensive diesel-powered electricity.
- The rural feeder road network away from the main Dar es Salaam to Mbeya road is poor. There are no temperate or cold storage facilities or reefer/container facilities readily available to agriculture along the corridor.
- The majority of farmers lack processing services in their area. Without the stimulation of concentrated production areas, installation of efficient processing services will be hard to justify economically.

#### Inadequate access to affordable long-term finance

- Only a few banks are lending to agriculture in any significant way. According to the Tanzania National Business Council, in 2008 the total domestic lending to agriculture was TZS540 billion (approximately US\$360 million), of which 92 per cent went to agricultural trading.
- When banks do lend, it is usually on a short-term basis to fund working capital and at rates of interest that are often too high to be commercially affordable.

#### Difficulties securing land

- No comprehensive land survey of the area is available. Consequently, investors have difficulty accessing information on land availability and quality. This discourages new investment in agriculture because locating suitable land is expensive and time consuming.
- Only limited land in Tanzania is currently secured under 'Right of Occupancy' title and available for purchase or long-term lease. Lack of security over land deters long-term investments in land clearing, soil upgrades, irrigation and fixed assets such as pack houses and storage facilities.
- Soils are generally deficient in nutrients, likely to be the result of years of poor husbandry without proper replenishment. However, soil structure is very good and conducive to intensive farming.

#### Limited market access and economies of scale

- Low production volumes and poor information flows prohibit direct access to markets, resulting in reliance by the majority of smallholders on local traders (sometimes as many as seven intermediaries) and inefficient processors prior to product reaching final markets.
- The dispersion of smallholder farmers, their significant distance to markets, and the low volumes they are producing make it difficult to install infrastructure (roads and electricity) that would improve their access to markets.

#### Taxes and export barriers

- In addition to the high cost of transport, periodic export bans prohibit access to larger and often closer regional markets. Such bans reduce incentives for farmers to invest in increasing production volumes, potentially exacerbating crop shortages in future seasons. As a result of these ad hoc bans, local financial organisations such as PASS have stopped lending to some maize producers, citing the lack of a reliable market as its primary concern.

#### Poor perception of agriculture

- Agriculture has a poor image amongst Tanzanians, particularly the younger generation. They have been discouraged from entering in to commercial agriculture because of its poor performance, limited profitability and long hours. As a result, agriculture fails to attract bright, creative entrepreneurs, who prefer to seek their future in other sectors. It is estimated that only 30 per cent of Sokoine University of Agriculture graduates take up careers related to agriculture.



**Box 10: Trade facilitation**

The East African Community (EAC) Custom's Union Protocol commits partner states to the immediate elimination of all existing Non-Tariff Barriers to trade (NTBs) on intra-EAC trade, and to refrain from introducing new ones. However, trade between EAC countries remains greatly hampered by NTBs. A recent study on the impact of NTBs on formal maize and beef trade in the EAC found that both commodities face similar barriers in the form of local taxation, licensing, road blocks, customs barriers and corruption, and all countries would benefit from eliminating the NTBs.

The Investment Climate Facility (ICF) aims to help African governments identify and remove constraints to trade across Africa. Similarly, the Trade Mark East Africa (TMEA) Tanzania programme will support a range of interventions to reduce cross-border transport costs. This includes work with the Tanzanian Port Authority to improve the operational efficiency of the Port of Dar es Salaam and funding for new One Stop Border Posts at Tunduma and Kabanga.



## 5. Cluster identification and development path

Over the next 20 years, SAGCOT will facilitate the development of agriculture clusters in the southern corridor. They will be centred on areas of high agricultural potential with shared infrastructure where economies of scale can rapidly develop. Cluster development will be driven by the private sector based on the needs and opportunity of each area.

The clusters identified in this report have been selected because they are representative of the different opportunities and constraints facing smallholder and large-scale farmers throughout the corridor. It is important to note, however, that the six clusters in the report are not the exclusive focus of SAGCOT. Investment in productive and socially responsible agriculture will be encouraged throughout the corridor, as Section 12 on the ‘early win’ opportunities shows. Additional clusters will be added as SAGCOT moves forward.

There are three types of cluster. The ‘Type 1’ cluster areas are those where some modern farming that is already developing scale, public irrigation schemes are operational and there is relatively good backbone infrastructure. With the right type of financial support it should be possible to make rapid progress. ‘Type 2’ and ‘Type 3’ require further investment in backbone infrastructure and careful assessment of social and environmental impacts.

To provide a rapid start to SAGCOT implementation, a series of individual ‘early win’ opportunities with immediate development potential has been identified. These offer a chance to test and develop SAGCOT investments as soon as appropriate funding is available. Section 12 lists the ‘early win’ opportunities and further detail is provided in Appendix X.

Figure 5.1 SAGCOT cluster areas

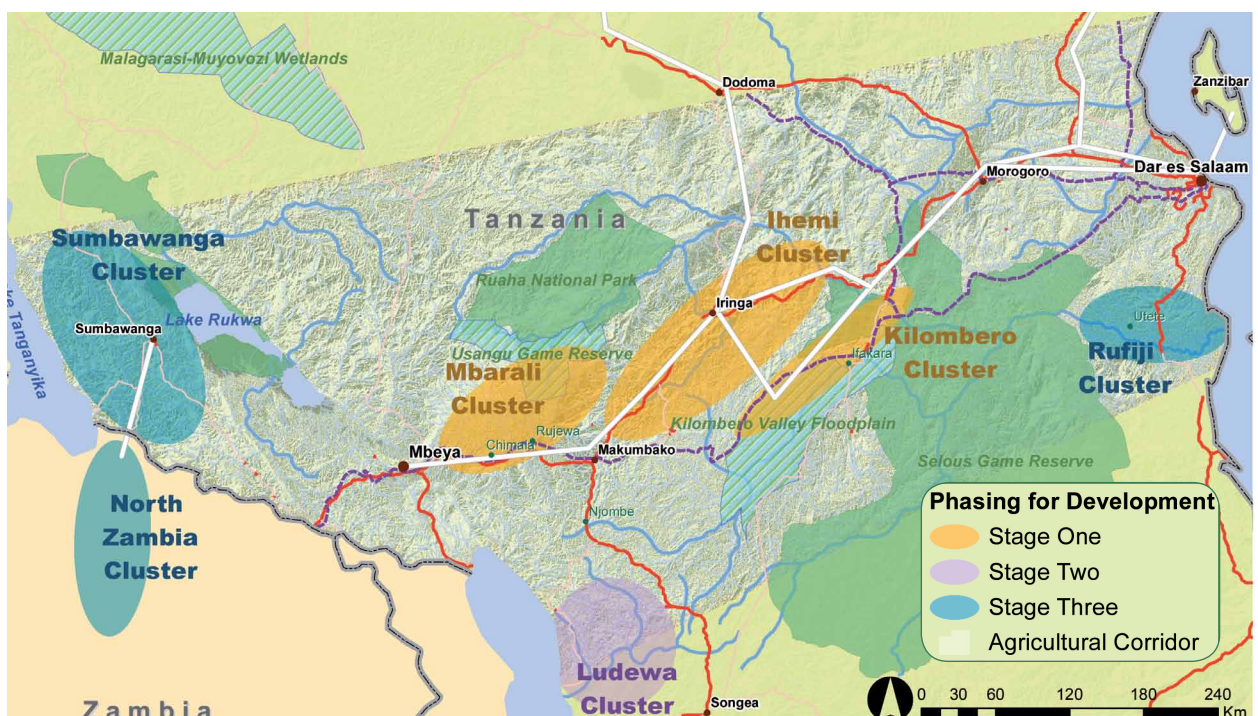
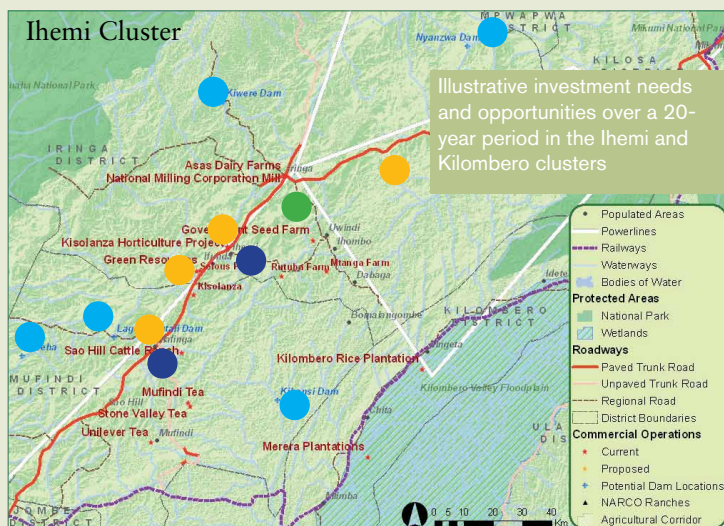
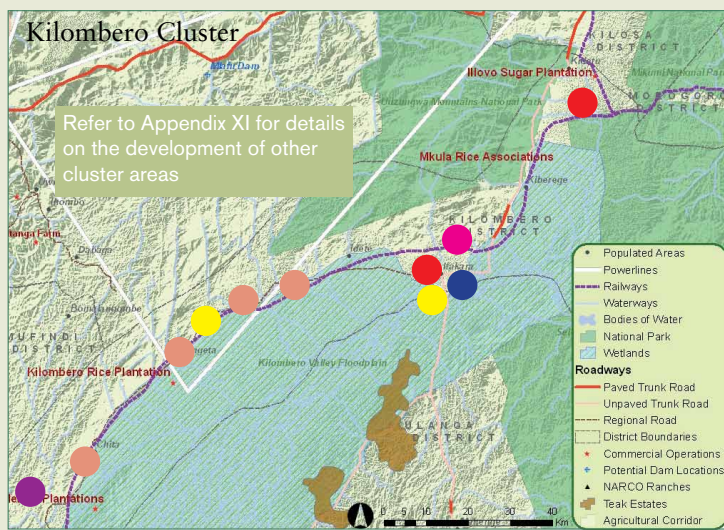


Figure 5.2 Indicative cluster development



Illustrative investment needs and opportunities over a 20-year period in the Ithemi and Kilombero clusters

16 mixed farms (42,400 ha commercial + smallholder)	2 cold storage units	6 substations
4 banana plantations (600 ha commercial + smallholder)	3 warehouses	\$14 m bulk
2 regional markets (4,000 m <sup>2</sup> )	4 mills/processing facilities	\$4 m bulk water (outgrower)
2 research stations	400+ km upgrade main roads	\$0.4 m bulk water (local community)
	90+ km power transmission	



Refer to Appendix XI for details on the development of other cluster areas

5 mixed farms (13,250 ha commercial + smallholder)	2 regional markets (4,000m <sup>2</sup> )	5 km rail spur
7 rice schemes (14,000 ha upgrading of current schemes)	4 cold storage units	60+ km power-transmission
2 sugar estates (20,500 ha - expansion and new)	6 large warehouses	4 substations
5 citrus farms (3,000 ha)	3 mills/processing-Facilities	\$90 m bulk water (commercial)
7 banana plantations (1,050 ha)	1 sugar mill	\$8.5 m bulk water (outgrower)
	320 km upgrade - main roads	\$1 m bulk water (local community)

**Key**

● Mixed farms	● Markets
● Rice schemes	● Research stations
● Sugar estates	● Cold storage/warehouses
● Citrus/banana farms	● Mills/processing facilities
● Dams	

Source: SAGCOT technical team projections

Development of each cluster will depend on coordinated action by a range of public and private sector organisations, drawing on various forms of public and commercial funding. Figure 5.2 illustrates the type of investments and programmes required in the Ithemi and Kilombero clusters, with examples of the roles of different actors (note that the location of specific investments on the maps are illustrative). There is a need for proper coordination and focus of all of these activities in order to attract private investment into the sector and to ensure that it is done in a socially acceptable and environmentally sensitive way.

*Development of each cluster will depend on coordinated action by a range of public and private sector organisations.*

Establishing momentum will be critical to SAGCOT's long-term success. For example, in the Ithemi and Kilombero clusters there is potential to establish more than a dozen new or expanded nucleus farms in the first five years – in livestock (especially beef and dairy), rice, sugar, cereals, and high-value horticulture – all with associated outgrower/serviced block schemes to extend the benefits to smallholder farmers in the vicinity. Both dry-land and irrigated farming will be developed, as well as livestock operations.

