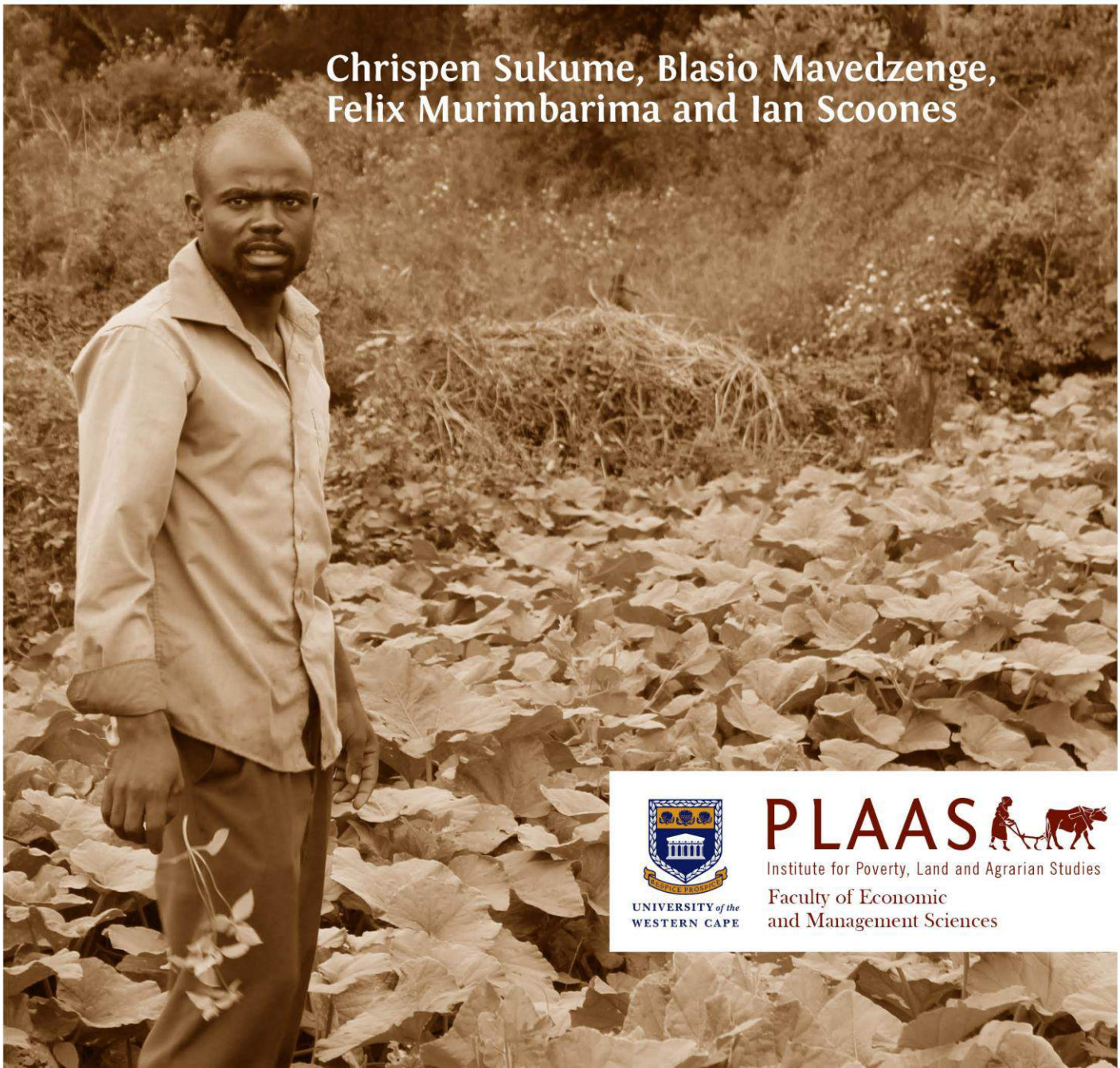
RESEARCH Report 46

Space, Markets and Employment in Agricultural Development:

Zimbabwe country report

Chrispen Sukume, Blasio Mavedzenge, Felix Murimbarima and Ian Scoones



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Institute for Poverty, Land and Agrarian Studies Research Report no. 46

June 2015

Copy Editor: Vaun Cornell
Series Editor: Rebecca Pointer
Photographs: Pamela Ngwenya
Typeset in Frutiger

Thanks to the UK's Department for International Development (DfID) and the Economic and Social Research Council's (ESRC) Growth Research Programme

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Acronyms and abbreviations

ABSTCM	African Breeders Service Total Cattle Management
BTF	Boka Tobacco Auction Floors
CA	communal area
EHU	enterprise household unit
EU	European Union
FCV	flue-cured Virginia
FTLR	fast-track land reform
FTLRP	Fast-Track Land Reform Programme
ICA	intensive conservation area
LSCF	large-scale commercial farm/farming
MoFED	Ministry of Finance and Economic Development
MT	metric tonne
MTC	Mashonaland Tobacco Company
NR	natural region
PTF	Premier Tobacco Auction Floors
RA	resettlement area
SG	success group
TIMB	Tobacco Industry and Marketing Board
TPZ	Tobacco Processors Zimbabwe
TRB	Tobacco Research Board
TSF	Tobacco Sales Floors
USAID	United States Agency for International Development
ZFC	Zimbabwe Fertiliser Company
ZINWA	Zimbabwe National Water Authority
ZLT	Zimbabwe Leaf Tobacco Company

1 Introduction

Since independence in 1980, Zimbabwe has undergone several phases of land redistribution, generally to communal and working people. The latest phase was the Fast-Track Land Reform Programme (FTLRP), which began in 2000 and redistributed 10.82 million hectares of land to 168 671 mainly small-scale producers (Moyo 2011). The result has been a major transformation of the farming landscape, with large-scale farms and ranches giving way to multiple smaller farms in an array of sizes.

However, land reform on its own is not a cure for all rural economic development challenges. Land redistribution addresses the problem of land access – a key resource in generating farm-based employment and income – but, in addition, there is the need to create non-farm employment within the new rural spaces. This is an issue of central importance for agricultural development policy: not only because there are many people in rural areas who are landless or not involved in agricultural production, and who, therefore, do not benefit directly from land reform provisions, but also because large-scale agricultural investment projects, and increases in the productivity and efficiency of agriculture, may lead to people being displaced from land. Internationally, the existence of a large and growing population of landless and unemployed people, no longer involved in agriculture but unable to find a foothold in the non-farm economy, seriously compromises poverty reduction, food security, well-being and stability. Yet, the impact of agricultural development decisions on non-farm employment is often disregarded by policy-makers, who assume that those not finding employment in agriculture can be absorbed into the economy in other ways.

While widely recognised, the linkages between agricultural development and non-farm employment are poorly understood. In particular, not enough is known about the vital role of spatial economic relations, social, institutional and political relationships and linkages that can either support positive integration into markets or lead to the adverse incorporation or exclusion of citizens. An understanding of these factors will help us to answer the following questions: 'How significant have emerging structures of agricultural production been for income and employment in newly resettled areas? How can the economic potential unleashed from small-scale agriculture be amplified through off-farm linkage effects in the local rural economy? Can a territorial approach to local economic development help capture the benefits of land reform?

2 Theoretical context

In much of the rural development literature, the assumption is that agriculture is the most important activity. However, there is more to rural economic life than direct agricultural production. Even in rural regions of active agricultural production, economic life also involves non-agricultural activities, which may or may not be directly linked to agriculture. Different forms of agriculture result in varying degrees of direct and indirect linkage with agriculture in rural economies.

What drives a local economy is pivotal in discussions around economic development. The literature on rural development suggests two broad ways in which farm activities are linked to non-farm employment activities – through either agricultural production or consumption expenditure (Davis et al. 2002; Deichmann et al. 2009). In production, the links can be 'backward', in which case agricultural production households or units link with the suppliers of agricultural inputs, thereby creating or supporting non-farm employment. Production linkages can also be 'forward', in which case agricultural produce is linked to output markets, thereby creating non-farm employment. In both types of linkage, there are also non-farm activities linked to distribution and marketing that play critical roles in the functioning of the markets. Expenditure linkages involve the use of income derived from various economic activities on other products or services. These expenditure linkages can be consumption linkages, where products are purchased for final consumption, or investment linkages, where such expenditure is on capital and intermediate goods and services. Davis et al. (2002) argue that more dynamic agriculture, such as the development of horticulture, is more likely to have multiple linkages with the non-farm sector, thereby creating more local economy linkages. Dorosh and Mellor (2013) also argue that it is the increasing production and income of smallholder commercial farmers that are the drivers of the farm and non-farm rural linkages, particularly because their expenditure patterns tend to be directed towards goods and services in the non-farm sub-sector. Deichmann et al. (2009) recognise the importance of spatial patterns in enhancing the farm and non-farm linkages, arguing that agricultural development areas further away from urban centres tend to have less diversified and less dynamic non-farm economic activities (less paying non-farm employment). Gibson and Olivia (2010) emphasise the importance of access and quality of infrastructure in harnessing the potential impact of the rural non-farm economy on economic growth, employment and livelihood diversification.

In terms of the role of value chains in determining potential for local employment and economic development, two major theories have dominated thinking among local economic development scholars – the export base theory and the consumption base theory. Traditionally these theories have been presented as alternatives to each other.

The export base theory claims that a region must increase its monetary inflows to grow, and exports are the primary source of monetary inflows (Andrews 1970). In turn, income earned by exports is spent locally, creating jobs in local-serving sectors. Those who work in the local-serving sectors spend their increased income locally, generating additional jobs (Krikelas 1992). The export base theory asserts that the multiplier times the change in export employment or income is equal to the total change in employment or income of the region. However, the export base theory can be criticised on several grounds:

- it is a mono-causal theory, claiming that everything depends on exports;
- it ignores internal economic activities as a source of growth;
- it ignores other internal factors such as government development programmes;

- it rules out improvement in productivity as a source of growth;
- it is hard to distinguish export base industries and local-serving industries, which causes difficulty in policy implementation; and
- its fundamental assumptions, including perfect elasticity of supply, do not hold in reality (Harris et al. 1998; Blair & Carroll 2008).

The consumption base theory posits that reducing a region's monetary outflows leads the region to grow, and that local-serving economic activities generate as much economic impact on the local economy as export base economic activities (Markusen 2007). Import substitution is a means of pursuing the consumption base theory. A region may reduce leakages by locally producing goods and services that otherwise would have been imported. This enables the region's monetary flows to remain within the region (Shaffer 1989). Jacobs (1969) emphasises the importance of import substitution as a development strategy by arguing that a region may export a few products at its early stage of growth but as it evolves it will replace imports. However, import substitution has its weaknesses as well. As this idea was initially developed at the international level, policies to promote the substitution of imports included setting overvalued exchange rates and imposing tariffs to give an advantage to certain industries within a nation. Such artificial control has raised criticism by those who believe in market mechanisms, on the basis that import substitution does not utilise resources in the most efficient way from the perspective of society as a whole, because it is difficult for a region to achieve economies of scale (Shafaeddin, 2005).

Finally, retaining most of the income flows into an area is dependent on there being rural entrepreneurs who are prepared to invest in activities that stem the flow of money and jobs out of the local economy. This has been a key line of reasoning in recent literature (Petrin 1994). In particular, there is the need for a core pool of entrepreneurs who have sufficient balance in terms of social relations of 'locality' and 'externality'. In rural settings, entrepreneurs who are embedded in the local community or who have close relations with the local producer or consumer base – or exhibit greater 'locality' – engender trust. However, this needs to be counter-balanced by strong external relations or links to knowledge and to input and output markets outside the community – 'externality'. Such balanced attributes are shown to result in successful rural business operations, provided a conducive economic and business operating environment exists for these to manifest themselves.

This study seeks to understand the nature of agricultural development, and how the spatial configuration of agro-food value chains and other institutional arrangements impact on non-farm employment. The methodology adopted is described in the following section.

3 Methodology

This study attempts to reveal the implications of selected agricultural value chains for sustainable, broad-based local economic development and, specifically, for non-farm rural employment. Total regional economic impact of farmer investment in an enterprise is determined by assessing three components – direct, indirect and induced impact. 'Direct impact' is spending by a farmer in the local economy to operate the enterprise, including inventory, utilities, equipment and employees' wages. 'Indirect impact' refers to the income and employment generated by the re-circulation of money the farmer spends at other businesses in the area. 'Induced impact' refers to the additional consumer spending that happens as employees, business owners and others spend their income in the local economy.

The analysis is based on very simple semi-structured interviews with a small number of linked agents along the value chain from production to final consumption of products in the case study areas. Starting with the producers of an agricultural product, social network analysis was used to ascertain the identity and location of those they deal with in producing and marketing their products, as well as those providing retail services. This was repeated as the product moved along the value chain outside the study area. The investigation solicited information on resource, service, product and money flows across each linkage, as well as social and economic relations that shape these linkages.

The study employs a case study qualitative approach, using snowballing sampling to map the network of linkages and spatial relations between farm, labour, transport, and input and output markets, as well as non-farm investment and consumption. The case study approach involved purposive selection of study area and farming household enterprises in selected resettlement scheme villages. The selection process involved three stages. In the first stage, the Wondedzo and Wares resettlement schemes in the Masvingo district, representing agro-ecologically poor areas, and the Msonedi resettlement schemes in the Mvurwi area, representing agro-ecologically high-potential farming areas, were selected.

The second stage involved the selection of commodities that are traded in each research site area, as well as its significance in the economy of the study district and province. Two commodities were chosen in each study area. In Masvingo, beef cattle and horticultural produce were selected as key commodities, while tobacco and maize were selected as focus commodities in Mvurwi.

Maize and tobacco were chosen for the Mvurwi site because they are the two crops that are most widely grown and traded in the area. The surveys undertaken in the schemes mentioned above indicate that across all success ranking groups maize and tobacco are key commodities in the Mvurwi farming areas. Across all success groups, 97% grew maize and 64% sold a surplus during 2014. During the 2013/14 season, 75% grew and sold tobacco. These commodities were also among the major crops grown prior to the land reforms of the past 15 years. Success group 1 (SG1) has the most surplus maize producers; while success group 2 (SG2) has the majority of tobacco growers. Thus, case study farmers in Mvurwi were selected from SG1 for maize and SG2 for tobacco.