The total additional area irrigated in this five-year period could reach 12,550 hectares, of which 5,550 hectares is provided to emergent farmers, with a further 7,000 hectares of rain-fed land being used by smallholder farmers. Much of the irrigated area in the first five years is assumed to come from existing (brownfield) schemes where SAGCOT will work with partners to upgrade infrastructure, improve technology and increase production and marketing. The table on the following page provides an indicative sequencing of events, coordinated and monitored by the SAGCOT secretariat, to make this happen.

Appendix V provides full details of the indicative investment plans for the Type 1 clusters, including the sequencing of actions and investments required in the first five years.

### Kilombero and Ihemi investments in first five years

Partner	Year 1-2	Year 3-5
Central Government	Road/rail rehabilitation and upgrades New procedures to accelerate seed and planting material import and commercial release Establish Commodity Investment Plans as part of ASDP implementation at district level to bring in private sector Clarification of available and accessible agricultural land within Kilombero, Ihemi (and Mbarali Clusters) Carry out business environment assessment within clusters (with TNBC)	Reduce number of police road blocks on road hampering movement of agricultural inputs and produce Improve national land use planning to link with district- and village-level land use planning
Local government	Update regional land banks Integrate TAP and Commodity Investment Planning into DADP process Leverage ASDP funds to complement specific <i>Kilimo Kwanza</i> Catalytic Fund and private investment	Pilot district land use planning within clusters
SAGCOT financing facilities	Provide start-up and expansion funding to at least 3 agribusinesses in Ihemi and Kilombero	Provide further finance to another five agribusiness
Private investors	Pilot rice and grain partnerships (building on ongoing TAP activities) Provide matching funding for investments promoted by the catalytic fund, and expansion finance for existing commercial businesses in the clusters	Roll out grains partnership to include outgrower/contract farming model with local/international grain trader(s)
Development partners	Engage development partners involved in rice development schemes to develop rice PPPs with private sector SAGCOT partners SAGCOT to engage with district plans on specific opportunities to align activities towards cluster and farm development, e.g. in areas of research and development, extension service, farmer association capacity building, agro-dealer support, etc.	Roll out specific joint funding plans and activities to support smallholder linkages with large-scale farming (small-scale infrastructure, association strengthening, information systems, etc.)
Service providers	Pilot microinsurance and information services programmes (corridor-wide)	Engage banks to develop short- and medium-term warehouse receipts development plan

Kilombero and Ihemi outcomes after five years	Kilombero	Ihemi
Annual gross revenue	US\$34,822,250	US\$21,395,250
Smallholder outgrowers (irrigated)	630	910
Smallholder outgrowers (rain-fed)	1,000	6,000
Direct farm production employment	620	740
Processing employment	2,070	3,590
Wider agricultural value chain employment	2,690	4,330
Indirect beneficiaries	31,545	70,065
<b>Total beneficiaries</b>	<b>38,555</b>	<b>85,635</b>

Source: SAGCOT technical team projections

### Kilombero

Districts covered: Kilombero and part of Kilosa  
 Total area (ha): 1,044,260  
 Total arable land (ha): 312,127  
 Total cultivated area (ha): 80,272  
 Population: 286,193  
 Population density (per km<sup>2</sup>): 30  
 Population growth rate: 2.6%  
 Land under existing or planned irrigation schemes (ha): 76,230  
 Major commodities: paddy, sugarcane, maize, banana, poultry, citrus  
 Annual rainfall: bimodal, 1,200-1,600mm, seasonal flooding  
 Temperature range: 26-32°C  
 Altitude: 200-1,200m  
 Environmental issues: Selous Game Reserve, wetlands

### Mbarali

Districts covered: Mbarali  
 Total area (ha): 1,164,240  
 Total arable land (ha): 137,200  
 Total cultivated area (ha): 96,320  
 Population: 192,230  
 Population density (per km<sup>2</sup>): 17  
 Population growth rate: 2.4%  
 Land under existing or planned irrigation schemes (ha): 54,422  
 Major commodities: paddy, maize, beans, sorghum, poultry, cattle  
 Annual rainfall: monomodal, 500-800mm  
 Temperature range: 9-30°C  
 Altitude: 750-1,400m  
 Environmental issues: Ruaha National Park, wetlands

### Ihemi

Districts covered: Iringa Rural, Kilolo and Mufindi  
 Total area (ha): 1,321,390  
 Total arable land (ha): 617,730  
 Total cultivated area (ha): 279,200  
 Population: 501,204  
 Population density (per km<sup>2</sup>): 38  
 Population growth rate: 1.5%  
 Land under existing or planned irrigation schemes (ha): 17,932  
 Major commodities: maize, paddy, pulses, sunflower, banana, potato, wheat, cattle, pigs, poultry  
 Annual rainfall: monomodal, 600-1,200mm  
 Temperature range: 13-22°C  
 Altitude: 1,300-2,200m  
 Environmental issues: deforestation, illegal river water extraction, soil erosion

### Ludewa

Districts covered: Ludewa, and Mbinga  
 Total area (ha): 1,439,700  
 Total arable land (ha): 715,000  
 Total cultivated area (ha): 401,444  
 Population: 145,507  
 Population density (per km<sup>2</sup>): 16  
 Population growth rate: 1.6%  
 Land under existing or planned irrigation schemes (ha): 17,600  
 Major commodities: maize, paddy, pulses, banana, cattle, horticulture, citrus, poultry  
 Annual rainfall: monomodal, 1,000-1,500mm  
 Temperature range: 10-30°C  
 Altitude: 500-2,300m  
 Environmental issues: Mount Livingstone Forests

### Sumbawanga

Districts covered: Sumbawanga and Nkasi Districts  
 Total area (ha): 1,738,460  
 Total arable land (ha): 972,020  
 Total cultivated area (ha): 460,046  
 Population: 536,528  
 Population density (per km<sup>2</sup>): 31  
 Population growth rate: 4.0%  
 Land under existing or planned irrigation schemes (ha): 56,300  
 Major commodities: maize, sunflower, pulses, horticulture, paddy, citrus, banana, cattle, goats, pigs, poultry  
 Annual rainfall: monomodal, 600-1,200mm  
 Temperature range: 10-29°C  
 Altitude: 800-2,300m  
 Environmental issues: Uwanda Game Reserve, deforestation, soil erosion

### Rufiji

Districts covered: Rufiji District  
 Total area (ha): 666,950  
 Total arable land (ha): 241,215  
 Total cultivated area (ha): n.a.  
 Population: 117,853  
 Population density (per km<sup>2</sup>): 18  
 Population growth rate: 1.9%  
 Land under existing or planned irrigation schemes (ha): 41,350  
 Major commodities: maize, paddy, sugar, citrus, cashew, legumes  
 Annual rainfall: bimodal 800-1,200mm, seasonal flooding  
 Temperature range: 18-35°C  
 Altitude: <500m  
 Environmental issues: Selous Game Reserve, wetlands, seasonal flooding, deforestation



## 6. Linking smallholders

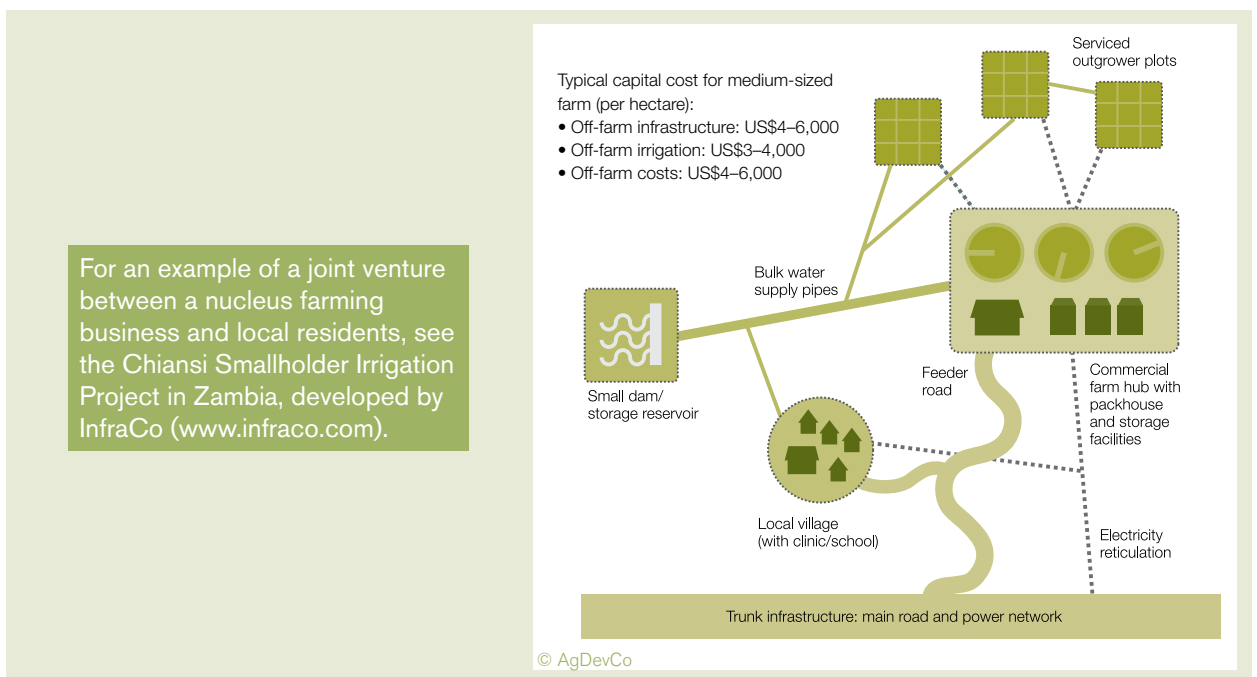
Smallholder support programmes in Tanzania have had limited sustainable impact. While there are examples of successful crop-specific projects, they are usually limited in scope and often prove to be unsustainable when initial funding runs out. As recognised in *Kilimo Kwanza*, new models for agricultural growth are required, where farming is seen as a business and smallholders are provided with opportunities to sell profitably into regional and international markets. One of the best ways of achieving this transformation – an essential part of Tanzania’s Green Revolution – is to forge greater linkages between modern agribusinesses and smallholder farmers and their communities. Too often in the past the ‘large-scale’ and ‘smallholder’ farming sectors have been viewed independently of each other – this must change.

There are proven models for integrating large-scale and smallholder farmers with mutual benefits.

*There are proven models for integrating large-scale and smallholder farmers with mutual benefits.*

These models could be promoted within agricultural growth clusters along the southern corridor. For example, the nucleus farm hub and outgrower model allows smallholder and emergent farmers (including through farmer associations) to benefit from access to infrastructure, including irrigation, lower cost inputs, processing and storage facilities, finance and markets. Adjacent villages can be linked to water and power supply at low marginal cost. In cases where nucleus farm and outgrower schemes incorporate community-owned land on a leasehold basis, local residents can be given an equity share in the farming business as well as access to low-cost irrigation. Likewise, farmer producer associations could be integrated into commercial value chains through outgrower or contract farming models.

Figure 6.1 Outgrower irrigated farm blocks connected to water and power supply



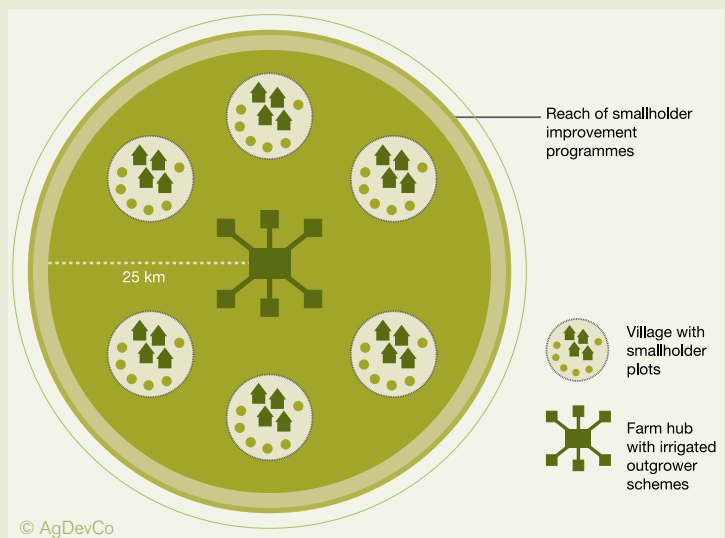
SAGCOT will create opportunities for emergent and smallholder farmers in multiple ways, with major social and economic benefits:

- Firstly, by catalysing private investment for nucleus farms with irrigated outgrower schemes, over 22,000 emergent farmers on plots of five hectares or more will be able to achieve full commercial yields. They will also have access through the nucleus farm to modern farming inputs on credit, low-cost irrigation, value-adding services and a reliable market.
- Secondly, 75,000 smallholder farmers operating under rain-fed conditions in a wide area around the nucleus farms as independent farmers, or through aggregated producer association models, will gain improved access to finance, insurance, inputs and markets. Yields will not be as high as emergent farmers with access to irrigation which makes double cropping possible, but improvements from better seeds and fertiliser will nonetheless be significant.
- Thirdly, investment in agriculture-supporting infrastructure such as storage and processing facilities, agri-services centres and logistics hubs will allow those emergent and smallholder farmers who are not linked to a nucleus farm to add value to their crops and reduce the costs of reaching end-markets.
- Fourthly, by providing focal points for improved livestock production through better access to improved breeds through artificial insemination and stud services, better feed and feeding systems, improved range management techniques, professional veterinary services and markets.
- Finally, by stimulating national commercial agricultural growth, SAGCOT will contribute to the overall economy. This will feed into economic benefits for the whole population, and to some extent to poverty reduction.

**Box 11: Wider benefits for surrounding farmers**

As well as offering irrigation to adjacent farmers, the nucleus farm can act as a hub for providing services and market access for smallholder farmers in a wide radius, typically 25 kilometres. This may be a classic outgrower contract where the hub provides inputs on credit and acts as a guaranteed buyer of smallholder production for an agreed price. More innovative services include micro credit and weather insurance (or together – ‘microinsurance’). Microinsurance is a service that incorporates a range of insurance products to mitigate the risk exposure of smallholder farmers. It is designed specifically for smallholder farmers in its pricing, contracting, distribution and benchmarking. By reducing their exposure to these risks, smallholder farmers increase the security of their own livelihoods, but also decrease their risk profile to providers of finance, therefore increasing their ability to finance profitable investment opportunities. Access to affordable finance has enabled smallholders to purchase drought-resistant seed and fertilisers. In pilots in India and Malawi, this has produced dramatic increases in yield, often well over 300 per cent, and enabled farmers to bring additional land under cultivation, invest in irrigation schemes and diversify away from food staples into cash crops.

**Figure 6.2 Nucleus farm hub and benefits for surrounding community**





## 7. Making it happen

Realising the vision of a profitable, socially-responsible and environmentally-sensitive agriculture sector in the southern corridor will require bold new approaches and sustained commitment from all involved. The government and its development partners will need to invest heavily in rural infrastructure and improve the policy environment. The private sector will need to engage more effectively with public authorities and farmers' associations if it wants to access new sources of finance. On both sides there must be improved trust and a more positive approach in working together towards a shared goal. Words will need to be backed up by concrete actions and substantial resource commitments.

This section describes what SAGCOT will do differently to achieve that vision. Firstly, it will seek a **tripartite agreement** between the government, the private sector and development partners on a coordinated programme of investment and policy reform to accelerate development of commercial agriculture (small-, medium- and large-scale) in SAGCOT. Secondly it will establish a non-aligned and private sector led organisation – the **SAGCOT Partnership** – to represent farmers, improve coordination, monitor progress and report on successes and problems implementing the agreement. Thirdly, it will establish new government and donor-funded **innovative financing** mechanisms aimed at catalysing additional private investment in SAGCOT in ways that ensure that major benefits accrue to smallholder farmers and are consistent with the agreement referred to above.

### Tripartite agreement

A tripartite agreement would involve a written declaration by all public and private sector partners, including local authorities and state-owned enterprises, to the following principles<sup>6</sup>:

*Words will need to be backed up by concrete actions and substantial resource commitments.*

- i) Agreement to work together to promote commercial (small-, medium- and large-scale) agriculture in the southern corridor, with the ambition of establishing Tanzania as an internationally competitive agricultural producer.
- ii) Agreement to address key policy and infrastructure constraints which hinder commercial agriculture development, including improved land use and tenure arrangements, and wider consultation with the private sector on policies which restrict trade (e.g. export bans).
- iii) Agreement to mobilise financial resources, including from within existing budgetary allocations (such as ASDP and existing development partner budgets) and from future sources (e.g. CAADP) to support SAGCOT's implementation.

### SAGCOT Partnership

The SAGCOT Partnership, whose purpose is to promote a successful and vibrant commercial agriculture sector, will monitor progress and publish annual performance reviews. Other activities to be undertaken by the Partnership would include:

- *Facilitating improved communication and trust between the private sector, the government and other stakeholders.* For example, expansion of the Commodity Investment Planning system to access ASDP funds through the DADPs, and improving collaboration between the public and private sectors in the implementation of irrigation improvement plans under ASDP.
- *Encouraging improved coordination of government and donor programmes in the agriculture sector.* The Partnership will focus on priority areas and needs, for example the

<sup>6</sup> The wording of the tripartite agreement to be agreed by SAGCOT partners.

provision of finance to high potential agriculture areas. The Partnership will help mobilise a range of funds either specifically targeted at SAGCOT and/ or for broader use across Tanzania. It will also lobby for additional resources for commercial agriculture.

- *Commissioning targeted applied research in priority areas identified by its members* – for example on the impact of export bans, market perceptions of the role of the new crops board, or the need for a detailed land mapping survey or improved land-use planning – and lobbying the government and development partners to make appropriate changes.
- *Making available information on investment opportunities and support programmes, including innovative finance, to potential domestic and international investors.* Providing links for value chain development ‘from field to plate’ by maintaining contacts and networks throughout the agricultural sector, and with public and private sector organisations.
- *Monitoring the business environment in each of the regions where SAGCOT is operating.*
- *Monitoring the social and economic impacts of SAGCOT and sharing findings.*

*Private investment has been low in the past because of the high costs and risks of investing in commercial agriculture at its ‘infant industry’ stage.*

Development partners have indicated a willingness to provide funding to support the establishment of the SAGCOT Secretariat and its operation during the first three years. Beyond that time period the level of donor support is likely to reduce as the Partnership increases collection of membership fees. The Secretariat will provide a professional and institutionally-neutral platform for SAGCOT planning, coordination and facilitation. The SAGCOT Secretariat will become one part of a newly established Tanzania Agricultural Growth Trust (TAGT). The Trust will have legal status in

order for it to conduct its own affairs independently and in particular be able to source and receive funds from the public and private sector to support its work in developing SAGCOT. Appendix I describes the current status of the TAGT and Secretariat and sets out a timeline for their establishment.

### Innovative financing facilities

Achieving SAGCOT’s aims will require heavy investment by the private sector. As described in earlier sections, private investment has been low in the past because of the high costs and risks of investing in commercial agriculture at its ‘infant industry’ stage.

The high costs of connecting agricultural land to the backbone infrastructure cannot in most cases be absorbed by a medium-sized farming business, let alone by smallholder farmers. For example, installing an electricity line in Tanzania can cost over US\$20,000 per kilometre. These ‘last mile’ infrastructure costs put Tanzanian farmers at a disadvantage to international competitors, in countries where there has often been significant public sector investment and subsidy for rural infrastructure. Similarly, the establishment costs of an outgrower programme, especially involving the provision of infrastructure services to smallholder farmer organisations, can be prohibitive without access to concessional funding. The result is that very few of the nucleus farm and outgrower models described in Section 6 get off the ground.

If the early-stage costs and risks of investing in agriculture can be reduced, agriculture in the southern corridor can be internationally competitive and profitable. As the rural infrastructure platform strengthens, farmers and workers gain experience in commercial agriculture, and the benefits of scale economies start to drive down costs. The returns on investment start to become more attractive to private investors. The challenge for the government and the international community is how to get the process started. What is the best way to deploy public and donor resources in ways that will be catalytic and induce much higher levels of private investment from local and international sources, leading to rapid agricultural growth?

### Box 12: Availability of commercial finance

There are multiple market failures, not least poor infrastructure and economies of scale, that prevent early-stage agriculture business from being able to attract finance on affordable terms. Commercial finance for Tanzanian agribusiness is mainly restricted to large operators with established track records who typically already have equity from international sponsors. Apart from exceptional cases, start-ups and early-stage agriculture businesses operating above the microfinance level (i.e. those requiring more than US\$500,000 of finance) can rarely find debt and equity finance in the local capital markets. In all cases working capital and trade finance is only available at high rates of interest (20 to 25 per cent) on short tenors and with onerous collateral requirements, often more than 100 per cent of the local value. Due to high perceived and actual risks, commercial banks in Tanzania require some form of loan guarantee (e.g. through the PASS programme) in almost all situations where they lend to the agriculture sector, regardless of the strength of the project.

There has been a lot of interest in the media about large sums being raised for investment in African agriculture by 'social impact' investors. It is true that the volumes of funding are large – more than US\$2 billion according to a recent study<sup>7</sup>. Some of this funding will undoubtedly find its way into Tanzanian projects. Indeed there are already investments by social impact investors (Capricorn and Norfund) in the southern corridor, e.g. Kilombero Plantations. But in general, it appears unlikely that these investors will be willing to invest in start-up and early-stage businesses involving primary production because of the risks and costs described above. In fact many of the private equity funds targeting African agriculture explicitly rule out investment in primary production of food crops because it is perceived to be low return and high risk.

*“Currently, there is a yawning gap in the financial system in that there does not exist a credit institution lending to farmers who are establishing new ventures or those farmers who require long-term finance in order to expand their acreage or to install machinery or equipment of a permanent or durable nature.” (Tanzania National Business Council)*

There are three types of innovative finance which can help catalyse private investment into socially responsible agriculture projects:

- Firstly, a **catalytic fund** will provide start-up finance for agriculture businesses incorporating smallholder farmers. Finance will be provided as low-cost or interest-free loans, repayable as soon as the business attracts private finance. To ensure the businesses are professionally managed and properly structured, the fund manager will take an active role during the start-up phase, working alongside entrepreneurs on the ground and participating in all decision making. The fund manager will also assist businesses in accessing longer-term finance. Separately, business development grants would be available to smallholder farmers and farmer associations to ensure a level playing field when submitting funding applications to the fund.
- Secondly, **patient capital** is long-term, low-cost, subordinated capital provided by donors and invested in the early stages of private sector agricultural ventures. It is used to finance the cost of 'last mile' infrastructure (e.g. feeder roads and irrigation connections to the farm gate) required by African agricultural businesses and smallholder farmer organisations. By reducing the costs and risks of commercial farming, patient capital has the effect of catalysing additional commercial finance into businesses which otherwise would not have been able to obtain capital. For each US\$10 dollars of patient capital invested in the early stages of an agricultural business, it should be possible to attract US\$100 dollars of commercial finance.
- Thirdly, an increase in the availability of **loan guarantees and currency risk instruments** would help to leverage capital from the domestic banking sector into agriculture businesses.

<sup>7</sup> Informa Agra, in the Wall Street Journal (October 2010)

### Box 13: Innovative financing facilities: governance arrangements

How can patient capital best be deployed? The best approach is to create a public-private equity fund in which donors (and private sector foundations and social impact investors) fund a tranche of patient capital and private investors fund a tranche of private equity expected to generate commercial returns. The low cost of the patient capital would lever up private equity returns and the subordination would reduce the risks. The fund would invest both patient capital and private equity into a portfolio of early-stage agriculture ventures. It will be essential to get the governance arrangements right to ensure that patient capital resources are applied appropriately and professionally in ways that achieve the objectives of funders.