Beef was selected in Masvingo because of the historical and current importance of cattle in Zimbabwe. Masvingo province has the largest cattle population in the country, and the Masvingo district has significant infrastructure and cattle processing capacity.

Due to low rainfall in most of Masvingo province, irrigation development has received attention from all governments; including those of the colonial era (Marongwe 2008). Successive governments have

embarked on dam development projects in both large-scale commercial and small-scale farming areas. The largest in the Masvingo district is Lake Mtirikwi, the main purpose of which was to store water for the sugar irrigation schemes in Chiredzi. Examples of smallholder projects are the Fuve-Panganai and Mushandike irrigation schemes. A key feature of such irrigation initiatives has been 'the dominant role of the state in managing and controlling smallholder irrigation', which Dzingirai (2003) argues has been partly to blame for the poor performance in the Mushandike scheme. In contrast, autonomous farmer-initiated irrigation projects in places such as Domboshawa and Mutoko have succeeded in making a significant contribution to Harare's vegetable supply. In the resettlement areas of Masvingo and Gutu, a few farmers have embarked on similar low-cost irrigation initiatives and are serving the vegetable-starved markets in Masvingo by using various water sources including streams, stock dams and shallow wells on the former ranches where they were settled. The vegetable case study looked at in the Masvingo study area is an example of 'import substitution' via agricultural value chains.

For the third stage, using village leaders as key informants in the study areas, a successful household in respect of each commodity was selected as the primary (tier1) enterprise household unit (EHU) involved in commercial agricultural production. The focus on successful surplus producers is justified, as the aim of the study is to assess the potential of the chosen commodity value chain in creating local on-farm and non-farm employment income. One farmer each for beef and vegetable production were selected as tier1 EHUs at the Masvingo site, as were one maize farmer and two tobacco farmers at the Mvurwi site.

The study traced various forward and backward linkages of the smallholder farmers, followed significant links ('following the money') and interviewed EHUs up to tier 3. Tier 3 EHUs also provided information on their tier 4 links, but these were not interviewed. Tier 1 activities were traced to tier 2 activities, with the focus on identifying input supply, resources, employment, output market, expenditure and social relations links. This approach was repeated for tier 3 EHUs to trace tier 4 linkages.

4 Background to the study areas

The study was carried out in the two agro-ecologically contrasting districts of Mazowe and Masvingo, which displayed varying agricultural production patterns. Mazowe is a highly productive farming area with reliable rainfall, while Masvingo is generally drier. The characteristics of the two districts are considered below.

The Mazowe district

The Mazowe district is one of the seven districts in the Mashonaland Central province. It lies at the south-western end of the province, where Guruve and Muzarabani provide the district's boundaries to the north, Bindura and the Mashonaland East province to the east and Harare to the west. Its southern administrative centre, Concession, is about 60km from Harare and has a good road network, with trunk roads to the city of Harare to the south, Bindura to the east and Guruve to the north. The district has a total surface area of 453892ha, and a population of 243999 people. The Mazowe district is also divided into two constituencies, Mazowe East and Mazowe West. Mazowe West covers most of the new resettlement schemes, while Mazowe East covers most of the Chiweshe communal areas.

The main topographical feature of the district is its high plateau with the Great Dyke being a significant landmark. In the central part of Mazowe there are red soils of the artho-ferrallitic groups. However, in the Mvurwi area there are sandy light-textured soils derived predominantly from granite. The new resettlement areas in Mazowe have retained most of their natural cover, with grasslands and woodlands, vegetation typical of the savannah. The granitic soils, particularly in the Mvurwi area have contributed to high tobacco production. The soils are also ideal for groundnuts, maize production and livestock ranching.

The topography gives the district a very diverse climatic structure. The district lies in Natural Regions II and III.[1] The high altitude areas closer to Harare generally receive higher and more reliable rainfall (between 750mm and 1000mm per annum) compared to the low altitude areas.[2] Most of Zimbabwe's rainfall in the highveld is received during the five summer months. In general, the Mazowe district receives above-average rainfall, but some areas receive rainfall below the average.

The dominant tree species in Mazowe are the Brachystegia spiciformis (*musasa*) and Julbernardia globiflora (*mutondo*). Trees such as Albizia amara (*muora/mugunduzi*), Combretum zeyheri (*muruka*), Peltophorum africanum (*muzeze*) and Parinari curatellifolio (*muchakata*) are to be found in Mazowe West. In areas with vleis (wetlands), Syzygium cordatum (*mukute*) have been noted. The tree species provide the district with a distinctive vegetation cover.

Mazowe has large-scale water resources, with Mazowe Dam being one of the biggest in the Mashonaland Central province. The district also possesses one of the largest dairy farms, has the strategic citrus-producing Mazowe Estate and has the important Henderson research and experimentation centre. In Concession, there is one of the largest Grain Marketing Board grain silos,

[1]On the basis of the climatic pattern, altitude and soil type, the country is classified into five agro-ecological regions, with agricultural potential declining from Region I to Region V.

[2]Mazowe, just like the Highveld areas, has three seasons: (i) a dry winter, covering the months from April to August, with cool temperatures, especially at night when frost is sometimes experienced; (ii) a hot season, with temperatures building up to a maximum in October; and (iii) a wet summer season in which the main rains are received from November to March.

which is used as a strategic national grain reserve. The silo was located in Mazowe simply because Mazowe and surrounding districts have traditionally been the main producers of grain in the country.

Demographic profile

The demography of Mashonaland showed major changes between 2002 and 2012, reflecting the effects of the land reform programme. Districts that had the most commercial farms, such as Bindura, Mazowe and Shamva, experienced higher inter-census population increases than the mainly communal districts, such as Guruve-Mbire, Muzarabani, Mt Darwin and Rushinga (see Table 1). Mazowe's population increased by 22% from 199408 people in 2002 to 243999 people in 2012, which was greater than the provincial growth rate of 15%. This is based on the movement of people onto new farms as farmowners and additional farmworkers brought in by the new farmers. As of 2012, Mazowe had 61292 households.

The communal areas consist of 36% of the population. The urban areas such as Mvurwi, Glendale and Concession consist of 8.8% of the population. The newly resettled areas and large commercial farming areas consist of 55% of the population. The average household numbers five persons.

Table 1: Population in Mashonaland Central, 2002 and 2012 census

District	2002	2012	Change
Bindura district	142026	168894	19%
Centenary district	107718	122791	14%
Guruve district	184828	124041	12%
Mbire district3		82380	
Mt Darwin district	199105	212725	7%
Rushinga district	67134	74040	10%
Shamva district	98046	123650	26%
Mazowe district	199408	243999	22%
Total	998265	1152520	15%
National Total	11631657	13061239	12%

Sources: Zimbabwe National Population Census: 2002, Zimbabwe National Population Census: 2012

Agrarian structure and agricultural activities

The Mazowe district has a diverse agrarian structure, which emerged out of the FTLRP. There are A2 schemes (small-scale commercial agriculture) and A1 schemes (smallholder farming), communal areas and state farms of various sizes and involved in various enterprises (crop production, horticulture, citrus, wildlife, seed production, dairy). The Mazowe district has many advantages in terms of proximity to vibrant markets in Harare (which is also a gateway to international markets), new land tenure arrangements that are highly contested, varied land use and agricultural production, and rapid pace of land acquisition and redistribution. Mazowe experienced its first redistribution of land on a largescale in 2000, having been unaffected by the first phase of the land reform and resettlement programme, which ended in 1997.

The district holds a large percentage of the prime lands that have been allocated under the A1 and A2 schemes. In fact, Mazowe has more A2 farms than any other district in the country. There are also

[3] Mbire is a mainly communal district carved out of the Guruve district.

large 'indigenous' commercial farms that have not been affected by the land reform programme. Mazowe has a concentration of some of the best infrastructure necessary for farming, such as roads, energy and rail. It is also well connected with telephone services. Nevertheless, there are still many 'weekend farmers' who reside in urban areas.

The Mazowe district area incorporates the Chiweshe communal land, which is a block of small communal plots measuring 86200ha. The average size of the plots in communal areas is 3–5 hectares. The communal lands are based on a combination of tenure arrangements, with arable land, common grazing and residents forming the total continuum of the tenure system. There is no individual title to land in the communal areas, except in a few places like the Nzvimbo growth point where there is local authority recognition of ownership based on the payment of rates, fees and development levies.

The Mazowe communal farmers are ranked among the most productive in the country and compete with communal farmers in areas such as Gokwe in the Midlands and Hurungwe in Mashonaland West. Crops grown are mainly maize, cotton and burley tobacco. A challenge that faces the institutions and farmers of the Chiweshe communal land is overuse of the land, especially the encroachment on grazing areas, which contributes to diminishing livestock herds. Conservation and environmental protection measures have not been successful. Rampant tree cutting for fuel, and soil erosion are major concerns. The communal tenure system seems to be outliving its usefulness because individual initiative is not rewarded. Furthermore, the poor socio-economic status of the peasants results in their placing survival above environmental protection. Land degradation has been accelerated by recent increases in panning for gold in the area as new farms are opened up.

Economic activities

The Mazowe district is one of the strategic hubs of economic activity in Zimbabwe. Most economic endeavour is concentrated around agriculture, which includes production, processing and services. The Mazowe district is strategically located to provide numerous services and goods to markets in Harare, Bindura and Chinhoyi. Although it is an agricultural district, there are numerous sources of income. These include agro-processing, large- and small-scale gold-mining, small and medium-sized industries in the urban centres of Glendale, Mvurwi and Concession, and the Nzvimbo growth point, supporting rural productive activities.

Companies of various sizes are involved in the provision of inputs and services. Irrigation supply companies, artisanal trades, welding, retailing and agro-dealerships are some of the key economic activities. The Mazowe district has the largest processor of citrus in the country – Mazowe Citrus Estates, formerly owned by Anglo-American and now part of the local fresh produce conglomerate, Interfresh, which produces citrus juice for the export market. It employs in excess of 2500 workers at its various processing enterprises and farms. There are other large companies such as Glendale Springs, which is involved in water processing for the domestic and export markets.

Mining activity is concentrated on the mountain ranges in Mazowe, which form part of the mineral-rich Great Dyke. Gold mining takes place in such areas as Jumbo, Ward 22. Following the opening up of formerly large commercial farms, small-scale mining and gold panning have sprouted in many parts of the district and, in particular, in the new resettlement areas. These mining activities are a new avenue for income generation, as can be seen in the large number of participants in the sector. Most of the major rivers, including the Mazowe River, have been invaded by the small-scale miners. Related service industries have also emerged, albeit in an unregulated manner, given that gold panning is regarded as illegal. However, a major trend that has emerged is for gold panning to act as

a way of supplementing income from farm work, and many of the laid-off farm workers have been absorbed by the activity.

Transport services are generally very good in the whole district, especially in the central zone, where there is the main road from Bindura to Harare. In general, farmers and rural people engage truckers on the Harare-Bindura highway to transport their goods. Most people, however, still depend on buses to transport their products to and from the town markets. Many bus operators serve the district, and are concentrated on the main trunk-road network from and to Bindura, Harare and Mvurwi. The communal areas have a gravel road network, which has proved to be sufficient despite high maintenance costs. Shortages of spare parts and fuel problems since 2000 have affected the rural road maintenance programmes of both the Mazowe Rural District Council and the government's District Development Fund.

In the western parts of the district, where many of the new resettlement areas are located, bus services are limited and often irregular, because operators have not yet established viable routes in the resettlement areas. People have to walk approximately 20 km to get a bus to Harare, Concession or Bindura from the resettlement areas.

The Masvingo district

The Masvingo district is the largest of the seven districts in Masvingo province to the south-east of the country. It is bordered to the north by the Gutu district, to the east by the Bikita and Zaka districts and to the west by Chivi district (see Figure 1). The town of Masvingo is the district and provincial administrative centre, and is the largest urban settlement in the province. Established in 1890 as Fort Victoria, it is the oldest urban area in the country.

The Masvingo district spans an area of 654 000ha. It includes three agro-ecological zones or natural regions (NRs), with NR III accounting for 7%, NR IV for 82% and NR V for 11% of its total area. Large-scale commercial farms (LSCFs) used to occupy one-third of the district in NRs III and IV. Communal areas (CAs) constitute about 18% of the district's total area, and are in NRs III, IV and V. Resettlement areas (RAs) and small-scale commercial areas (SSCAs) share the remaining land. All resettlement schemes are in NR III and small-scale commercial farms are in NRs III and IV.

Until the post-FTLR period, the Masvingo district was the most populous of the Masvingo province. According to the 2012 census, it has been overtaken by Mwenezi as the most populous district. The Masvingo district had a population of 299101 at the time of the 2012 census. This is 13% more than the population in 2002, a growth rate that is close to the provincial and national population growth rates over the same period (see Table 2). Masvingo's inter-census growth is dwarfed, however, by Chiredzi and Mwenezi, which experienced the largest influx of people as a result of the land reforms. Bikita, Chivi, Gutu and Zaka show growth rates lower than the provincial and national average, indicating that they experienced outflows of people, probably due to resettlement on farms in other districts.