Access by private businesses to innovative finance must come with strong conditions. The most important requirement is that smallholder farmer and local community benefits are built into the project from the outset. For example, in the nucleus farm hub and outgrower model, the charges for access to irrigation services for smallholders should be set at much lower levels than for the nucleus large-scale farm. Local communities should gain access to infrastructure services at low cost (e.g. for water and electricity) or free of charge (e.g. feeder roads). There should also be benefits for smallholder farmers in terms of lower prices for inputs (e.g. seeds and fertiliser) resulting from economies of scale, improved opportunities for value addition (e.g. storage and processing), and reliable access to markets (e.g. off-take agreements).

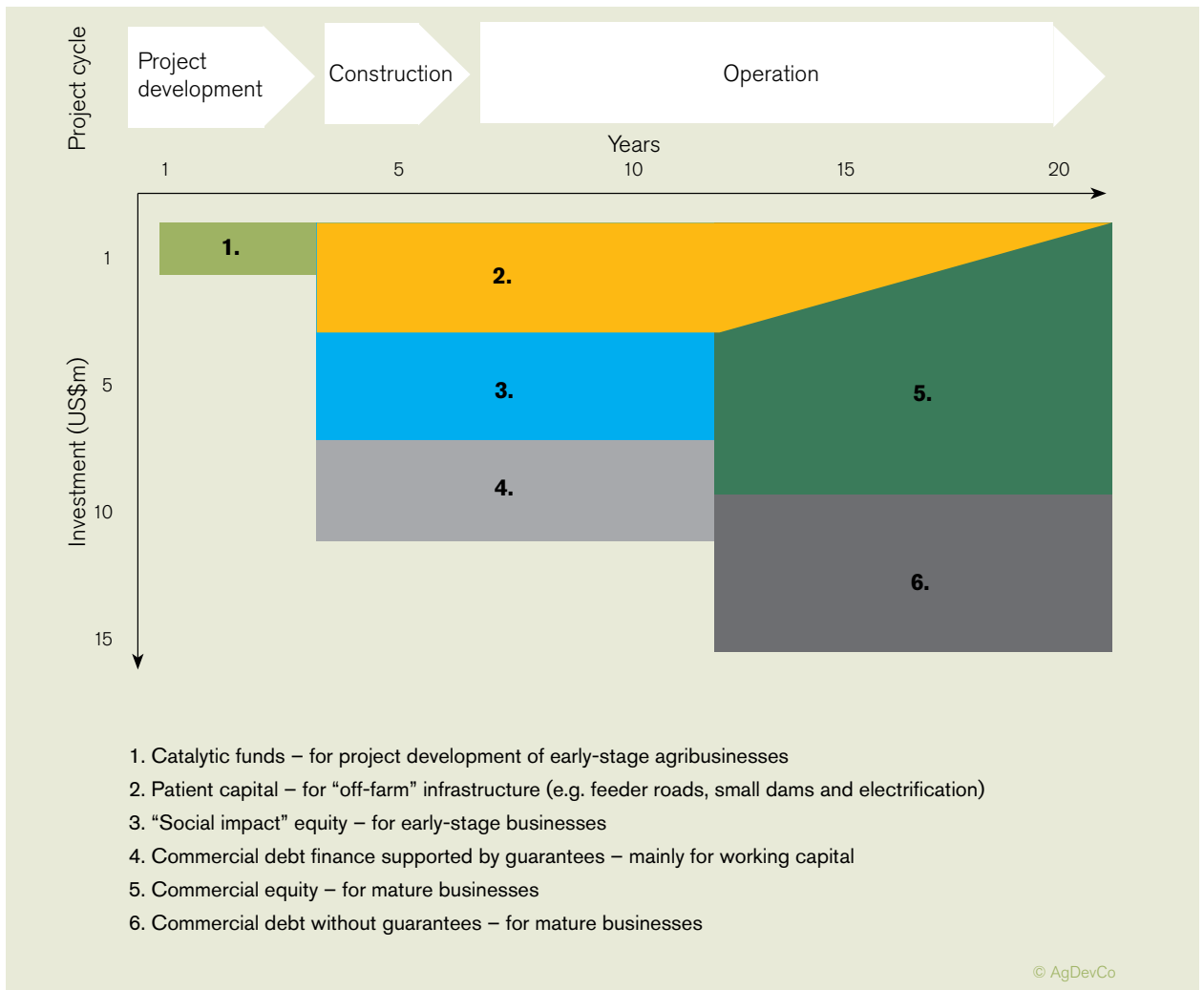
Together the three innovative financing facilities will catalyse large volumes of commercial debt

*Access by private businesses to innovative finance must come with strong conditions. The most important requirement is that smallholder farmer and local community benefits are built into the project.*

and equity into agriculture. As an illustration, Figure 7.1 shows the sequencing of finance for a typical medium-sized farming enterprise of 1,000 hectares including irrigated outgrower schemes and requiring US\$10 million of investment.

- In the project development (or start-up) phase, catalytic funding is required for activities such as developing a full business plan, negotiating agreements with local communities, obtaining appropriate land rights, conducting social and environmental surveys, and soil testing and land preparation.
- At the end of the project development phase, it should be possible to raise commercial debt and equity finance for the construction and operation phase. In many cases it will be necessary to have access to patient capital to fund the 'last mile' infrastructure to the farm gate. Initial equity providers are likely to be development finance institutions and other 'social impact' investors. It is also likely that commercial bank debt will need to be supported by loan guarantees.
- Over time, once the business develops a track record of success, patient capital and local guarantees can be phased out. The business should be able to refinance and obtain capital for expansion through the commercial markets.

Figure 7.1 Innovative finance (example of a medium-sized agribusiness)



*“There is still a big gap in attracting private sector investment in agriculture... The government will commit resources to the [SAGCOT] catalytic fund and we are asking development partners to build it into their plans.”*

*Prime Minister Mizengo Pinda*

#### Box 14: Links with other funding facilities

By helping entrepreneurs design and structure 'bankable' agriculture businesses, the catalytic fund will provide a pipeline of investment opportunities to local and international investors. It will also complement existing government and donor-backed financing initiatives in the agriculture sector.

The ASDP programme is successfully disbursing finance into public irrigation and infrastructure schemes at the district level. It has so far failed to leverage significant private capital. The catalytic fund can help generate socially responsible projects incorporating smallholder farmers which could leverage private finance alongside ASDP resources.

The US\$25 million Danida-backed PASS facility provides local currency finance to early-stage agriculture businesses with a sound business plan and competent management. The catalytic fund will help structure many more businesses that could be eligible for local bank funding.

AGRA/Standard Banks' and AGRA/NMB's \$25 million guarantee facility is intended to support established and commercially viable agriculture businesses which incorporate smallholder farmers. The catalytic fund will help create a pipeline of opportunities for Standard Bank and other international banks seeking to lend to the agriculture sector.

The US\$5 million Africa Enterprise Challenge Fund (AECF) window for Tanzanian agribusiness is made available to established agriculture businesses which are looking to expand their operations and incorporate smallholder farmers, and are able to provide matching funding. The catalytic fund will help create more agriculture businesses that meet AECF's criteria.

'Traditional' development partner and non-governmental organisation support programmes can help build smallholder farmers' capacity to participate in modern supply chains, for example through training and extension services, certification, and institutional strengthening.

The tripartite agreement, the SAGCOT Partnership and the innovative financing facilities described above are essential to kick-start the agricultural growth cycle and achieve the vision of a productive and socially responsible agriculture sector in the southern corridor. They should be implemented as soon as possible.

## 8. Improving the policy environment

Fundamental to SAGCOT's future success is a policy and business environment which is supportive of private investment in commercial agriculture. As recognised in *Kilimo Kwanza*, progress needs to be made in a number of areas, including land legislation, agricultural tariffs and taxes, import and export restrictions and access to utility services. Tackling these constraints, and ensuring that reforms are properly implemented on the ground, will require strong political leadership with support from agriculture sector lead ministries, local government authorities and state-owned enterprises.

Priority actions to facilitate SAGCOT's implementation include:

- Firstly, improving **national land use planning** and tenure arrangements by identifying land belonging to government institutions that could be used for agricultural production, streamlining arrangements for granting secure land rights to investors, and reforming the process which enables local communities to use their land as equity in joint ventures with investors.
- Secondly, increasing the **long-term predictability of government policy** towards the private

sector by maintaining open communication and consulting widely on major policy decisions which impact directly on commercial agriculture, in particular trade restrictions, and the role of the proposed national crops board.

- Thirdly, **catalysing increased private sector investment** into agriculture by making government and development partner resources more accessible, for example through opening up ASDP at the local authority level, and by making a government contribution to the catalytic fund (e.g. using CAADP resources).
- Fourthly, undertaking a **comprehensive review of agricultural taxation**, which is considered by the Tanzanian National Business Council to be the most taxed sector in the country.
- Fifthly, improving **access to utility services** including electricity connections.

It is promising that some of these issues – along with others on improving processes for business registration and permits, simplifying labour laws, facilitating access to credit and enforcing contracts – have already been identified in the government's *Roadmap to Improve the Business Climate (2010)*. The challenge now is for implementation.

### Box 15: Recommendations on agricultural taxation reform from TNBC<sup>8</sup>

- The current 5 per cent produce cess be removed completely or should be equivalent to rates paid by investors in other sectors,
- farmers should be granted a full tax exemption on the fuel used in the direct production of agricultural products in order to provide the energy to power the transformation of the agricultural sector,
- VAT paid by smallholders such on cashew, cotton, coffee, etc, should be removed completely,
- grant a corporate tax holiday of five to ten years to all investment in the agricultural sector, including agro-processing,
- exempt agriculture from payment of withholding tax on interest, dividends, management and professional fees for five to ten years,
- exempt agriculture from stamp duties and pre-shipment inspection fees,
- remove the multiple levies charged by local governments in the fisheries sub-sector, and
- reduce the development levy in the agricultural sector from six per cent to one per cent, and social security (NSSF) to five per cent.

8 Towards a Tanzanian Green Revolution: Policy Measures and Strategies, Summary of the Reports of the TNBC Working Group, TNBC (2009)

## 9. Environmental and climate change considerations

Wise use of the environment is an essential part of successful agriculture. Long-term benefits from agricultural growth will be undermined if the ecosystem and natural resources are not well managed. SAGCOT will ensure that environmental and social concerns are central to planning and implementation. There are five main areas of environmental focus important for SAGCOT development: (i) competition for land use and water, (ii) protected areas, (iii) improved soil and water management, (iv) climate change, and (v) environmental assessment.

**Competition for land and water:** Recent increases in crop production in Tanzania have come more from deforestation than from improved crop yields. Similarly, livestock numbers have increased, though there has been no broad-based increase in productivity. Rangelands are becoming overgrazed and access to dry-season water points increasingly difficult for many livestock owners. Competition for resources is already leading to conflict, sometimes fatal, between farmers and livestock owners. It is also leading to encroachment into critical protected areas and fragile ecosystems.

*Long-term benefits from agricultural growth will be undermined if the ecosystem and natural resources are not well managed.*

Tanzania's population is set to grow to over 100 million by 2050. This will put ever-greater pressure on all natural resources, especially water and land. It must be planned for and effectively managed. Under increasing competition, heightened risks of conflict and expanding dangers of damage to crucial habitats and ecosystems, there is an urgent need for scientific, knowledge-based planning and effective control.

With population growth and extensive, low-yield agricultural practices there is increasing stress on ecologically sensitive areas. This is particularly evident in the floodplain, in the Kilombero cluster, and in the Usangu Flats, in the Mbarali cluster. It is therefore critical that future agricultural growth, especially irrigation in wetland areas, is carefully planned and implemented in an open and disciplined manner.

**Protected Areas:** There are several national parks and game reserves, many forest reserves and a Ramsar site (in Kilombero) within and near to the clusters. SAGCOT will cooperate with the different public and non-governmental organisations involved in the management and protection of the areas, including local government authorities.

**Improved soil and water management:** SAGCOT can help improve land use and soil and water management practices in the clusters, for example by promoting agro-forestry, soil fertility management, water harvesting, moisture conservation and low-tillage farming. Done properly, this will have environmental benefits, helping to reduce the current pressure on land expansion, especially if linked to improved land use planning and land administration.

**Climate change:** The impact of climate change in Tanzania is uncertain. However, it is expected that droughts and floods will occur more frequently. Improved soil and water management and effective organisation of local groups will help communities respond and adapt. At the same time, strategies are being developed to encourage a low-carbon development path. This includes reduced deforestation and carbon capture in soils, with potential for communities to benefit from access to carbon credits. There are several new initiatives working in this





direction, including the World Economic Forum's 'Financing Sustainable Land Use Project'.

**SAGCOT's environmental responses:** SAGCOT investments will respect the provisions of the Environmental Management Act of 2004 as well as international guidelines. All investments supported by SAGCOT will be required to

undertake thorough social and environmental impact studies, as well as taking appropriate actions to mitigate risks.

By promoting increased use of irrigation, conservation farming techniques, improved seed varieties and weather-index insurance, SAGCOT will help farmers adapt to climate change.

#### Box 16: Environmental concerns

- Better public awareness of the issues
- Improved national and district land use planning
- Cultivation and land management techniques to reduce runoff
- Identification of protected areas, forests, woodland and important biodiversity areas
- Environmentally friendly infrastructure development
- Safe handling of agro-chemicals
- Sustainable use of water through realistic planning, control and disciplined management
- Comprehensive human settlement planning

#### Box 17: Climate Change concerns

- Improved understanding of the possible changes and impact
- Development of resilience to change – economic diversity, stronger local organisations, improved knowledge of options
- Development of adaptation strategies – drought tolerant crops and livestock types, water harvesting techniques, soil moisture retention, minimal tillage etc.
- Increased use of irrigation and drought insurance
- Lock into low-carbon emission production systems



## 10. Investment plan and outputs

The majority of the financial resources needed to raise productivity along the southern corridor will come from local and international investors. However, private investment will not come in sufficient volumes unless there is targeted and coordinated public investment in agriculture-supporting infrastructure. This section describes the amounts and types of investment required to transform agriculture in the southern corridor into an internationally competitive sector with major benefits for local communities and the wider economy.

The investment cost for the six clusters presented in this report is about US\$3.4 billion – an average of US\$175 million or 1 per cent of Tanzania’s GDP per year over 20 years<sup>9</sup>. Over three quarters of this investment would be able to earn a financial return, meaning that only US\$650 million of grant funding is required. The increased tax revenue from commercial agriculture over the period would more than off-set this initial public investment.

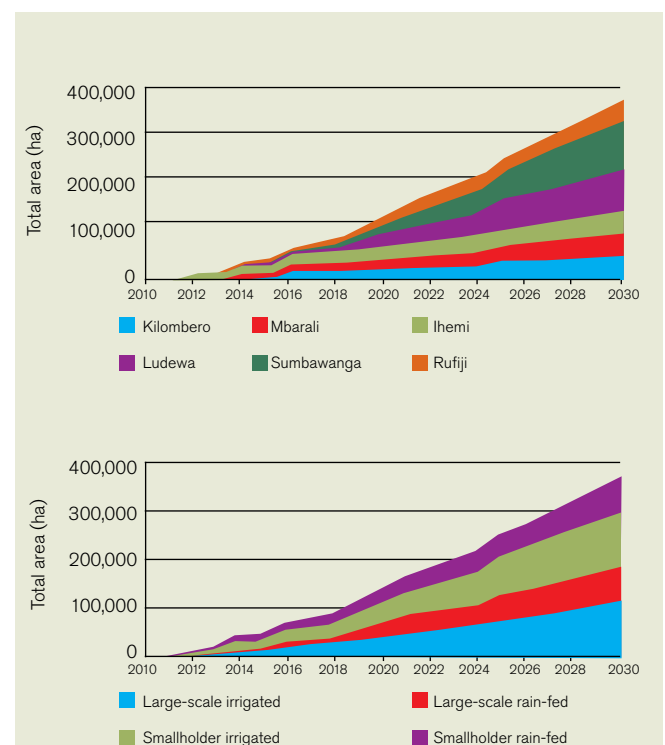
The result would be over 350,000 hectares under commercial production by 2030, the majority of which farmed by smallholder and emergent farmers. Included within the total figure would be 215,000 hectares of irrigated farming, allowing year-round production, of which more than half (111,000 hectares) would be farmed by emergent farmers, while the remainder would be nucleus farms and larger estates.

By 2030, the region would be producing an additional 680,000 tonnes of field crops (maize, soya and wheat), 630,000 tonnes of rice, 4.4 million tonnes of sugar cane, 3,500 tonnes of red meat, and 32,000 tonnes of high value fruit and

*By 2030, the region would be producing an additional 680,000 tonnes of field crops (maize, soya and wheat), 630,000 tonnes of rice, 4.4 million tonnes of sugar cane, 3,500 tonnes of red meat, and 32,000 tonnes of high value fruit and vegetables.*

vegetables. This would achieve food security for Tanzania and the wider region and allow up to US\$0.8 billion of crops to be exported annually to global markets. The benefits would reach over 2.3 million people, as described in more detail in the next section.

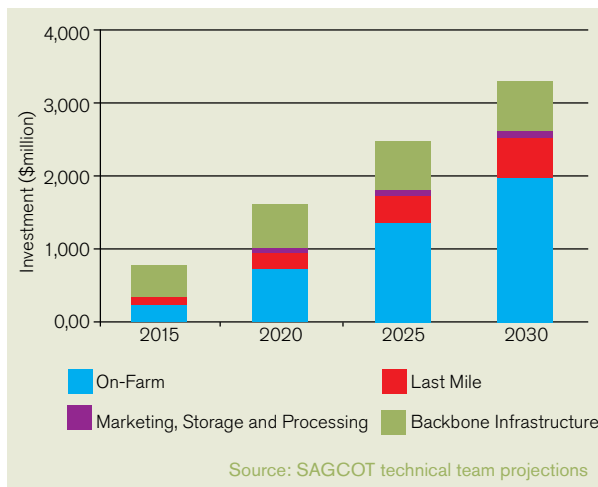
Figure 10.1 SAGCOT clusters development profile



Source: SAGCOT technical team projections

9 Other costs associated with stimulating a productive agriculture sector are not covered here – for example research and development or the cost of extension programmes to reach smallholder farmers.

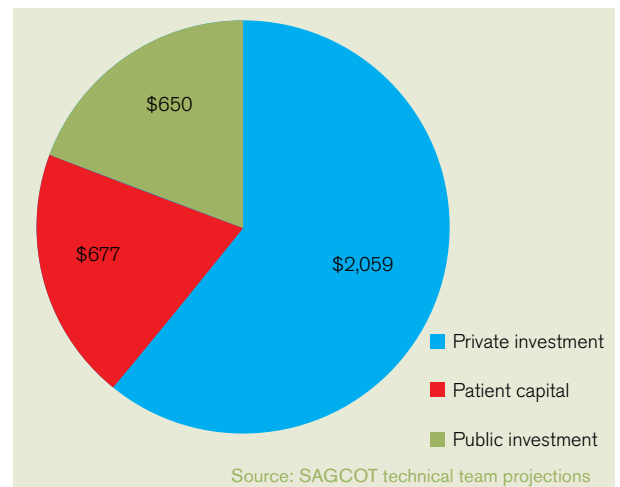
Figure 10.2 Total investment required



There are four main types of investment needed to make the SAGCOT vision a reality. Illustrative investment requirements over a twenty-year period are provided on the following page. Of course this is a hypothetical scenario since the key investment decisions will be taken by the private sector.

1. While the **backbone infrastructure** in the corridor is largely adequate to support an increase in commercial agriculture, it will require further significant investment including the Port of Dar es Salaam, to enable it to support the volume of increased activity proposed for the next twenty years. US\$650 million is needed to improve and extend the main roads, electricity transmission lines and the Tazara railway. These are public goods which deliver wide benefits including beyond the agriculture sector and justify public sector investment. Funding could come through the government budget and from international agencies such as the World Bank and African Development Bank, as well as development partners in Asia.
2. Under current conditions in Tanzania, much of the immediate upfront expenditure required for new farming projects and farm improvement lies in the **'last mile' infrastructure** connections. This includes the costs of bringing power, water and road access to the farm gate. These are costs that farmers in many parts of the world do not have to incur because of more developed and extensive public infrastructure systems. Water-related investments include small dams

Figure 10.3 Total investment by source over 20 year period



to hold water during the dry season, pump systems and pipes. US\$570 million will be required to finance 'last mile' infrastructure. With access to patient capital, the private sector can manage the implementation of these investments, which should provide a financial return over the long-term.

3. Providing improved opportunities for value-addition and access to markets will require investment in processing/milling facilities, warehouses and cold storage, and both medium-sized (10,000m<sup>2</sup>) and smaller (2,000m<sup>2</sup>) wholesale markets. US\$108 million will be needed for **marketing, storage and processing infrastructure**. In some cases this type of infrastructure will be funded commercially. But in the early years there is likely to be a need for patient capital to help the private sector achieve economies of scale and to ensure strong linkages to smallholder farmers.
4. A total of US\$2.1 billion in **'on-farm' investment** can be made by the private sector. This will include improved on-farm infrastructure such as fences, water supplies and roads, and where necessary, levelling and drainage for irrigation. All farm investments require significant investment in farming equipment, on-site storage/processing and working capital. Depending on the type of enterprise and technology, average costs for on-farm irrigation can be US\$2,500 to US\$5,000 per hectare. Of course improved ranching and rain-fed agricultural systems are less expensive.

The cumulative build-up of investment is shown in Figure 10.2, which assumes that all of the 'last mile' infrastructure and agricultural infrastructure are

Cluster	Backbone			Last mile	Marketing, storage and processing				On-farm	
	Main roads (km)	Rail spur (km)	Power transmission (km)	Electricity lines (km)	Roads to farm gates (km)	Traders' markets (units)	Bulk storage (units)	Processing mills (units)	Irrigated production ('000 ha)	Other production ('000 ha)
Kilombero	140	5	60	579	350	2	10	4	44.3	51.8
Mbarali	120	5	60	602	380	2	6	4	34.3	46.9
Ihemi	120	-	90	340	200	4	5	4	20.6	43.0
Ludewa	225	-	100	749	450	3	8	4	37.5	84.1
Sumbawanga	315	-	150	1,004	600	5	8	5	47.7	99.9
Rufiji	120	-	70	498	300	2	4	3	39.7	44.3
Total	1,040	10	530	3,772	2,280	18	41	24	224.0	370.0

Source: SAGCOT technical team projections

funded by patient capital. This is a prudent assumption because in reality it should be possible to finance some of these types of infrastructure with fully commercial capital. This level of investment would translate into increased infrastructure, agriculture-supporting infrastructure and new commercial production as shown in the table above.

The projected increase in irrigated production is ambitious, averaging 11,000 hectares installed per year, from a very low base. Successful implementation will require careful planning and professional management, especially in terms of hydrology, social factors and environmental impact. A significant proportion of the development could take place on areas currently identified as suitable for irrigation under ASDP, including the rehabilitation of existing public schemes.

As international comparators, Brazil increased its irrigated land area from 800,000 hectares in 1970 to 3,500,000 hectares today – a rate of 67,500

*If Tanzania is to make rapid progress on irrigation it will need to import skills and expertise from countries such as Brazil and Vietnam.*

hectares per year – although over a significantly large land area. Vietnam showed a similar rate of increase of irrigation during the 1990s and 2000s. If Tanzania is to make rapid progress on irrigation it will need to import skills and expertise from countries such as Brazil and Vietnam, at the same time as training local irrigation engineers. Achieving these results will only be possible if the government, local authorities and state-owned enterprises commit to funding and delivering the required infrastructure improvements, and innovative finance can be made available in sufficient quantities to the private sector to help overcome barriers to entry in areas with poor existing infrastructure and limited commercial farming activity.