Figure 1: Location of Masvingo study sites

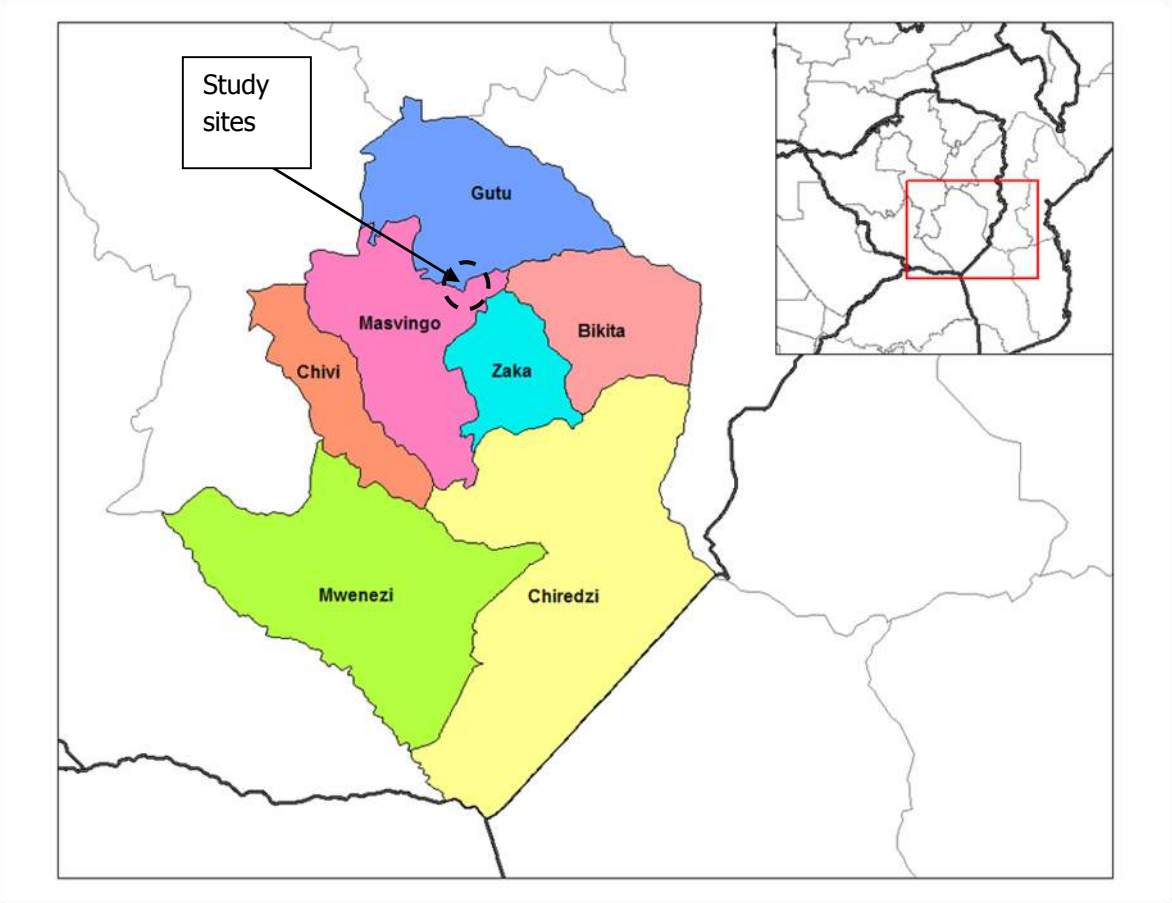


Table 2: Population in Masvingo province, 2002 and 2012 census

District	2002 census	2012 census	Change
Bikita district	156940	162356	3%
Chiredzi district	234020	306207	31%
Chivi district	155640	166049	7%
Gutu district	198536	203083	2%
Masvingo district	263957	299101	13%
Mwenezi district	126238	166993	32%
Zaka district	185107	181301	-2%
Provincial total	1320438	1485090	12%
National total	11631657	13061239	12%

Source: www.zimstat.co.zw

The population dynamics above are supported by resettlement patterns reported in our previous studies (see Table 3). These show that more land and more beneficiaries were settled in Mwenezi and Chiredzi than in the other districts that had LSCFs. Zaka, Chivi and Bikita did not have any LSCFs, and beneficiaries in these districts were accommodated in the Chiredzi, Gutu, Mwenezi or Masvingo districts.

Table 3: Settlement patterns in FTLRP areas of Masvingo province

Scheme type	Settlement patterns	Gutu	Masvingo	Chiredzi	Mwenezi	Province

A1 villagised and self-contained	Total farms settled	83	56	33	72	244
	Total area (ha)	154522	70455	248176	722411	1195564
	Total settlers	5479	3209	11155	12754	32597
	Average areas/settler(ha)	28.2	21.9	22.2	56.6	36.7
	Average settlers/farm	66	57	338	177	134
A2	Total farms settled	18	21	73	64	176
	Total area (ha)	58281	27755	73927	211557	371520
	Total settlers	179	372	672	372	1169
	Average area/settler(ha)	326	75	110	569	318
	Average settlers/farm	10	18	9	6	7
	Total farms settled	101	77	106	136	420
	Total area (ha)	212803	98210	322103	933968	1567084
	Total settlers	5658	3581	11827	13126	34192

Source: Scoones et al (2010)

The altitude of the Masvingo district ranges from 450m above sea level in Nyajena CA to 1240m above sea level in the former LSCF area previously referred to as the Victoria East Intensive Conservation Area. The average annual temperature for the district is about 20 degrees Celsius. Areas in NR IV have a slightly higher annual average of about 22 degrees Celsius. The soils in the district are of the fersiallitic type, and the terrain ranges from moderate to steep slopes. In areas where slopes are steep, and soils shallow and of poor texture, there are potential erosion hazards.

The district receives an average of 600mm rainfall annually, but irregular heavy rains are common around Great Zimbabwe and Lake Mutirikwi. The distribution of the rain is uneven, and most of it is received between February and March. Mid-season dry spells are common and are sometimes severe between December and mid-January in NRs IV and V.

Infrastructure is generally good in the district. An all-weather main road runs through the district, linking Harare to the Republic of South Africa; another links the town of Masvingo to the eastern border town of Mutare and to Gweru. Masvingo is also linked to Harare and Gweru by a freight railway line. Farmers in the district have relatively better access to services (e.g. transport to and from Masvingo town) than do farmers in other districts. There are numerous trading centres where farmers buy household goods and sell agricultural products.

There are several reservoirs and Lake Mutirikwi (Kyle) in the district. The concentration of dams is higher in NR V (Nyajena CA) than in the other NRs. Water from most dams in Masvingo is not utilised for irrigation, despite a significant proportion of the district lying in NR V. There is one irrigation scheme in this zone (Mushandike). Two other operating irrigation schemes are in the old resettlement areas (pre-FTLR). The total extent of irrigation schemes is about 550ha and 550 families are plot holders (AGRITEX, Masvingo district, 2004).

Traditionally, the Masvingo province has been a cattle ranching region. Masvingo town remains the centre of the cattle trade in the province. All the major beef abattoir companies, including Carswell Meats, the Cold Storage Company and Montana Meats, have operations in Masvingo. In addition, as the largest urban area in the Province, the town has retail outlets, including national supermarket chains such as OK and Spar, as well as farm supply outlets serving the newly resettled areas and communal farmers.

Tourism is a major economic activity in the Masvingo district. Masvingo town serves as the gateway to major tourist attractions in the province, such as the Gonarezhou National Park, which forms part of the Gaza (Mozambique), Kruger (South Africa) and Gonarezhou Trans-frontier National Park. Attractions within the district include the Great Zimbabwe National Monument, which is a World Heritage Site, and the Lake Mutririkwi Recreational Park.

Changing structure of agriculture in the study areas

Agriculture during the pre-FTLR period

To provide comparative information for current, post-FTLR production, we analyse information from the census of LSCFs during the 1996/97 season. This is the season just prior to notice of the extensive compulsory acquisition of 1471 white-owned farms, which is generally taken as the precursor to the FTLRP.

The Mazowe district

In 1996/97, there were 275 farms in Mazowe that grew crops, with a combined area of 232502ha. The commercial farming area, which used to occupy most of the district was technically divided into four Intensive Conservation Area (ICAs), namely the Barwick, Marodzi-Tatagura, Mvurwi and Glendale ICAs. These ICAs had varying agricultural systems stemming from differences in soil type and vegetation, which, in turn, were influenced by the parent materials of which the soils were composed. Barwick ICA was 88250ha of predominantly sandy soils. Mvurwi ICA was 128386ha, with sand and sandy loam soils dominating. Marodzi-Tatagura was 53250ha of deep red clay soils generally referred to as tatagura soils. Glendale ICA was 77736ha of sandy loam soils suitable for all crops. Intensive to semi-intensive livestock production systems were the main activities. Thus, the total area covered by commercial farms in the district was 347 622ha.

Table 4: Land use in Mazowe LSCFareas, 1996/97

ICA	Total LSCF area in the ICA (ha)	Farms with crops				Area of farms without crops (ha)	Total non-cropped area(ha)
		Area of farms (ha)	No. of farms	Area cropped (ha)	% area cropped		
Barwick	88250	50581	53	4253	8%	37669	83997
Mvurwi	128386	94149	76	15437	16%	34237	112949
Marodzi-Tatagura	53250	35898	61	8584	24%	17352	44666
Glendale	77736	51874	85	18942	37%	25862	58794
Total	347622	232502	275	47216	20%	115120	300407

Source: Based on raw data on "Large-Scale Commercial Farms: 1996-97 Season Census of Production" provided by the Central Statistics Office, Government of Zimbabwe

The above information does not include land owned by Mazowe Citrus Estates and the Forrester Estate, which were not officially resettled. Mazowe Citrus Estates is the country's biggest producer of oranges, lemons and limes. The Forrester Estate is subject to country-to-country agreements between the Zimbabwean and German governments; nevertheless, it has been informally settled.

There are 36 'indigenous' LSCFs that have not been affected by the land reform programme. Table 5 summarises the cropping patterns in Mazowe district LSCFs in 1996/97.

Table 5: Mazowe cropping patterns, 1996/97

Crop	No. farms	Area (ha)	Output (MT)	Mean area/farm (ha)	% of farms growing crops	% of area cropped
Maize	213	14233.9	64036.9	66.8	77%	30.15%
Maize seed	43	2000.0	4897.0	46.5	16%	4.24%
Sorghum	8	471.0	1115.3	58.9	3%	1.00%
Wheat	47	5243.6	30551.5	111.6	17%	11.11%
Barley	9	1235.0	7044.8	137.2	3%	2.62%
Oats	1	75.0	6.5	75.0	0%	0.16%
FCV tobacco	107	8157.2	18782.6	76.2	39%	17.28%
Burley tobacco	5	75.5	144.0	15.1	2%	0.16%
Oriental tobacco	1	90.0	126.0	90.0	0%	0.19%
Coffee	2	158.0	272.6	79.0	1%	0.33%
Cotton	36	4421.0	9486.0	122.8	13%	9.36%
Groundnuts	8	86.0	257.5	10.8	3%	0.18%
Sunflowers	5	81.0	32.8	16.2	2%	0.17%
Soyabeans	83	9238.5	19362.4	111.3	30%	19.57%
Paprika	31	507.7	1340.6	16.4	11%	1.08%
Cowpeas	2	34.0	33.8	17.0	1%	0.07%
Beans	3	156.0	56.7	52.0	1%	0.33%
Sugarcane	3	338.0	2154.3	112.7	1%	0.72%
Irish potatoes	21	177.8	4140.9	8.5	8%	0.38%
Seed potatoes	8	111.5	2162.6	13.9	3%	0.24%
Onions	4	7.8	279.5	2.0	1%	0.02%
Peas	7	93.3	253.0	13.3	3%	0.20%
Tomatoes	7	57.5	747.8	8.2	3%	0.12%
Mushrooms	1	0.0	10.1		0%	0.00%
Other vegetables plus green mealies	13	134.6	US$203,033.21	10.4	5%	0.29%
Flowers and shrubs	5	31.6	US$ 1,287,567.86	6.3	2%	0.07%
Total cropped (ha)		47215.5				
% area for crop farms		20%				

Source: Based on raw data on "Large-Scale Commercial Farms: 1996-97 Season Census of Production" provided by the Central Statistics Office, Governemnt of Zimbabwe

Table 6: Mvurwi LSCF cropping pattern, 1996/97

Crop	No. farms	Area (ha)	Mean output (MT)	Total (ha)	% of area cropped	% of farms growing crops
Maize	75	67.5	273.8	5063.0	33%	99%
Maize seed	8	47.6	128.3	381.1	2%	11%

Sorghum	1	20.0	27.3	20.0	0%	1%
Wheat	11	154.5	908.6	1699.9	11%	14%
Barley	1	227.0	925.0	227.0	1%	1%
FCV tobacco	64	95.1	215.7	6084.8	39%	84%
Coffee	1	60.0	106.0	60.0	0%	1%
Groundnuts	2	10.5	27.8	21.0	0%	3%
Sunflowers	2	20.0	4.4	40.0	0%	3%
Soyabeans	10	159.4	251.6	1594.0	10%	13%
Paprika	10	13.3	32.0	132.5	1%	13%
Cowpeas	1	20.0	2.4	20.0	0%	1%
Beans	1	1.0	2.5	1.0	0%	1%
Irish potatoes	1	10.0	220.2	10.0	0%	1%
Peas	3	25.0	60.0	75.0	0%	4%
Other vegetables plus green mealies	1	8.0	US$37,172.74	8.0	0%	1%
Total cropped (ha)				15437.3		
% area for crop farms				16%		

Source: Based on raw data on "Large-Scale Commercial Farms: 1996-97 Season Census of Production" provided by the Central Statistics Office, Government of Zimbabwe

The Mazowe study sites are in the former Mvurwi ICA. Table 6 summarises the patterns of crop production in Mvurwi commercial farms during the 1996/97 growing season. The dominant crops grown in the season were flue-cured tobacco, maize, wheat and soyabeans. In most tobacco-growing areas, maize and wheat were an integral part of the rotation system to stem the build-up of nematodes, a critical pest in tobacco production.

The census of production information did not include labour. However, Selby (2006) looks at production and labour hiring practices on 70 farms in the Marodzi-Tatagura ICA, which lies just south of the Mvurwi ICA. Table 7 summarises land use and employment patterns on these farms. Labour hiring was highest on farms that had dairy, flower and fruit production as major enterprises. This was followed by tobacco-based farms. Grain and Irish potato enterprises showed the least employment creation. The value chains that are considered in this study for the Mvurwi resettlement areas are those relating to tobacco and maize. Selby's (2006) thesis shows that tobacco farms employed 0.21 permanent and 0.12 seasonal employees per hectare cropped. Assuming seasonal labour is engaged for a period of six months in the year, this would imply 0.06 permanent employee equivalents per hectare of cropped land, amounting to a total of 0.27 permanent employee equivalents per cropped hectare. Similarly, maize generated 0.14 permanent employees per cropped hectare.