Irrigation potential (cumulative)	2015	2020	2025	2030
Kilombero	6,150	22,900	36,900	44,300
Mbarali	6,800	16,850	24,250	34,300
Ihemi	7,650	12,800	16,550	20,600
Ludewa	1,850	8,050	22,900	37,450
Sumbawanga	1,250	9,400	27,950	47,700
Rufiji	4,000	18,150	24,150	39,650
Total	27,700	88,150	152,700	224,000

Source: SAGCOT technical team projections

**Box 18: SAGCOT investment – the first five years**

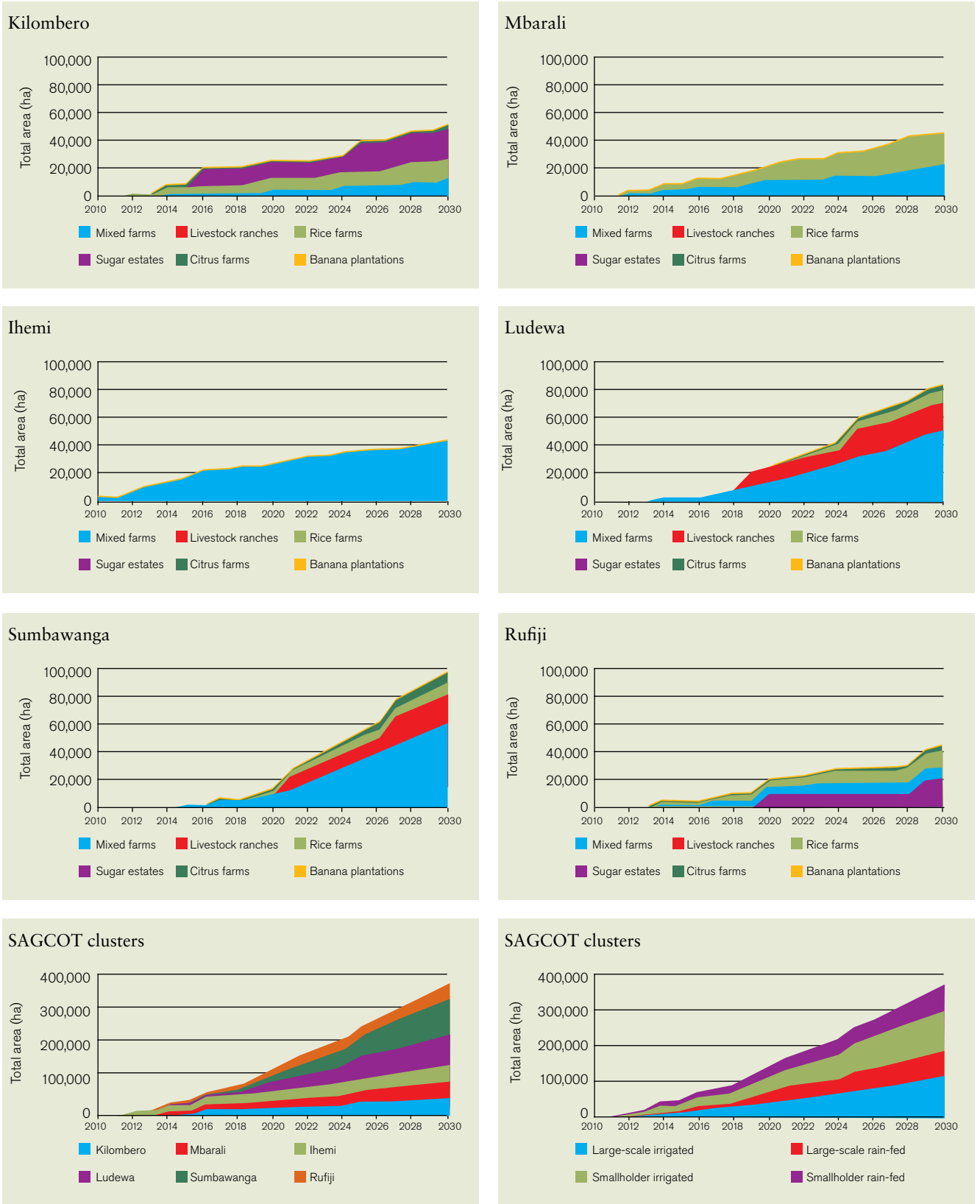
Within the first five years of SAGCOT, public investment of US\$445 million is required, mainly to improve the rural road network. This funding, which will need to come through the national budget, will have to be disbursed promptly to help bring down transport costs for commercial producers and allow smallholder farmers better access to markets.

In addition, almost US\$100 million of patient capital is needed to kick-start commercial investment in nucleus farms and outgrower schemes, and to support investment in storage, processing and marketing facilities. The proposed catalytic fund can act as a temporary arrangement until permanent structures for a patient capital fund are put in place.

The specific funding requirements for each of the six clusters are presented in Appendix XI. Section 5 has indicative investment requirements for Kilombero and Ihemi.



Figure 10.4 Cluster and corridor development profiles



Source: SAGCOT technical team projections

### Box 19: SAGCOT production and investment model

The projections presented in this report have been derived from an investment model for the six SAGCOT cluster regions. It is supported by detailed baseline analyses of the cluster regions. The model considers six types of farming units, and then estimates the number of units, and the rate at which these units can be developed, for each cluster. Figure 10.4 shows the build-up of the farming units within each cluster over the next 20 years. Estimates are then made of the infrastructure (backbone, last mile, on-farm, and marketing, storage and processing) required to support the farming projects, with costs associated per unit or per kilometre.

Consistent unit costs are applied to all investments, as are consistent operating profiles for each of the six farming units, being developed using realistic benchmarks for yields, capital and operating costs, and selling prices. Each unit is forecast to generate a commercial return on investment (IRR) of 15 to 25 per cent.

In reality, there will of course be a wide range of commercial farming and processing investments, with decisions made by the private sector. The units used as 'building blocks' in the model are purely illustrative, while being grounded in commercial reality and intend to reflect what typical investments might look like.

Farming unit	Description	Investment required per unit (\$ million)
Mixed farm - crops and livestock	1,250 hectares of irrigated land, growing 100 hectares of high value horticulture (excluding citrus and banana), with 1,150 hectares growing grains and pulses (excluding paddy), of which 750 hectares is irrigated smallholder outgrowers. An additional 400 hectares for 135 head of livestock, and capacity for a further 1,000 hectares of rain-fed smallholder outgrowers supplying the commercial farm hub.	\$3.5
Livestock ranch	10,000 hectares of land for 3,000-3,500 head of livestock, with 300 hectares of irrigated land growing animal feed (non-paddy grains and pulses), of which 100 hectares is smallholder outgrowers.	\$2.5
Rice farm	2,000 hectares of irrigated land growing paddy, of which 1,000 hectares is smallholder outgrowers.	\$15.0
Sugar estate	10,000 hectares of irrigated land growing sugarcane, of which 2,750 hectares is smallholder outgrowers, and an additional 250 hectares of irrigated commercial land growing grains and pulses (excluding paddy).	\$20.0
Citrus farm	600 hectares of irrigated land growing citrus, of which 300 hectares is smallholder outgrowers.	\$5.0
Banana plantation	150 hectares of irrigated land growing bananas, of which 50 hectares is smallholder outgrowers.	\$0.5

More detail on the model and its outputs is available in Appendix IX.



## 11. Social and economic benefits

The powerful potential for agriculture to reduce poverty in rural areas is well known. Research by the World Bank shows that economic growth originating in the agricultural sector can increase incomes for the poorest 40 per cent of the population by a multiple of three times growth originating in the rest of the economy<sup>10</sup>.

*Economic growth originating in the agricultural sector can increase incomes for the poorest 40 per cent of the population by a multiple of three times growth originating in the rest of the economy.*

Growth of agricultural production will stimulate, and be supported by, simultaneous growth of agribusinesses along the whole value chain, in transport services, input supply, development of value-added processing, wholesale markets and

marketing services, agricultural credit and other financial services. There is major potential to generate significant off-farm employment and incomes within the value chains as agricultural production grows over time.

Figure 11.1 Expenditure gains induced by 1% GDP growth in agriculture and non-agriculture (%)

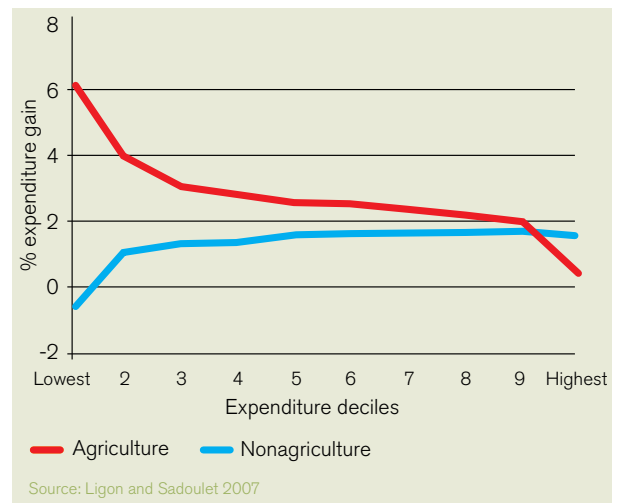
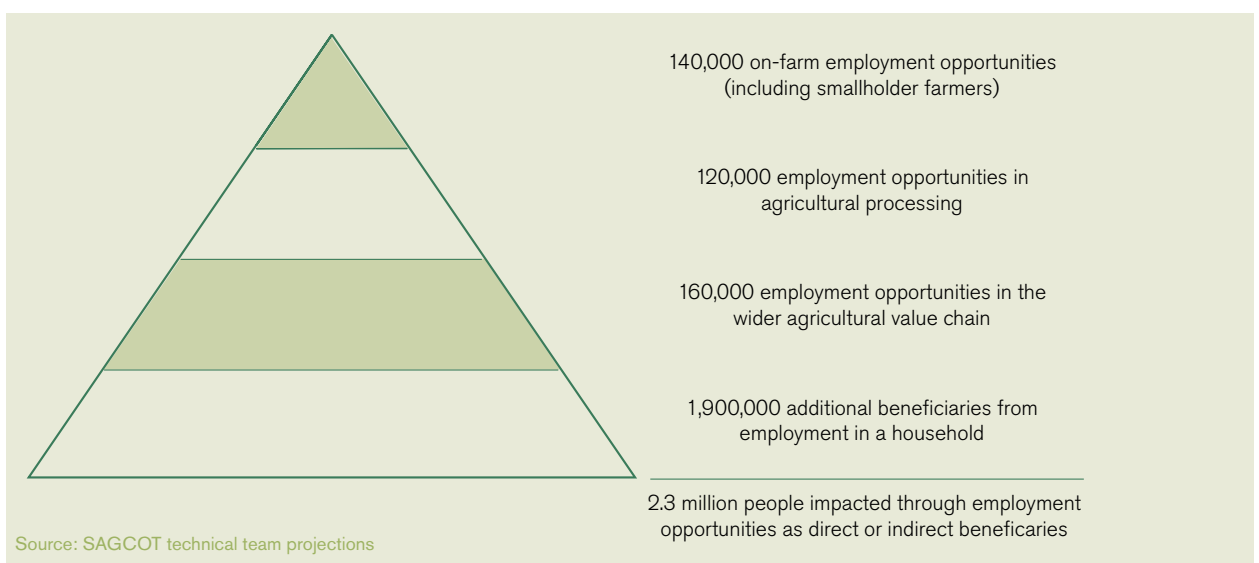


Figure 11.2 Development benefits



10 Ethan Ligon and Elisabeth Sadoulet, 2007, "Estimating the effects of aggregate agricultural growth on the distribution of expenditures." Background paper for the 2008 World Development Review.



The benefits of SAGCOT will be shared widely, reaching a large number of the rural population in the southern corridor. US\$3.4 billion of investment could generate annual

farming revenues of US\$1.3 billion by 2030, create employment opportunities for 420,000 people and lift 2.3 million people in rural areas permanently out of poverty.

#### Box 20: Zambia case study

Through the 1990s, Zambia was a net importer of agricultural food crops, and there was very little growth in agricultural production. Those large-scale farming businesses which were producing food and cash crops had great difficulty accessing finance on commercial terms, as the risk involved in investment decisions was influenced heavily by uncertainty over crop markets, brought about by government policies which held significant influence over input and output markets, and over the import and export of food crops. As a result of the low incentives to produce, Zambia was importing maize and protein meals from Zimbabwe, and wheat for bread from as far away as North and South America. With such low production levels, there was little demand for additional services in the rest of the agricultural value chain.

In the early 2000s, Zambia benefitted from a strong increase in farming capability that migrated from Zimbabwe, bringing with it expertise in both food and cash crop production, and an increased capacity to manage the inherent risks of commercial agriculture. At the same time, the government encouraged its domestic financial sector to support agriculture, and banks began to offer finance to farmers on more favourable commercial terms. The benefits of increased capability in the agricultural sector and the more supportive approach towards agricultural finance filtered through to smallholder farmers, who seized the increased opportunities to operate as both suppliers to the larger farms, and as emergent farmers with direct access to markets. As production increased, particularly of cash crops, the ability to finance irrigation schemes increased, allowing farmers to mitigate the risk of drought and guarantee improved yields under a double cropping regime. Uncertainty within crop markets was reduced primarily through the establishment of the Zambian Commodity Exchange, which allowed farmers and financiers to assess risk in crop markets more accurately, thus decreasing the risk in returns to investment.

Zambia's agriculture sector has grown significantly and gained momentum, and is now able not only to supply its own food needs, but also to export to its neighbours. As finance has improved, it has found itself more able to produce to export parity prices, rather than simply matching import parity prices. Export crops such as maize, cotton and tobacco are being produced significantly by the burgeoning smallholder farmer sector, while exports of wheat, soya, horticulture, potatoes, beef, dairy and poultry are produced primarily by the commercial sector. Across the value chain, service sectors have grown to support the increased production, creating thousands of employment opportunities.

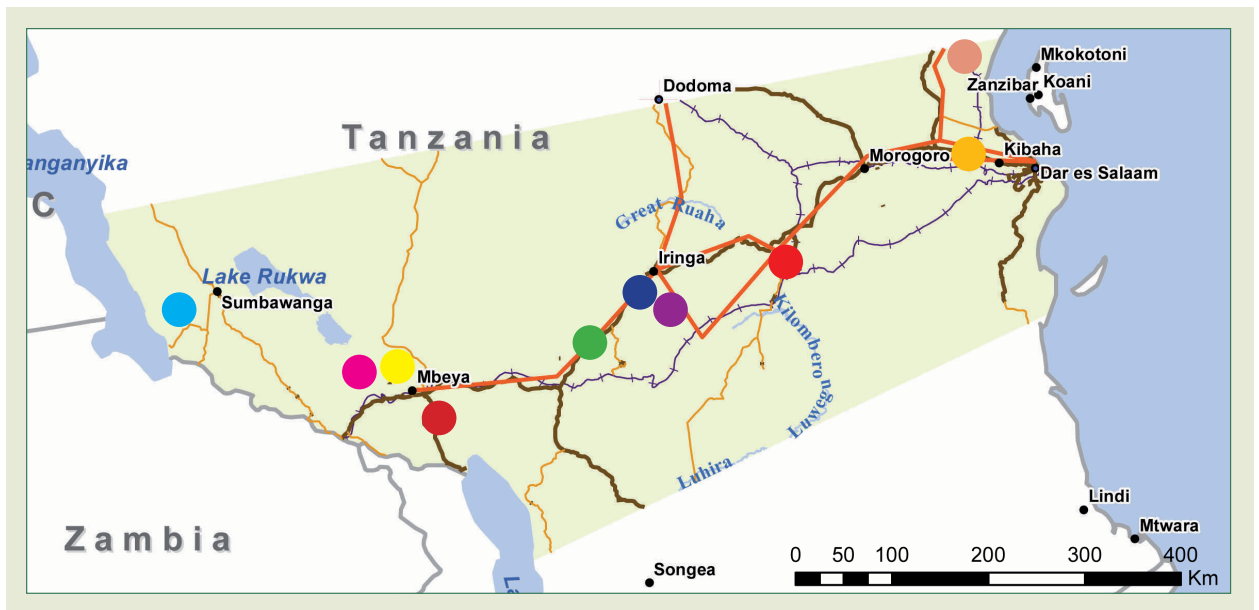
## 12. Early wins

A number of investment opportunities have been identified, each of which could be initiated in the next few years (see Appendix X for details). Most are within the proposed cluster areas. Some are elsewhere in the corridor, where existing infrastructure connections are reasonably good. They range from livestock ranches to medium-size mixed crop/livestock farms, to smallholder farmer extension and marketing programmes. What is common to all the opportunities is that they can be delivered on a commercially sustainable basis and involve significant benefits for smallholder farmers

and local communities. However, all must overcome specific constraints before they can proceed.

The map below shows the location of these investment opportunities and the table provides brief descriptions of the projects, investments required and actions needed. A number of these opportunities only require access to catalytic funding and affordable working capital. They show fully commercial returns but have sponsors with limited track records and balance sheets. Other opportunities require patient capital, access to agriculture-supporting infrastructure as well as finance.

Figure 12.1 SAGCOT ‘early win’ investment opportunities



- Beef ranching and processing on 40,000ha. Improve beef and dairy herds for emergent and smallholder farmers with use of cross-breeding and introduction of specific breeds.
- A seed potato growing and distribution operation on 200ha nucleus farm to provide improved seed to 60,000 smallholder farmers.
- Improve 3,000ha central farm and storage to serve as nucleus to surrounding area offering access to inputs, extension, crop storage and marketing.
- Avocado plantations and outgrower scheme. Could include mangoes and macadamia.
- Mixed vegetables and pulses production on 95ha for sale to Sao Hill. Processing of crops, including dehydrated vegetables.
- Anchoring soya production and extrusion in protein meals and oils for both humans and livestock. Developing wheat production and flour processing for commercial and smallholder farmers.
- Kwamsisi Estate farm hub on 7,300ha for grain storage, marketing, seed production and processing, along with poultry and beef production. Development and management of community irrigated farming blocks.
- Strengthen existing partner programmes aimed at agro-dealers, and input credit programmes with extension and demonstration plots. Commercialising smallholder production through conservation farming.
- Improve management and reduce logistical costs, which will improve yields and returns to smallholder outgrowers.

## SAGCOT investment opportunities: summary

Project	Type of project/ description	Initial Investment required	Actions needed
<b>Ruvu Beef Ranch</b> Coast	Beef ranching and processing programme Redevelopment of 40,000 hectare government ranch Cross-breeding and introduction of specific breeds to improve beef herds for emergent and smallholder farmers	US\$6.3m	Need for finance/ rehabilitate infrastructure/ restock existing ranches/
<b>Seed Potato Mtanga Farm</b> Iringa	Seed potato growing and distribution operation on up to 100 hectare nucleus farm and through outgrower programme to provide improved seed to a market of over 100,000 smallholder farmers Potential to develop farming blocks for emergent potato farmers	US\$1.0m	Need for finance/ technical assistance/ research / build infrastructure/ storage
<b>Mbozi Farm Centre</b> Mbeya	Large-scale farming with outgrowers Improve 3,000 hectare farm and storage to serve as nucleus to surrounding area, offering access to inputs, extension, crop storage, processing and marketing 1,200 hectare commercial grain including seed maize and 600 hectare of soya and seed legumes Smallholder crops include maize, soya, sunflower, sesame and pulses Benefits include increased yields, better varieties, technical advice and extension, conservation farming, access to inputs, credit facilities, access to market, better prices	Farm equipment (US\$1.5m), working capital crops (US\$1.7m)	Need for finance/ mechanical soya extrusion plant/ maize mill/ smallholder inputs, access to training and local market
<b>Rungwe Avocado, phase two</b> Mbeya	Avocado plantations and outgrower scheme 60 hectare nucleus avocado plantation supported by 140 hectare of smallholder production under irrigation and a further 400 hectare of smallholder outgrowers – benefits would include improved incomes and reduced risks (through crop diversification) for large numbers of smallholder farmers Could include mango and macadamia, the latter ideal for smallholder outgrowers, and longer-term establish a fully modernised pack house, to export 4.2 million kg of avocados by year 10 of the plantation, graft Hass avocado seedlings onto existing smallholder trees, and establish extension services	Start up costs US\$4.2m The cost of establishing avocado plantations is estimated at US\$612/ha.	Need for finance/ port rehabilitation, roads, electrification
<b>Sao Hill Agro-Industrial Park</b> Iringa	Smallholder vegetable production and processing 100 hectare mixed vegetables and pulses for sale to Sao Hill Potential for a vegetable drying and storage facility, to be marketed in the wet months (out of season), increasing revenues by 2.5 times	US\$1.4m capex plus working capital for 100 ha vegetable farm processing facilities TBD	Need for finance/ unit utilising steam and electricity for vegetable hydration
<b>Soya extrusion and wheat mill</b> Iringa	Processing, storage and handling facilities Soya production and extrusion in protein meals and oils both for human and livestock use Wheat production and flour processing broiler and pig production on back of soya extrusion and establishment of stock-feed facilities	US\$TBD	Need for finance/ patient capital to build processing facility and allow for production to be established/ experienced management and ability to work with outgrowers and large-scale farms
<b>Sasumua Seed Kwamsisi Estate</b> Tanga	Seed production and livestock nucleus farm hub 7,295 hectares for grain storage, marketing, seed production and processing along with poultry and beef Development and management of community irrigated farming blocks, sustainable water management strategy, controlling access to the value chain to allow for better pricing and cash flow, expertise in modern farming techniques, seed, inputs and equipment selection, demonstration projects and seed multiplication	US\$5.0m equity and/or medium term debt	Need for finance/ outgrower programme/ agro-processing facilities/ storage and distribution

<p><b>Agro-dealer extension programme</b> Mbeya</p>	<p>Agro-dealer programme to support family sector commercialisation Strengthen existing partner programmes aimed at agro-dealers and input credit programmes with extension and demonstration plots, aligning with AGRA's agro-dealer development programme Recruit and train local farmers to become agro-dealers servicing their community – brings the benefit of utilising a person known in the local community who can gradually build up an agro-dealership</p>	<p>US\$0.6 million start-up and US\$1 million for input credit finance</p>	<p>Need for input credit finance/ demonstration plots/extension workers/transport equipment</p>
<p><b>Sugar outgrower consolidation</b> Morogoro</p>	<p>Develop professional and organised smallholder outgrower programme Improve management and reduce logistical costs, which will improve yields and returns to outgrowers and form the basis for mill expansion</p>	<p>US\$13.6m plus working capital to establish 1,000 ha of outgrower sugar plantation</p>	<p>Need for finance/ farmer to start outgrower nucleus/ extension services to organise small farmers in economical blocks</p>
<p><b>Project opportunities in unspecified locations</b></p>			
<p><b>Banana plantation</b> Kilombero area</p>	<p>Large banana plantation with outgrowers Developing 1,500 hectares of banana production, utilising existing large-scale farmers capable of developing and operating their own banana plantations in association with packaging and processing centres and which can provide technical and logistical support to linked large-scale and smallholder outgrower estates</p>	<p>US\$1.6m for 200 hectares</p>	<p>Need for finance/electricity and irrigation/ identify site</p>
<p><b>Citrus plantation</b> Kilombero area Elevations 500–700m</p>	<p>Citrus plantation capable of servicing export markets with outgrowers Developing a 600 hectare citrus plantation and including at least 4 local large-scale farmers as outgrowers on 50-100 hectares The programme can be further enlarged by adding small farmer outgrower programmes</p>	<p>US\$5.7m plus working capital of US\$5.2m</p>	<p>Need for finance/seedling production/ identify site</p>
<p><b>Mango plantation</b> Kilombero area</p>	<p>Mango plantation under irrigation Developing a 200 hectare mango plantation in well drained land, close to a reliable water source Should access to the Middle Eastern market be established, the 30,000 tonnes demand can absorb production from as much as 2,245 hectares of land</p>	<p>US\$2.3m</p>	<p>Need for finance/irrigation and electricity/ fruit fly monitoring programme/ in depth market study Middle Eastern, Pacific Rim and European markets/ identify site</p>
<p><b>Rice value chain enhancement</b> Kilombero and Mbarali areas</p>	<p>Develop several 1,000 hectare nucleus estates capable of annual double cropping, plus potential legumes Significant potential to increase existing rice production particularly focusing on those systems which currently benefit from irrigation. Upon successful implementation, a viable rice industry can support an efficient and economical infrastructure platform which in turn can support the profitable cultivation of other crops</p>	<p>US\$13.6m (includes US\$3.5m for dam)</p>	<p>Need for finance/land survey/ infrastructure support and access to processing centre/ development of marketing chain/ identify site</p>
<p><b>Family sector commercialisation</b></p>	<p>Farmer association support programme Utilisation of dedicated field staff each focusing on small groups of pre-selected farmers who are willing to assume joint responsibility for input credit and who show interest in and aptitude for adoption of higher yielding/multi-crop-based farming Work with 4,800 farmers and deliver a US\$180 premium for farmers</p>	<p>US\$0.5m</p>	<p>Need for finance/ supply of willing farmers/ technical staff/ identify site</p>
<p><b>Allanblackia farms</b></p>	<p>Develop a long-term sustainable and profitable allanblackia farming and processing business, incorporating smallholder farmers. Allanblackia is an African tree that bears fruits containing seeds rich in oil. The oil can be used in a number of commercial food and non-food applications. Potential market demand is &gt; 100,000 tonnes of oil. To fulfill these requirements 8,000,000 trees need to be planted Planting programmes are being set up to generate knowledge on yields, profitability and environmental impact</p>	<p>TBD</p>	<p>Need for land and infrastructure (nurseries, tools, etc) to set up demonstration plots/ mobilise and train farmers/ identify site</p>