Table 7: Mazowe on-farm LSCF employment in the Marodzi-Tatagura ICA, pre-FTLRP

Key enterprises	No. of farms	Ave. cropped ha	Permanent labour days	Seasonal labour days	Labour days per cropped ha	Permanent labour days per cropped ha	Seasonal labour days per cropped ha
Dairy, flowers & fruits	8	262	114	58	2.64	0.44	0.22
Tobacco based	34	221	46	28	0.34	0.21	0.12
Wildlife & tourism	1	200	35	0	0.18	0.18	-
Grain and beef	24	273	37	10	0.17	0.14	0.04
Potatoes	3	367	27	0	0.07	0.07	-
Whole sample	70	249	50	24	0.29	0.20	0.09

Source: Selby (2006)

The Masvingo district

The Masvingo district was estimated, in the 1996/97 census of production, to have 215 farms covering 199 464ha. Of these farms, 129 covering 116 639ha were engaged in some crop production activities. However, the total area under crops amounted to only 5149ha or 4.4% of the reported farm area. Thus, an estimated 96% of the farm area was under some livestock enterprise.

Table 8: Land-use patterns in Masvingo LSCF, pre-FTLRP, 1996/97

Total LSCF area		199464	215 farms
Farms with crops	Total area	116639	129 farms
	Farms	129	
	Area cropped(ha)	5149	
	% area cropped	4.4%	
Farms without crops		82825	86 farms
Total non-cropped area		194315	

Source: Based on raw data on "Large-Scale Commercial Farms: 1996-97 Season Census of Production" provided by the Central Statistics Office, Government of Zimbabwe

The main dryland crops grown by a significant number of those with cropped land were maize and groundnuts. Some areas were under irrigation. Horticultural crops accounted for 174ha, while 369ha were under wheat.

However, the Victoria East ICA, where our study was undertaken, had low levels of crop production and even lower levels of irrigated horticulture, with only 165ha estimated to be under vegetable crops (see Table 10). Including the area under wheat, a total of about 420ha were under irrigated production. These figures give us an idea of the scope for embarking on smallholder irrigation production in the newly settled study area.

Table 9: Masvingo district LSCF crop production,1996/97

Crop	No. of farms	Area	Output	Mean area/ farm	Mean output/ farm	Yield
Maize grain	68	3103.8	9641.5	45.6	141.8	3.1
Sorghum	13	349.1	353.6	26.9	27.2	1.0
Wheat	7	369.1	1336.9	52.7	191.0	3.6
Barley	3	84.0	290.0	28.0	96.7	3.5
Pearl millet	1	1.0	0.3	1.0	0.3	0.3
Finger millet	2	1.2	0.9	0.6	0.5	0.8
Rice	1	1.5	0.0	1.5	0.0	0.0
FCV tobacco	1	20	42	20	42	2.1
Oriental tobacco	1	0.5	0.6	0.5	0.6	1.2
Groundnuts	19	123	190	6.5	10.0	1.5
Cotton	7	202	362	28.9	51.8	1.8
Sunflowers	4	174	105	43.5	26.2	0.6
Soyabeans	9	328	595	36.4	66.1	1.8
Oil palm	1	70		70.0		
Bambara nuts	6	4.6	3.4	0.8	0.6	0.7
Beans	2	0.7	1.1	0.4	0.6	1.6
Cow peas	1	20.0	10	20.0	10.0	0.5
Irish potatoes	4	73.2	207	18.3	51.8	2.8
Paprika	8	122	253	15.3	31.7	2.1
Onions	12	31	443	2.6	36.9	14.2
Tomatoes	12	24	306	2.0	25.5	12.8
Other vegetables plus green mealies	12	46	US$38050	3.8	34,580	9021
Total area		5148.7				

Source: Based on raw data on "Large-Scale Commercial Farms: 1996-97 Season Census of Production" provided by the Central Statistics Office, Government of Zimbabwe

Table 10: Cropping patterns in Victoria East ICA, Masvingo, 1996/97

Crop	ICA 832	Victoria East	27410	
	No. farms	Mean area(ha)	Mean output	Total ha
Maize grain	24	84.4	296.3	2024.4
Sorghum	3	16.2	23.8	48.5
Wheat	3	84.7	288.3	254.0
Barley	1	16.0	20.0	16.0
Groundnuts	8	12.4	16.4	99.4
Cotton	6	33.3	59.7	200.0
Sunflowers	3	57.3	34.1	172.0
Soyabeans	6	40.3	64.7	242.0
Irish potatoes	3	22.7	39.0	68.2
Paprika	2	35.0	96.5	70.0
Onions	4	0.8	10.5	3.2
Tomatoes	4	3.0	46.7	12.0
Other vegetables plus green mealies (Z$ 1996)	5	2.4	US$2951	12.1
				3221.8

Source: Based on raw data on "Large-Scale Commercial Farms: 1996-97 Season Census of Production" provided by the Central Statistics Office, Government of Zimbabwe

Patterns of agricultural production post-FTLR

In this section we describe the broad patterns of agricultural production post-FTLR in the selected study sites in Mazowe and Masvingo.

Mazowe

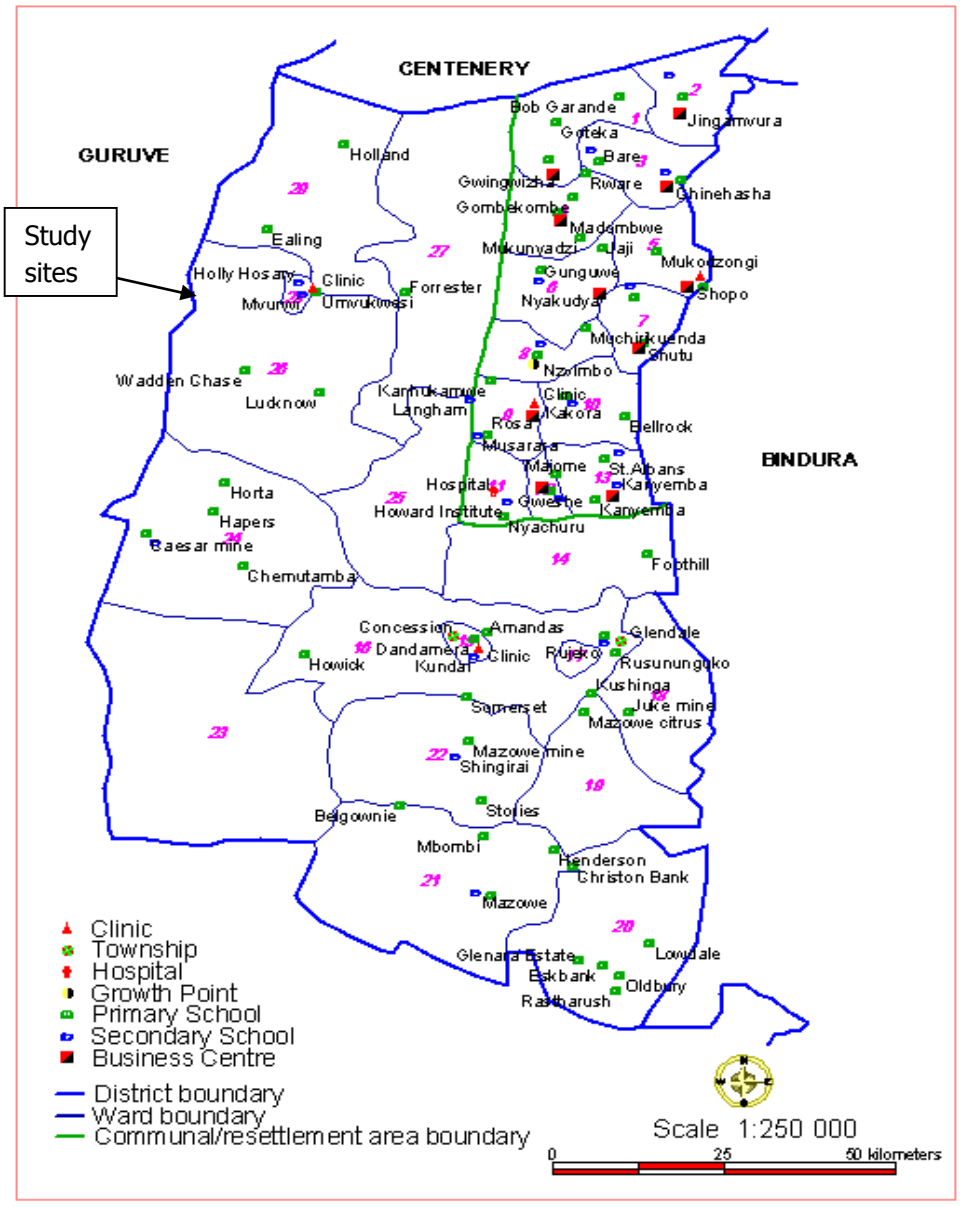
Figure 2 situates Ward 26, in which study resettlement areas are indicated, relative to the rest of the Mazowe district. To gain insight into the patterns of production post-FTLR within the study sites, a survey was conducted in October 2014 of farmers resettled in three A1 resettlement schemes in the Mvurwi farming areas – Ruia A, Ruia B and Hariana. Table 11 summarises the number of respondents to the survey questionnaire.

Table 11: Interviewed farmers in the Mvurwi resettlement areas, 2014

Farm name	A1 farmer interviews	Compound interviews	Total
Ruia A	63	30	93
Ruia B	17	30	47
Hariana	70	40	110
Total	150	100	250

Source: Own survey results

Figure 2: Location of the Mazowe study sites



Source: Ruzivo Trust, Harare

Ruia A is located 80km from Harare, along the Mvurwi-to-Harare highway. It currently has 86 officially resettled A1 farmers, 63 of whom participated in the survey. The former owner, Mr Vesso Klella left the farm, when it was occupied in 2001. According to extension workers, prior to the resettlement, the farm produced about 45 tonnes of tobacco each season from 20 hectares, grew 20 hectares of soyabeans, produced 40 tonnes of citrus for export, 100 tonnes of sweet potato, grown on 40 hectares, for sale in local and Harare markets, as well as 2 tonnes of pecan nuts. In addition, some 400 beef cattle and 100 sheep were kept on the farm. Sixty permanent general workers were employed. Ruia A was owner-managed, with the assistance of 5 enterprise foremen in charge of tobacco, cattle and sheep, citrus, soyabeans and maize. Ten men were employed to look after the cattle and 3 to care for the sheep. One cook, 1 waiter and 4 garden workers were employed at the farmhouse. Key infrastructure included several tobacco barns, 3 farmhouses, 4 boreholes, 1 compound and 2 tobacco grading sheds. Irrigation was used only for fruit. Soil types on Ruia A range

from sandy to sandy loams. Vegetation is dominated by Brachystegiaspiciformis (*musasa*), Julbernardiaglobiflora (*mutondo*), Uapacakirkianna (*mahobohobo*) and various Syzygiums.

Ruia B is adjacent to Ruia A and also located 80km from Harare along the Mvurwi highway. The farm lies on both sides of the highway. Mr Maclean Bisset owned the farm until it was acquired for resettlement in 2004. Officially, the farm was divided to settle 68 A1 beneficiaries, 17 of whom were included in the survey. Prior to resettlement, the farm produced tobacco (on 80ha), maize (on 150ha) and soyabeans (on 50ha). In addition, the farm held about 400 beef cattle. Some 5 boreholes supplied irrigated water to a potentially irrigable 400 hectares. Other key infrastructure included 4 maize silos, 5 farmhouses, 40 tobacco barns, 1 maize drier, 1 workers' compound, cattle feed pens, sheds, warehouses and a small stock dam. The compound was home to about 120 permanent farm workers. Average annual rainfall on the farm is about 1050mm. Dominant trees are *musasa, mutondo, mahobohobo* and Parinaricuratellifolia (*mobola plum*). Soils range from sandy loam to deep red soils.

Hariana farm was officially subdivided to accommodate 96 A1 plot-holders, 70 of whom were interviewed. The farm was one of the earliest to be occupied in the Mashonaland Central province, and attracted a lot of media attention when the late Libyan leader, Muammar Ghadafi visited the farm in 2002, three years after its occupation by people from surrounding Mvurwi urban and communal areas. A Mr Mcdonald owned the farm, which lies along the Mvurwi highway, 90km from Harare – prior to settlement. Farming activities at the farm before the resettlement included tobacco (on 150ha), maize (on 120ha), soyabeans, groundnuts, sugar beans, citrus (on 6ha) and beef cattle. Some 250 permanent workers were employed and resided in 3 compounds located on the farm. Other key infrastructure left at the farm included 5 farmhouses, 26 tobacco barns, 2 grading sheds and 4 dams that supported irrigation of tobacco, maize irrigated pasture.

The survey undertaken in the above schemes indicates that across all success groups (SGs), maize and tobacco are key commodities in the Mvurwi farming areas. Across all SGs, 97% of farmers grew maize and 64% sold a surplus during 2014. During the 2013/14 season, 75% grew and sold tobacco. SG1 had the most surplus maize producers, while SG2 had the most tobacco growers.

Table 12: Survey of 150 households in Hariana, Ruia A and Ruia B A1 Schemes, Mvurwi, Mazowe

	Characteristics	SG1	SG2	SG3	All
Demographics	% of HH heads >50 years	48	60	35	49
	% female-headed households	18	21	21	20
	Mean no. of adults	3.3	2.8	2.2	3
	Mean no. of children under 20 years	3.4	3.4	3.2	3
	% HH head educated to Form 3 or above	55	47	60	53
Assets	Dwellings of brick under asbestos/tin roofs	1.38	1.02	0.52	1
	House elsewhere	30	19	13	20
	% with ploughs	88	87	75	83
	% with cultivators	60	52	31	47
	% with ox-carts	75	82	50	70
	% with tractors	20	5	0	7
	% with cars	53	36	27	38
	% with chain-saws	30	19	10	19
	% with water pumps	20	39	40	34
	Mean cattle holdings	11.2	8.2	5.1	8
Land	Allocated(ha)	6	6	6	6
	Ploughed in 2014(ha)	4	3.6	2.5	3
	% utilisation	67	60	42	56
	% who are leasing out land	0	3.2	14.6	6
	% who are leasing in land	7.5	16	10	12
Production	% farmers growing maize	100	94	98	97
	Maize produced (bags)	110	63	45	70
	% Farmers selling maize	70	60	63	64
	Maize sold (bags)	75	29	18	38
	% growing tobacco 2014	70	81	71	75
	Tobacco sold (kg)	1503	1728	1048	1450
Land preparation	Own draft only or own and rented draft	68	82	54	69
	Rented draft only	33	18	46	31
Labour	Mean permanent workers	1.4	0.7	0.3	1
	% farmers hiring permanent workers	58	37	31	41
	Mean temporary workers – compound	5.8	4.3	3.1	4
	% of farmers hiring from compounds	68	73	60	68
	Mean temporary workers – non-compound	1.2	1	0.7	1
	% of farmers hiring from outside compounds	23	18	12	17
	% of farmers who used work parties	8	15	13	12

Masvingo

Prior to the FTLRs, most large-scale white-owned farms such as Wondedzo practiced cattle ranching, with animals being sold for slaughter to large-scale abattoirs located in Masvingo town. This all changed with the post-2000 FTLRs, which divided most of Masvingo's large farms into units too small to be viable for purely ranching operations viable. What has emerged are smaller crop-based operations with multiple-purpose cattle herds.

The 1285ha Wondedzo Extension farm previously belonged to cattle rancher, George Hartley. It was settled by 39 households in 2000 at the start of land reform under the A1 self-contained model. Individual plots average 33 hectares. Soil type ranges from sandy to sandy loams, with black clay in

places. Rainfall averages 746mm (with a coefficient of variation of 28%). The Madakuchekwa Business Centre is the nearest commercial hub. Somewhat more distant commercial centres are Masvingo town (some 30km away) and the Mazare Business Centre (some 15km away).

A 2006 socio-economic profile shows the average age of heads of household to be 36 years. Households cropped an average 8.4ha and achieved maize output of 7385kg per family in 2006; 68% of households owned scotch carts, and 45% lived in houses under corrugated iron or asbestos roofing. In 2006, the settlers had an average holding of 11.9 cattle.

5 Case studies on space, markets, income and employment creation in key value chains

This section describes spatial configurations of markets, income and employment creation in key value chains post-FTLR in the Masvingo and Mazowe districts of Zimbabwe.

Beef value chain in Masvingo

Beef production has undergone profound transformation since 2000. Most of the commercially marketed cattle come from communal and resettled farmers, who are estimated to account for 90% of all slaughter animals (AGRITEX)[4]. However, marketed cattle come from multiple-function herds, and are usually sold to cater for emergency cash needs. These developments have led to the self-provisioning of services, boosting sales of dipping chemicals, vaccines and spraying equipment to smallholder farmers. On the marketing side, there has been the growth of a new class of participants in the beef value chains, who act as agents for abattoirs and cattle traders to facilitate aggregate batches of cattle for economic marketing to buyers. Some of the buyers rent land from resettled farmers to upgrade the quality of animals before slaughter, while a few medium-scale farmers are vertically integrated into retailing. Some cases of these emerging cattle farming and marketing activities are profiled below.

Farm-level income and employment creation in beef

To help us understand the income and employment-generation ability of the current beef structure, following the land reforms in Masvingo, we look at value chains radiating from three case-study farmers.

Case A1: MrsChakanetsa

Mrs Chakanetsa is a 57-year-old A1 farmer in Wondedzo. Her 66-year-old husband, a former a panel beater and brick-making company owner in Harare, is currently working as a bishop of the Members in Christ Church in Masvingo, and also runs a private college in Masvingo town. Originally from the Masvingise area of the Gutu district some 10km away, on settlement at Wondedzo in 2001, the Chakanetsas invested money earned from previous work in twenty head of cattle. The herd has since grown to 42, mainly from births at the farm. TheChakanetsas have been selling cattle regularly to fund various investments they have made in Masvingo town's Mucheke township, as well as to develop irrigation infrastructure and housing at their Wondedzo plot. Most sales are 'at the farm gate' due to the reduced transaction costs these entail when selling a few head at a time. Some cattle, especially cull oxen and bulls, are sold to large town abattoirs such as Montana Meats and Carwell, which buy on the basis of cold dressed yield. However, such sales carry the risks of condemnation for disease, of cattle losing weight after travelling on the hoof to Masvingo town, some 30km away, and of possible delays, which can lead to theChakanetsas having to pay for labour to

[4] Second Round Crop and Livestock Assessment Report 2013/14. Available at: https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/assessments/2ND%20ROUND%20CROP%20ASSESSMENT%20REPORT%202014.pdf (accessed June 2015)

herd cattle around Masvingo town before they are admitted into the abattoir yard. Heifers are usually sold in the Wondedzo farming area to other farmers, who admire theChakanetsa's Brahman crosses. The usual prices received for cattle are around US$400 for heifers, US$600 for big oxen and US$800 for bulls.

In the absence of public dipping services, the Chakanetsas purchase their own veterinary supplies. Veterinary medicines and dipping chemicals are bought from Masvingo town-based veterinary supply retailers, Masvingo Farm Supplies and N Richards, among others.

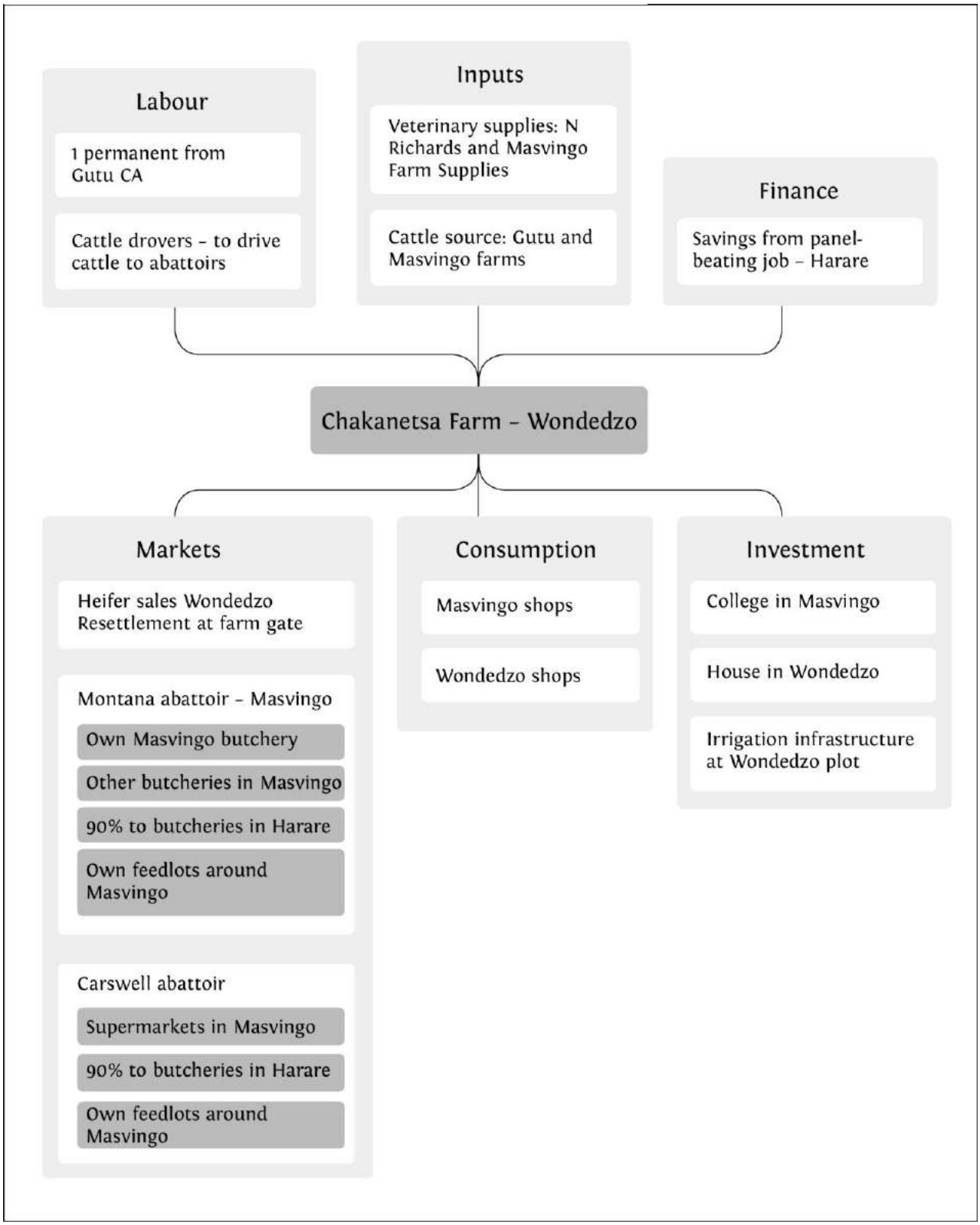
Labour

TheChakanetsas employ four male workers at $70 per month ($840 per annum) each. They do all sorts of jobs on the farm. One looks after cattle but he gets weekends and holidays off, when another worker or family member takes over. Two of the Chakanetsa sons reside on the farm and complement the labour force. When they sell cattle to Masvingo-based abattoirs, the Chakanetsas hire three experienced people to drive the cattle to Montana Meats and Carswell in Masvingo town 33 km away; one drover holding a red flag will take the lead, another will drive the cattle and the third will secure the rear. They charge a flat rate of between $150 and $200, regardless of the number of cattle. The charges factor in contingencies like food and possible delays that may occur before cattle are taken into the abattoir yards. For work on their dryland fields and irrigated crops, family labour is supplemented by hired labour from the local Wondedzo farming areas, as well as congregants of the Members in Christ Church. The labourers on the irrigated vegetable plot are paid in kind (maize grain or vegetables). Dryland crop weeding workers are paid at the rate of $1.00 per 100 metre line; at an inter-row spacing of 75 cm this translates to $133 per weeding.

Expenditure

In 2012, the Chakanetsas sold ten cattle to supplement income from maize and vegetable production. Income from these enterprises contributed to the building of their private college in Masvingo, which is now operational with an enrolment of 130 secondary school students. There has been rapid growth of small secondary schools around Zimbabwe, largely as a result of loss of teachers in most public schools during the hyperinflationary period between 2005 and 2008. Mrs Chakanetsa is currently building a modern house on the farm, using builders from the local community. Their income contributes to household upkeep for the family, mainly in the form of groceries bought at the local Wondedzo shops and in Masvingo town, where the family has an urban house.

Figure 3: The Chakabuda linkages



Case A2: Alice Mutasa

Alice Mutasa is a 66-year-old widow settled under the A1 scheme at Wondedzo. Her late husband, a retired bus company manager from Gweru, used retirement funds to purchase cattle. These numbered 25 at the start of their resettlement. The herd has since grown to 34. She employs one person from the Gutu communal areas to herd her cattle at a cost of $70 per month exclusive of food and lodgings. N Richards and Masvingo Farm Supplies are the main sources of crop and livestock inputs for her farm. Figure 4 maps the linkages from Alice's beef enterprise.

Since being settled at Wondedzo in 2001, Alice has sold twenty cattle, or an average of two animals per year. Most cattle are sold through Ms Shuvai Chikura, a cattle trader who is also a beneficiary of the land reform programme, and who has also sold to other farmers. Alice has sold one beast each to a farmer in Stanmore and another in Thorngroove, while a Mushandike resettlement farmer has bought two animals. Cattle sales were essentially to raise funds for the education of her five children, all of whom have since graduated from university. Proceeds from the sale of cattle were also used to build at the farm, to de-stump 12ha of arable land and to purchase farming equipment, including an ox-drawn cart. Currently, cattle sales are mostly for her upkeep and are supplemented by remittances from her children – two sons who own businesses in Gweru town and one married daughter who works in South Africa. For her basic needs, she depends on shops in the Wondedzo resettlement scheme and supermarkets in Masvingo town.

Case A3: Mr Mugoni

Mr Mugoni has a 280ha A2 farm in Gutu just north of Wondedzo on which he runs approximately 70 cattle. He also milks the cows, sells cultured milk locally, and plans to set up a dairy on the farm. Other enterprises on the farm include a recently started piggery, 2ha of vegetables under irrigation, and dryland yellow and white maize crops. The yellow maize is for pen-fattening cattle, while the white maize is for his own and the farm workers' consumption. He has a truck that can transport live animals for slaughter at the Gonyohori/Madzivire abattoir in Masvingo town. He also owns a small supermarket in town, which has a thriving butchery section, supplied by his farm. When his own supply is short, or animals are in poor condition on his farm, he sends buyers out to the communal and resettlement areas near his farm to purchase more to make the trip to town worthwhile. He also buys beef from local abattoirs such as Carswell Meats to supplement his vertically integrated beef operation. The supermarket was established some years back when he was working in government and later for a non-governmental organisation. During the economic crisis, the supermarket was not making any money, and it was closed for a period of time. However, since 2009 and dollarization, business has been booming. Demand for beef remains high, and he can undercut the main supermarkets (OK and TM) by strategic pricing, particularly of the lower quality cuts. He was retailing beef at his Njeremoto shop at $4 per kg, compared to $4.70 per kg for low quality cuts sold by the supermarket chains. He employs six labourers on his farm who, together, earn $900 per month. At his shop in Masvingo town, he employs three permanent workers at a wage of $180 per month each. Cattle buyers work on contract at a rate of $5 per animal bought. His relatives act as farm managers and oversee the shop.