### Box 21: Sasumua Holdings, irrigated food crop production

Sasumua Holdings is a Tanzanian-registered company which is engaged in agricultural development, with a mission to become one of the region's primary producers and processors of critical food crops. Kwamisisi is the first of several large-scale commercial agriculture projects that Sasumua intends to develop. It is an existing farm with secure title near Kwamisisi Village in Tanzania's Tanga Region, approximately 125km north of Dar es Salaam, and 40km inland on the Mkata/Mkwaja Road.

Planned crops will include maize, sorghum, soya, sunflower and chickpeas, on 2,600 hectares with a minimum 400 hectares under irrigation. Trial planting has already commenced on 220 hectares with good yields. The site is also suitable for livestock management of both cattle and poultry. The project will be structured as a commercial hub/outgrower model. The aim will be to develop a fully productive mixed large-scale farm and incorporate smallholder farmers in production and value creation through an outgrower scheme. The project will design, fund and implement the outgrower programme for smallholders, constructing agro-processing facilities to add value to the commodities, and constructing a storage and distribution centre in Mkata. There is potential to replicate the model elsewhere in the southern corridor.

The direct benefits for local villagers of Sasumua's expansion programme will be the creation of approximately 550 on-farm jobs per year, 1,100 off-farm processing jobs, 1,650 jobs in the wider value chain, and 18,150 indirect beneficiaries, offering services as an intermediary in the supply of inputs to the outgrower farmers, leveraging buying power through large pre-contracted input volumes, offering competitive pricing, provision of a facility at Mkata to provide fuel storage and distribution, banking facilities, bulk storage and distribution for both grains and processed products, and wholesale storage and distribution for frozen farm products.

### Box 22: Ruvu Beef Ranch

Ruvu ranch covers 44,000 ha and is located between Morogoro and Dar es Salaam. The government farm lacks fencing and operates on a maintenance basis only. Income essentially covers basic operating costs. The ranch is understocked with approximately 3,600 head and it is very low in breeding cows. The ranch purchases cattle from small livestock farmers for fattening and slaughter. However, the slaughter weights are low indicating that either feedlots operations are too expensive or the operation cannot support fattening. The ranch faces additional obstacles such as outdated buildings, dilapidated fencing, no cold chain, reported disease, low HACCP awareness, lack of access to finance, extensive use of the ranch by neighbouring cattle, and outdated slaughter methods.

The project intends to rehabilitate the infrastructure and restock the existing ranch to maximise its production potential. Using cross-breeding and the introduction of specific breeds the project will improve the beef and dairy herds. By year 10 the ranch will have 13,000 head of livestock and the gross margin over gross sales will increase to over US\$300 per head. Annually, the ranch will create approximately 2,200 on-farm jobs and 500 meat processing jobs. Initially the project will require investment of US\$6.3 million. Assuming professional management and with projected potential growth in the beef markets, the development of demand for quality cuts in Tanzania and access to export markets, the project shows a commercial rate of return.

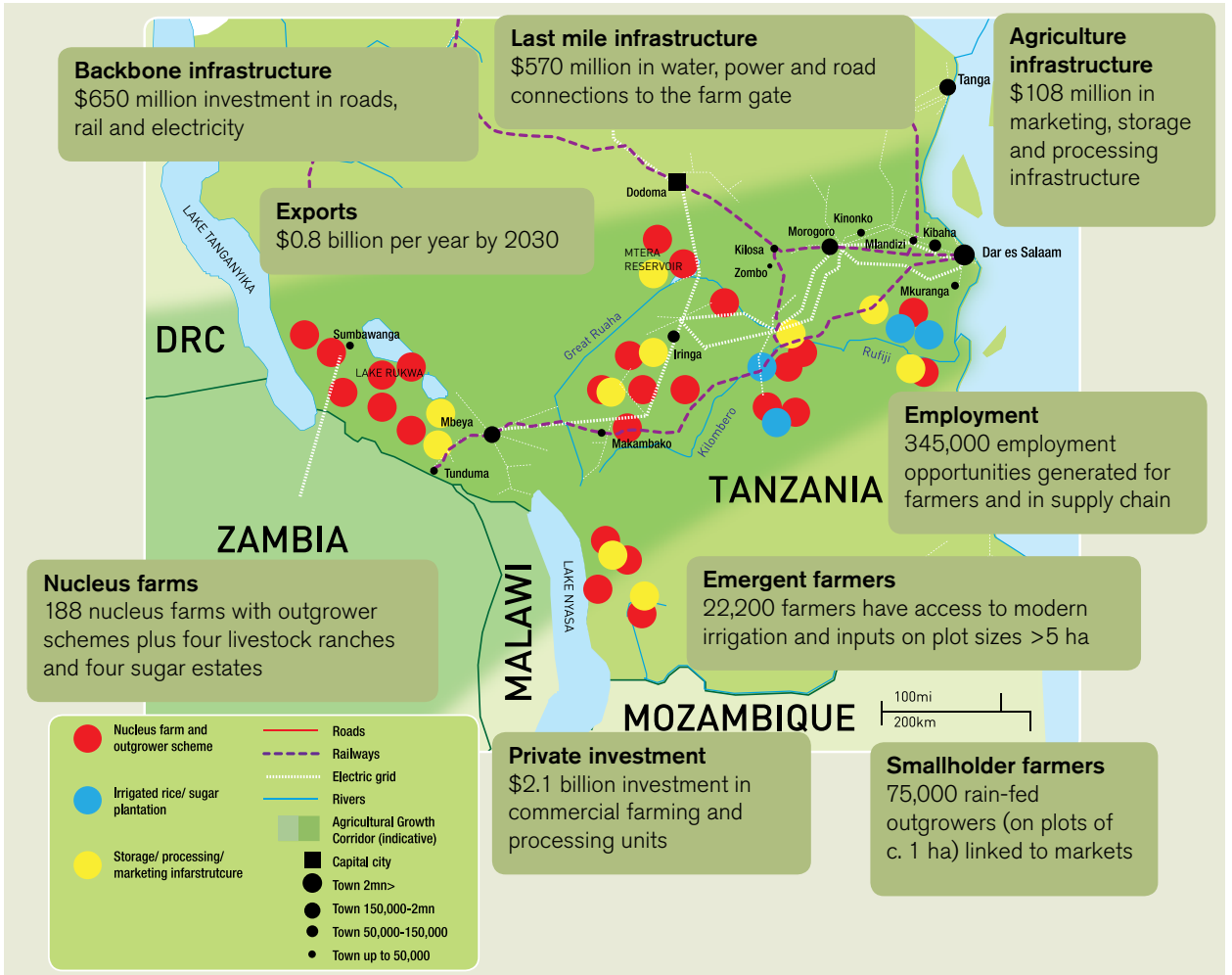
For full details on all the investment opportunities see Appendix X.

All of the opportunities highlighted here have the potential to be commercially viable and to deliver significant benefits for local communities.

Collectively these projects could form the basis of new clusters of productive farming activity along the southern corridor. But most of these investments will not happen unless support is made available in the form of catalytic funding, patient capital and improved access to affordable working capital.

# 13. Vision of success

Figure 13.1 Vision of success



By 2030, SAGCOT aims to have developed agriculture and improved rural life in the southern corridor. There will be a critical mass of efficient, modern small-, medium- and large-scale farms and ranches producing commodities at competitive prices for local and international markets. Natural resources will be used in a sustainable manner and rural employment opportunities will have increased. Farmers will be benefiting from reasonably-priced inputs and effective technical support through improved research and development. There will be well-informed market choices available to farmers, and affordable credit. Rural infrastructure, especially all-weather roads,

electricity and water supplies, will be upgraded. There will be a well-developed agro-industrial base, and processing of commodities to add value to local production.

The rural economy will be based on an open, knowledgeable, information-based agricultural system, with access to the best possible technical support and global markets. This will result in local economic growth, the greater empowerment and expansion of farmers' associations (mobilising significant numbers of smallholders), sustainable management of the environment, increased rural employment and reduced poverty.





## 14. Conclusions and recommendations

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By modernising agriculture and ensuring the benefits are widely shared, Tanzania can feed its people and eliminate poverty. Within a generation, it can become a major agricultural producer selling surplus cereals, horticulture, livestock and specialised cash crops to the rest of the world.

Building on Tanzanian strategies, SAGCOT is a long-term initiative which can help achieve the vast agricultural potential of the southern corridor region. As lessons are learnt, the approach can be replicated elsewhere in the country and extended into other countries in the region.

The impacts of SAGCOT will be major increased opportunities for smallholder farmers and entrepreneurs in the supply chain to make reliable incomes from agriculture, which could lift at least two million people permanently out of poverty.

The constraints on commercial agriculture are well-known. What SAGCOT offers is a new way of bring together public and private sector actors to achieve real and lasting change. The investment blueprint makes concrete recommendations on what needs to be done. The test now is the commitment from all partners to see it through.

As next steps, two key actions are required in early 2011 to launch SAGCOT's implementation:

- Firstly, establish the SAGCOT Partnership organisation, supported by an independent and professional Secretariat, to act as a neutral, non-aligned coordinating body and focal point for SAGCOT planning, implementation and monitoring. The Partnership will be based on a tripartite agreement between government, the private sector and development partners setting out roles and responsibilities.
- Secondly, launch the catalytic fund with financial backing from the government and development partners. As the first of the innovative financing facilities, the catalytic fund will enable resources to be channelled into early-stage investment opportunities, including some of the 'early wins' identified in this report.

These actions will ensure that the momentum behind SAGCOT continues to build into 2011 and beyond, delivering a sustainable transformation of the agricultural sector.



**The development of the SAGCOT Investment Blueprint was led by AgDevCo and Prorustica, reporting to the Kilimo Kwanza Executive Committee.**

#### About AgDevCo

AgDevCo believes that profitable agriculture with strong links to markets is the best route out of poverty for the majority of Africa's rural poor. AgDevCo is an agricultural project development company operating in Sub-Saharan Africa. Acting as principal, it invests 'social venture capital' to create commercially viable agribusiness investment opportunities, bringing them to the point where they can attract private investment from domestic and overseas investors. AgDevCo exists by sale of its interest in projects when they reach sufficient maturity, typically after three to five years. As a not-for-profit-distribution company, all proceeds from sales are reinvested in new early-stage agricultural ventures in Africa.

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#### About Prorustica

Prorustica is at the forefront of developing Public Private Partnerships (PPPs) in agriculture. It works with leading agribusiness companies, governments and donors who recognise that investment in agriculture requires new and innovative approaches. Prorustica operates at the interface between public and private institutions providing strategic guidance to the development of business and social development initiatives. As a neutral 'partnership broker' it focuses on tested methods of value chain assessment, to promote collaboration and coordination of public and private resources including finance. The aim is to share risks, achieve more efficient uses of funds and fulfil shared commercial and social objectives.

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