Figure 4: The Mutasa linkages

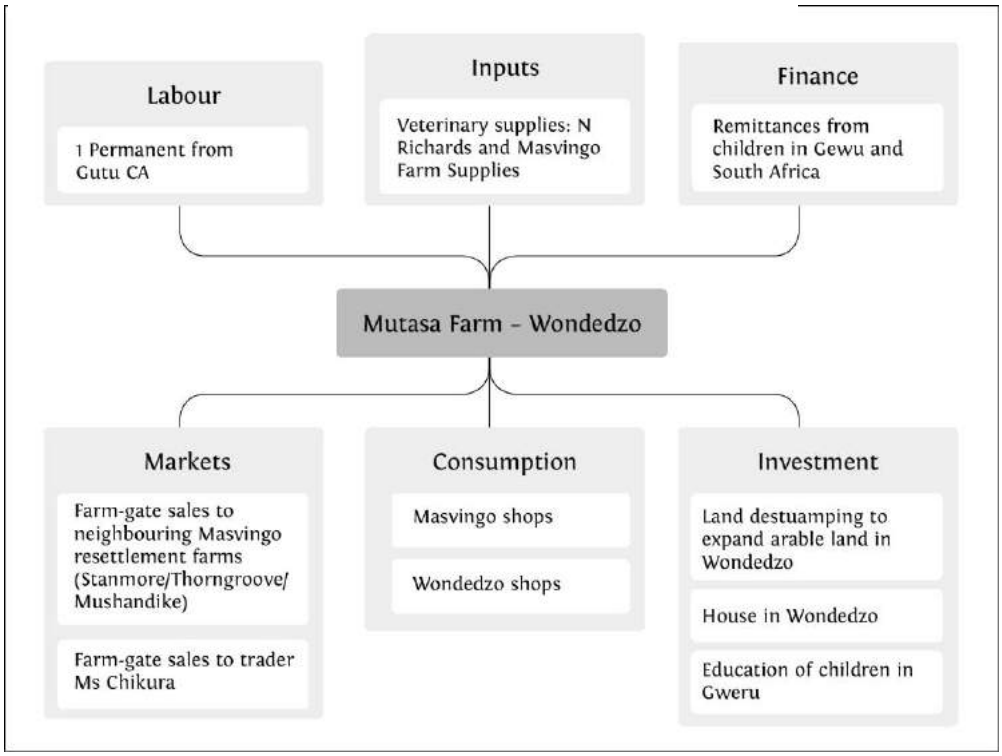
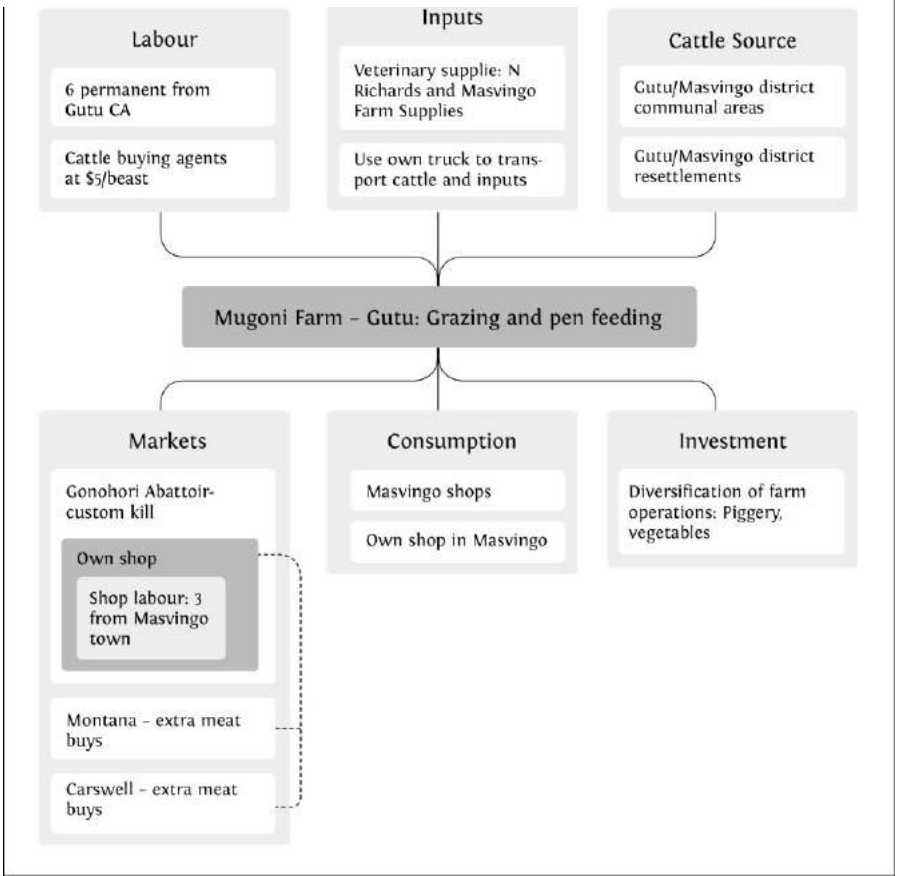


Figure 5: The Mugoni linkages



Off-farm income and employment creation in beef

The above cases show significant backward and forward linkages. Below, we follow some of these to help us understand the off-farm income and employment generation ability of the current beef structure.

Input suppliers

Several input suppliers are linked to the three case farmers profiled above. One of these is Masvingo Farm Supplies, a business formed prior to Independence and owned by Denbury Trading, a company run by a white family. At its peak, Masvingo Farm Supplies had fourteen branches all over the Masvingo province, serving more than 100 000 commercial and communal farmers with agricultural inputs. In August 2008, the agro-dealer closed its doors and let all 150 employees go, only to reopen in March 2009 with a mere fifteen staff members. According to the supervisor of the Masvingo outlet, farmers' demand for livestock medicines has been growing because more stock holders are now educated about the importance of vaccinations against debilitating diseases such as black leg, anthrax, lumpy skin and contagious abortion. Injectable antibiotics in demand are Hitet against tick-borne diseases and Terramcin LA, which cost $7.00 and $7.50 per 200ml respectively. Valbazen, the broad-spectrum anthelmintic drug of choice, costs $4.50 per 200ml. The wound medicine Exit costs $3.70 per 100ml, and Terramycin powder is $3.50 for 25g.Triatex dip costs $3.40 per 100ml and Tickbuster 100ml for $3.30. All these drugs are imported by Harare-based veterinary suppliers with links to South African drug companies. Masvingo Farm Supplies also provide a link between farmers and Masvingo-based veterinarians. They direct farmers to veterinary surgeons. In return, the shop gains through increased sales of drugs prescribed by veterinary surgeons.

Another long-established agro-dealer supplying both crop and livestock inputs to case farmers is N Richards. At N Richards Hardware shop, the research team talked to the manager, Mr Madakuchekwa who is also a Thorngroove resettled farmer with a business at Wondedzo Business Centre in partnership with his supervisor of 30 years at N Richards, Mr Michael Makumire. Mr Mudakucheka knows the Chakanetsas from his business at Wondedzo and as a client at N Richards. According to the N Richards manager, Mr Chakanetsa buys agricultural equipment, seed, stockfeeds (dry season licks) and building materials from them. In Masvingo town, N Richards competes with Masvingo Farm Supplies, Ricco, Bilcro and Halsteads. Zimbabwe's land reform has seen an escalation in demand for materials such as corrugated iron sheets, door frames, window frames and ploughs. From selling an annual average of 2000 door frames prior to the land reforms, N Richards now sells in excess of 5000.

Both N Richards and Masvingo Farm Supplies also stock fertilisers and seeds from all the major fertiliser and seed vendors headquartered in Harare, including Pannar, Seed Co, Cargill, Windmill and Zimbabwe Fertiliser Company.

Cattle markets

The farm cases reveal that there are three types of participants in cattle buying in the rural areas – traders (i.e. those who buy and on-sell or speculators), abattoirs and butchery owners. Most of these players make use of local agents to look for cattle within the smallholder farming areas. The following cases were linked to case farmers in marketing relations.

Case A4: Shuvai Chikura

> *Shuvai Chikura is an A1 farmer in the Beza resettlement area a few kilometres from Wondedzo. Shuvai's business linkages are summarised in Figure 6. She buys cattle, sells to Montana and Carswell abattoirs or custom slaughters them at Gonohori Abattoir, selling the meat to town butcheries, colleges and supermarkets. Shuvai is a 36-year old widow who was a vegetable vendor prior*

to her settlement at the Beza A1 scheme in 2002. She then moved into buying vegetables from farmers for resale to supermarkets in Masvingo town. With the profits earned from dealing in vegetables, she moved into broiler production. This allowed her to invest in her first cow. Shuvai later exchanged the cow for a big ox, which she sold to Montana Meats, an abattoir based in Masvingo town. This was her first step in cattle trading, but her ambition did not end there. She moved up the value chain, buying cattle at around $400, having them custom slaughtered at Montana Meats or the Cold Storage Company abattoirs and selling carcasses to butcheries and end-consumers at between $3 to $4 per kilogram. Given an average carcass mass of around 180kg, this translates to a margin per animal of between $140 and $320.

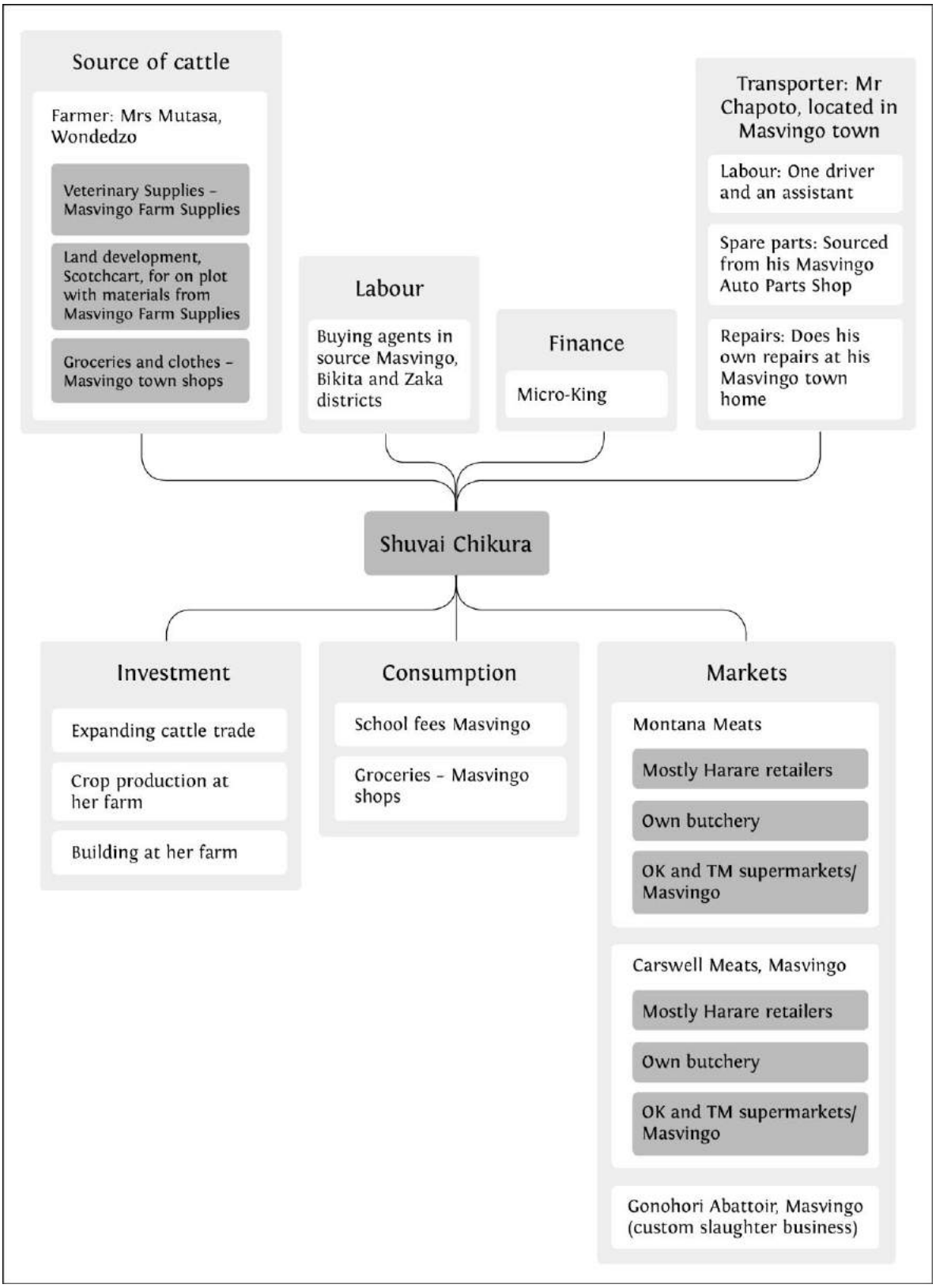
Shuvai currently purchases cattle from the Masvingo (including Wondedzo), Bikita and Zaka districts. She employs buying agents from these areas, who negotiate on her behalf and assemble the cattle, and then on agreed days she goes to conclude the purchases and transports the cattle to abattoirs. She has a core group of four agents, and some freelance agents (should the need for them arise). Agents are paid on the basis of their ability to negotiate favourable prices, and to assemble cattle within time limits. The standard commission for cattle agents in Masvingo province is currently $5 per animal. On average, Shuvai buys ten head of cattle per month and depends on transporters, such as Kitos, Magwizi and Chapoto, to transport her animals to abattoirs.

To finance her cattle trading activities, Shuvai Chikura has access to loans from Micro King Finance, a subsidiary of Kingdom Bank. Micro King manages a USAID-funded credit guarantee scheme that provides subsidised credit to entrepreneurs involved in creating markets for smallholder farmers. The loans are subsidised at a rate of 12%, while the going market rate is 25% per annum. According to the loans officer at Micro King, Masvingo, livestock-trade loans, such as Shuvai has access to, range from $2000 to $5000 payable in six months.

Case A5: Mr Chapoto

Mr Chapoto is one of the transporters used by cattle trader Shuvai Chikura. The 50 year-old also owns SIMM Auto Parts, based in Masvingo town. His truck carries a maximum of twelve cattle per load, and he charges $1.20 per kilometre to and fro. On each cattle-carrying trip, the truck is manned by a driver and an assistant. Apart from ever-escalating fuel costs, Mr Chapoto complains about numerous police road blocks and the bribes that have to be paid for fictitious infringements on each trip. He is also a beneficiary of land reform, with a 640ha A2 plot on Thankerton farm. Mr Chapito also has a peri-urban plot in Morningside, Masvingo, where he is pen-fattening 40 cattle. His intention is to build his breeding herd to 300 and to construct an abattoir on the farm.

Figure 6: The Shuvai linkages



Beef abattoirs

Given its history of cattle ranching, Masvingo has a number of abattoirs of varying capacity geared to serve both high-end and low-end markets for beef locally and further afield. Below, we profile the facilities that are linked to the three case study beef farmers and traders such as Shuvai Chikura.

Gonyohori Abattoir

Gonyohori Abattoir is owned by Mr Machingambi, a Masvingo-based entrepreneur. The abattoir is on a rented Masvingo municipality farm adjacent to Great Zimbabwe University. The operation is linked to the owner's butchery in Masvingo town, but the abattoir's main business is service slaughter for other small butcheries. About 54 cattle are slaughtered at the abattoir each month. Gonyohori's service slaughter clients bring in cattle mainly from the Masvingo district, followed by the Mwenezi, Chivi and Bikita districts. Major clients are middlemen including Mesa from in Shindi Chivi south, Zinyoro and Mugara in Mwenezi, Zivanai and Tawanda in Bikita, and Mashayamhanda, Machokoto and Shuvai in Masvingo. These middlemen bring in cattle for slaughter (and resell the meat in Masvingo townships and town). They are charged a slaughter service fee of $20 per animal. Gonyohori's main costs each month are $300 to $ 400 for electricity, and annual municipal rates of $1000.

Montana Meats

Montana Masvingo is located at the former Pig Industry Board abattoir. It has been used as a market by Shuvai, one of the case traders. According to Mr Craig, the manager, most cattle processed at Montana come from communal farmers in Mwenezi, Chiredzi and Masvingo, and personally rented farms (in that order). More than 80% of the meat goes to Harare and the rest is sold through Montana's own butchery in Masvingo town, as well as through ten to fifteen Masvingo town supermarkets and butcheries. The company employs close to 30 workers and eighteen individual service providers who provide cleaning services. Waste from the company is used as manure by the Jairos Jiri Centre, a non-governmental organisation that gives skills training to disabled persons. A South African company buys all hides. In the first ten months of 2013 the Montana's Masvingo abattoir produced 10916 hides or 1092 per month. At an average of 25kg per hide and $0.65 per kilogram, this represents about $213000 in extra income for the abattoir each year. Mr Craig pointed to the stiff competition from cheap poultry and fish products.

Montana has been running a cattle feeding scheme in communal areas, where the company provides custom feeding services and pen-feeding meal, and buys the finished stock for slaughter at the abattoir. However, some farmers feel that they are being short-changed by Montana. Mr Chireshe from the Chief Mazungunye area in the Bikita district claims that when the scheme started, farmers earned between $800 and $1000 per beef animal after deduction of $60 animal feed costs. However, the second time round – just before the 2013 general elections – farmers received net returns of between $13 and $300 per beast, after deducting all costs, with the company claiming that grades had fallen due to animals fighting and damaging each other in the company's pre-slaughter holding pens. However, extension workers in Masvingo ascribe the high initial profitability of the feeding scheme to cheap feed that was being diverted from a donor-funded cattle drought-mitigation initiative. When higher commercial prices of beef-fattening rations were applied, the scheme became less attractive.

Carswell Meats

Carswell Meats is one of the markets used by Ms Shuvai for her cattle. According to Mr Swart, the Masvingo operations manager, Carswell Meats' strategy is to buy slaughter animals from rural areas or feeder cattle to finish at rented farms around Masvingo town for 60–90 days on molasses and cotton hulls sourced from Chiredzi sugar mills and cotton ginneries in the south of the Masvingo province, maize and wheat bran from Harare-based milling companies, and irrigated star grass pastures from rented farms around the Masvingo district. For example, Carswell rents the Masvingo municipal farm, where close to 1800 cattle are fed. There are 2 000–3000 cattle on such rented properties. The company provides free transport if farmers raise a minimum of 35 cattle for the market. Carswell gets cattle from Mwenezi, Chiredzi, Zaka and Bikita, in that order. Very few cattle from Masvingo farms are slaughtered at the abattoir.

The Harare market takes 90% of the meat processed at the abattoir, with the rest going to some 20 Masvingo town and township butcheries. The company employs 100 workers at different beef production sites, which include rented farms, the abattoir and its own butchery in Masvingo town. Two of Mr Swart's sons are employed as cattle buyers.

Carswell has since stopped service slaughter, claiming that it adds a substantial administration burden for very little gain. For example, with service slaughter, one has to ensure that offal from one client is not mixed with that of another. In the first ten months of 2013, the company's Masvingo abattoir produced 11260 hides or 1126 per month. At an average of 25kg per hide and $0.65 per kilogram, this represents about $220000 in extra income for the abattoir each year. A company in Harare buys all hides. Some vegetables are grown at the farm and are sold in a restaurant adjacent to the butchery. The restaurant and butchery each employs around six people.

The beef abattoirs are facing stiff competition from 'under *mupfura* tree butcheries', which observe minimum health standards and are suspected of engaging in cattle theft, according to Mr Swart. In addition, the centre pivot bought from the USA for $80 000 for irrigated star grass pasture at the rented municipal farm is proving very expensive to run. They have bought a 'water canon type' travelling irrigator from Argentina for $7 000, but this is too slow. On the positive side, the company uses the manure generated from abattoir waste on irrigated pastures.

Beef retail linkages

The abattoirs profiled above supply a number of retail outlets in Masvingo town. In 2010/11, there were twenty registered butcheries in the Masvingo city centre area, with a further eighteen in Masvingo townships. This is a marked change from the situation in 2006/07, when price controls and the severe economic downturn had almost decimated the beef retail sector in Masvingo. Currently, city centre supermarkets such as OK and TM are stocking beef, but only the premium 'super grade' cuts sourced from the larger abattoirs, such as Carswell and Montana, which can supply high quality meat regularly. During the economic crisis, they would source from wherever they could, including meat traders, but, as TM's meat buyer explained, quality and reliability were poor. Today, meat traders supply other butcheries that undercut the supermarkets in terms of price. Some outlets are directly linked to abattoirs, and they can cut costs even further. Abattoir-linked butcheries have the additional advantage of stocking larger amounts of offal, a big draw for low-income consumers.

With the change in production system from large-scale commercial ranching to small-scale farming as the main source of cattle, following the land reform, there is a different pattern and quality of supply. In addition to registered butcheries, there are 'mobile', illegal operations. Masvingo's Chief Health

Officer, Mr Munganasa explained that they were engaged in a 'running battle' with vendors who sell cheap, imported South African chicken and beef from freezer boxes. A leading local butcher, Mrs Foroma, complained: 'We are losing business from these vendors. We pay our rent, and comply with the regulations, but they undercut us. They become very active in the evening after the municipal authority workers knock off. They use illegal 'under the tree' slaughter and sell to food sellers'. However, illegal operators say that there is plenty of business; 'there is room enough for everyone', one argued.

Vegetables value chain

Masvingo is a relatively dry province, and is a net importer of vegetables from irrigation schemes in the wetter parts of the Mashonaland provinces, or along the Save River catchment area, including areas around Birchnough Bridge. Prices are generally high, and the importation of vegetables represents a significant drain on the local economy of Masvingo. Thus, where opportunities arise, horticultural production has the potential to plug leakage of income from the region, improving the prospects of economic development. Resettlement farms in Wondedzo provide such an opportunity. The Wondedzo farm lies on the banks of Lake Mtirikwi, a dam originally constructed to supply water to sugar estates in Chiredzi in the lowveld. The farm is traversed by several seasonal streams, some of which were dammed to provide drinking water to animals.

Farm-level horticulture income and employment

A number of resettled famers have ventured into horticulture with significant on and off-farm impacts. Mr Elifanos Makore is one such farmer.

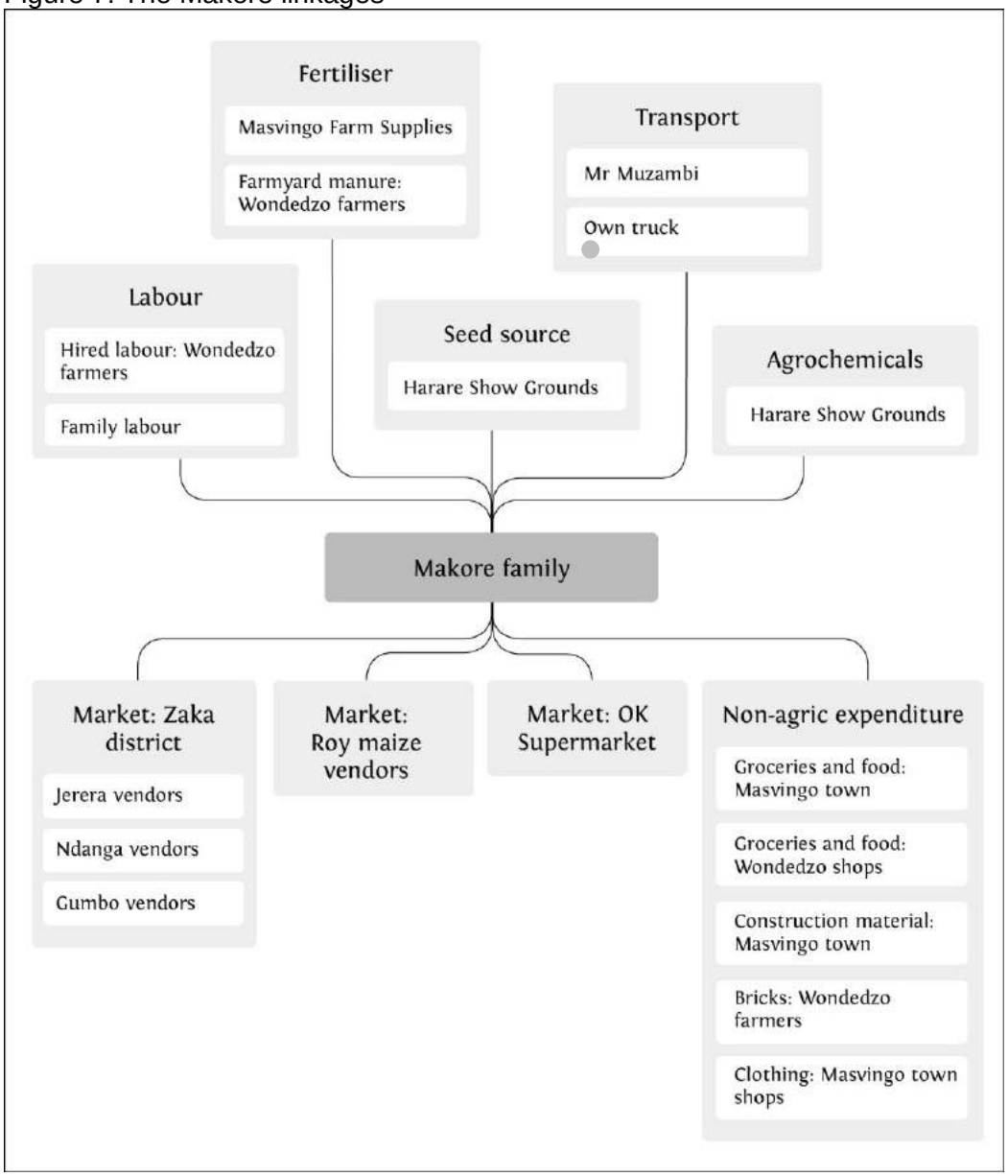
Case A6: Mr Makore

Mr Makore, the head of an eighteen-member household currently farms on 31ha, 28 of which are under dryland crops such as maize and groundnuts. He also has a few cattle, primarily for draft and milk production, and as a store for excess money generated by the horticulture enterprise, his main business. On a 3ha horticulture plot he grows cabbages, rape, tomatoes and green maize under irrigation, using water drawn from the Mutirikwe River. Below, we describe his value chain.

Before taking over the plot, Makore used to work as a self-employed tin smith based at the Bhuka Irrigation scheme, some 20km south of Masvingo town. His stay at Bhuka inspired him to move into irrigated crop production when he inherited his father's plot. In 2006, he started irrigating with buckets from a small dam near the homestead, selling vegetables locally and some in Masvingo town. He later bought a paddle pump. In 2010, he bought a 5HP diesel water pump for $220 from Harare and expanded his irrigated plot to 0.4ha.Since then he has expanded his operation to 3ha.

Figure 7 shows the economic linkages created by Makore's horticulture enterprise.

Figure 7: The Makore linkages



Mr Makore's highly diversified horticulture enterprise sells produce to a wide variety of markets, including directly to consumers in Wondedzo, hawkers and supermarkets in Masvingo town and district, and in neighbouring districts within the Masvingo province. Outside Masvingo district, he supplies produce to groups of vendors at Ndanga and Jerera business centres in the Zaka district, to whom he delivers a one-tonne load of tomatoes each Monday, Wednesday and Friday, with a delivery cost of $50 per load. In Masvingo town, he services three markets. At the Train Station Market he supplies to a group of five women, three of whom he is in regular contact with via cellphone. The Train Market women buy 1.5 tonnes of tomatoes per week, which translates into 140 20-litre tins at a price of $20–$35 per tin, depending on season. The women arrange their own transport and usually pay $30 per load delivered to a central point in the town. From there, they hire push-carts, at the rate of $1 per 4-tins (i.e. $35 per load), to transport the produce to their selling point at the market. Mr Makore also periodically supplies two Masvingo town supermarkets, the OK Bazaars and the Tsungai Supermarket. Twice a week, the OK buys 300–500 bundles of rape at $0.25–$0.30 per bundle and 300 cabbages at $0.50–$0.65 per head.

Finally, Mr Makore sells to walk-in customers from the local Wondedzo community. The main product sold in local markets is dried vegetables at $5 per tin. The dried vegetables are derived from undersized produce and trimmings from products sold in external markets. Green mealies are bought at the farm-gate by six or seven vendors who operate at the Roy Business Centre on the Mutare-Masvingo highway. They buy at $1 per four and retail at $1 for two cobs (i.e.a 100% mark-up).

From his rape, cabbages and tomato sales in the period June 2012 to June 2013, Mr Makore earned $32458 in gross revenue.

Cash inputs

For his vegetables, Mr Makore sources fertiliser from Masvingo (21km from the farm) and agrochemicals from Harare (300km away). In the 2012/13 season, he spent $11238 on fertilisers and agrochemicals. An estimated $6000 was spent on transport. Before he bought his own truck, Mr Makore depended entirely on hired trucks. Three persons provided transport services for him: fellow church member, Mr J Muzambi from Nemakonde Village in Gutu communal, 20km from Wondedzo; another fellow church member Mr Ruchanyu, with a two-tonne truck, who charged $25 per load into Masvingo; and the local extension officer who, on his way to work in Masvingo, occasionally carried produce in his one-tonne truck.

On-farm employment

Most of the farm labour is provided by Mr Makore, his six wives, mother and two brothers, with the rest coming from hired labour. Mr Makore employs one permanent worker, who is paid at the rate of $70 per month and is provided with free food and lodging. The other hired labour is casual labour from other settlers at Wondedzo. For harvesting vegetables, payment is usually in-kind (i.e. harvested products). The rate of payment is 25% of a day's production in the case of cutting and cleaning vegetables for drying, and one tin of tomatoes in the case of harvesting tomatoes. For other chores, such as weeding and fertiliser application, payment is $6 per person per day. Makore's total cash wage bill per season is $3 306 (see Table 13).

Table 13: Mr Makore's vegetable labour input

	Family labour			Hired					
	No.	**Days**	**Labour days**	**No.**	**Days**	**Labour days**	**Daily rate ($)**	**Hired labour cost ($)**	**Source**
Clearing the land	3	72	216	4	36	144	5	720	<10km + 100–300km
Ploughing	3	14	42	1	4	4	2	8	<10km
Weeding	16	72	1152	10	18	180	6	1080	<10km
Watering	2	144	288	2	144	288	2	576	<10km
Spraying	2	48	96	2	48	96	2	192	<10km
Harvesting	18	293	5274	10	146	1460		In-kind	<10 km
Livestock tending	2	120	240	1	365	365	2	730	<10km + 100–300km
Marketing	7	293	2051	0	0	0	0	0	<10km

Total			9359			2537		3306	

Thus, Mr Makore grossed $32458 while generating $20544 in business for suppliers of inputs, transport and local labour. The family earned a gross margin of just below $12 000, the use of which generated business in retail (see Table 14).

Table 14: Mr Makore's vegetable enterprise budget

	$
Gross revenue	**32458**
Fertiliser, seed and agrochemicals	11238
Transport and fuel	6000
Labour	3306
Total variable costs	**20544**
Gross margin	**11914**

Expenditure and location of expenditure

The bulk of Mr Makore's expenditure has been in the local economy. Apart from purchases of special horticulture inputs, such as seeds and agrochemicals, most purchases were either in Masvingo town or from Wondedzo shops.

Table 15: Location of Mr Makore's expenditure

Expenditure	Location of expenditure
Groceries and food	Masvingo town shops/Local shops
Agricultural inputs (petrol, fertiliser, chemicals)	Masvingo town/Harare
Home construction	Masvingo town shops/Local plots (bricks)
Clothing	Masvingo town
School fees	Local school

Broader impact

Mr Makore's success has led to other plot-holders on Wondedzo venturing into horticulture. Apart from Mr Makore, other commercially oriented horticulture producers at Wondedzo include Chakanetsa, Mutumhe, Gosho, Munyanyiwa, Ruchanyu and remaining commercial farmer Khan, all of whom draw water a short distance from one another along Mutirikwi River and its small tributaries.

Off-farm income and employment in horticulture

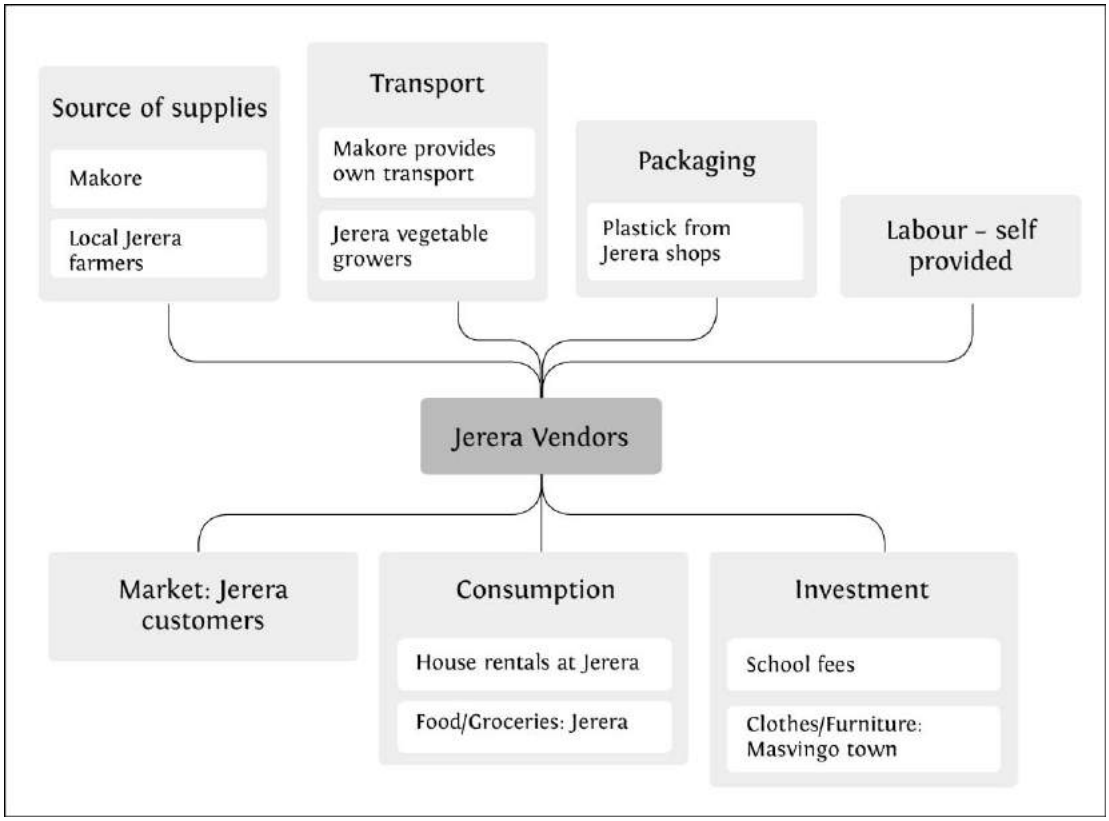
Below we profile key markets for Mr Makore's horticulture enterprise.

Case A7: Mr Makore's Jerera Business Centre market

Four widowed vegetable vendors, Mai Melody, Mai Sithole, Mai Tandi and Mai Welly buy tomatoes from Mr Makore for sale to consumers at the Jerera Business Centre, in the Zaka district, some 100km from Masvingo and 80km from Mr Makore's farm. In the period July 2012 to June 2013 they sold $13425 worth of tomatoes, without the help of extra hired labour. Business was best between October and February, when they collectively averaged a monthly turnover of $1500. The peak sales are due to a limited tomato supply, because of the onset of ploughing season, when farmers shift activities to the fields. During this period, the women sell an average of 30 crates per month at an average price of $50 per

crate, making a margin over supply cost of $20 per crate. In the lean period, they average about 15 to 20 crates per month at a selling price between $35 and $45 per crate but maintaining their $20 per crate margin over supply cost. Over the period July 2012 to June 2013, the four women bought tomatoes worth $7525. In addition to supply costs, they have to pay for plastic packaging at a cost of $1 per 20 units, as well as $1 per person per day in council trading fees. Plastics are sourced from Jerera Business Centre shops. These costs amounted to $1838 over the period July 2012 to June 2013. Thus, overall, the net profit earned by the four from their tomato selling business was $4062 or just over $1000 each. This is equivalent to $85 per month over the period, and is in addition to income from other products not sourced from Mr Makore, including leafy vegetables, Irish potatoes and sugar beans. From their tomato income, the women are able to comfortably afford their house rentals, which range from $15 to $25 per month. Figure 8 maps out the Jerera vendors' marketing linkages.

Figure 8: The Jerera vendor linkages



Case A8: Mr Makore's Gumbo Business Centre market

Mr Makore sells produce to three women vendors from the Gumbo Business Centre – Mai Kainos and Mai Beauty, whose husbands are in South Africa, and Mai Hove who is married to a policeman stationed in another district. The Gumbo Business Centre in the Zaka district is about 70km from Masvingo town, or 50km from Mr Makore's farm. The three vendors buy on average 24 crates of tomatoes per month. Between July 2012 and June 2013, they spent $5718 to purchase crates of tomatoes, which they resold for $11 676, making a margin over purchases of $5958. The three also spent $612 on plastic packaging material from Gumbo Business Centre shops. Rather than paying a fee to operate legally,

the three women avoid prosecution by running away from the authorities. They are fined $2 when apprehended. The women come to the business centre from their rural homes, hence they do not incur rental costs. Collectively, they netted $5 346, or $1782 each, from their tomato business with Mr Makore. The Gumbo women also sell a variety of other vegetables and fruit, generating extra income.

Case A9: Mr Makore's Ndanga Business Centre market

Mai Muringa, a widow, and Mai Depute, whose husband is a communal farmer, are customers of Mr Makore's horticulture business. They buy and sell vegetables at the Ndanga Business Centre, in the Zaka District, 40km from Mr Makore's farm. Ndanga is on Mr Makore's delivery route to his other markets in Gumbo and Jerera. Being much closer to key producing areas around Lake Mutirikwi, the two Ndanga women have a greater choice of suppliers, but work under tighter margins than is the case in Gumbo or Jerera. Sometimes, they switch suppliers due to viability considerations. For example, in November and December 2012, they got supplies from other farmers. However, Mr Makore remains their main supplier. In the period July 2012 to June 2013, the two women bought 128 crates of tomatoes at a cost of $3248 from Mr Makore, which they sold for $4 560, adding value of $1312 to Makore-linked tomato business. The women buy plastic packaging materials from Ndanga Business Centre shops. On the tomatoes bought from Mr Makore, they used $256 worth of packaging material. The net profit that the two women gained from Makore business alone amounted to US$1056 over the 12 months prior to July 2013. Even factoring in the $20 medical examination fees required by the local council for all handlers of food, they are left with a reasonable return from their business, which also sells leafy vegetables, onions and fruit.

Case A10: Mr Makore's Train Station market in Masvingo town

In Masvingo town, 20 km from his farm, Mr Makore sells tomatoes to a group of vendors retailing vegetables at the Train Station market. The group consists of two wives of farmers from the Masvingo peri-urban farms, Mai Belinda and Mai Joseph, and three widows, Mai Privilege, Mai Tinashe and Mai Isaac. As the major population centre in the Province, Masvingo town attracts many vegetable growers, and Mr Makore faces intense competition. For the Train Market group, he has exclusive access during the period October to February, when supplies are short and he, due to his proximity to the market (30km), has an advantage over competing suppliers. From June to September, Masvingo is flooded with abundant supplies of tomatoes from irrigation schemes in Birchenough Bridge on the Save River, 140km east of Masvingo. Between March and May, the Train Market women source tomatoes from Mr Jabson, a newly settled farmer from Chaka, 80km along the Masvingo-Harare road.

In running their business, the Train Station vendors incur transport costs, packaging material costs and municipal rental fees. Transport hire to ferry produce costs them $150 from Birchenough Bridge, $30 per load from Mr Makore and $70 from Mr Jabson's farm. All transport is hired from Masvingo town transport operators. Plastic bags cost $1.00 per 35 bags, while municipal fees are $44 per month per person. Table 16 summarises these costs per year by produce source.

Table 16: Train Station vendor transport, packaging and municipal costs by vegetable source

	Transport ($)	Packaging ($)	City fees ($)
Birchenough Bridge farms	600	106	880
Mr Makore	120	48	880
Mr Jabson	280	104	880
Location of expenditure	Masvingo	Masvingo	Masvingo

The women do not hire any workers for their vending operations. During the June–September period, when they source tomatoes from Birchenough, their suppliers require them to hire labour to pick tomatoes. In contrast, when they buy from Mr Makore or his competitor Mr Jabson, they do not incur picking costs. They use four pickers on each Birchenough Bridge sourcing trip. During July to September 2012 they incurred $186 in labour costs from Birchenough Bridge area.

Table 17 shows the breakdown of cash outflows and inflows for the Train Market vendors. It indicates that the women spent $11131 on procuring produce and made $21380 in revenue, generating $6166 in gross margin. Of the procurement costs, $3956 was accounted for by the Makore enterprise, which also accounted for $1016 in gross margin over the 12 months prior to July 2013. This does not include extra income earned from selling additional items such as fruit, beans and potatoes.

Table 17: Gross margin for Mr Makore's Train Station vendors

	Crates	Produce cost ($)	Inputs and transport ($)	Total cost ($)	Revenue ($)	Profit ($)
Birchenough farms	370	1655	1771	3426	4320	894
Makore	172	3956	1048	5004	6020	1016
Jabson	368	5520	1264	6784	11040	4256
12-month total	910	11131			21380	6166

Most of the income is spent in Masvingo town. This includes the two members of the group who have residences outside the town, since they spend most of their time in Masvingo, one renting two rooms at a rate of $100 per month and the other a single room at $50 per month.

Case A11: Mr Makore's Roy Business Centre market, Masvingo district

Four wives of resettlement farmers, Mai Mabaire, Mrs Murwisi, Mai Guni and Mai Sithole, and a window, Mai Apo Baba Pau, are vendor customers of Mr Makore. They sell fresh roasted and boiled maize at Roy Business Centre some 21km from Mr Makore's plot. Roy is strategically placed along the Masvingo-Mutare road to the east, Masvingo-Chiredzi road to the south, and north to Gutu. Many buses use it as a stop-over.

The vendors buy maize from multiple sources, including Mr Makore. Apart from Chiredzi irrigation schemes, where they buy at $1.00 for 6 cobs, all other suppliers charge them $1.00 for 4 cobs. After roasting or boiling, they retail at $1 per two cobs. Table 18 shows the main supplier, the period when they supply, the amount purchased and the revenue generated by sales from each source. The table indicates that the vendors potentially generate $30400 in revenue, of which

$13600 is accounted for by maize purchased from Mr Makore.[5]*The market vendors incur $14400 in maize procurement costs, $6800 of which is accounted for by Mr Makore's enterprise.*

Table 18: Roy market vendor seasonal maize acquisition costs and revenues

Supplier	Period	Cobs	Buying cost ($)	Gross revenue ($)
Mr Makore	July–Aug; Nov–Jan	27200	6800	13600
Mr Bere (local farmer)	June	4800	1200	2400
Local dryland farmers	Mar–May	14400	3600	7200
Chiredzi & Chipinge	Sept–Oct	9600	1600	4800
Marowa irrigation	Feb	4800	1200	2400
Total		60800	14400	30400

However, the Roy vendors incur a number of other costs, including:

- firewood bought from surrounding areas at a price of $6 per cart;
- transport to Chiredzi and Chipingeat at a cost of $25 per person making a buying trip for the group;
- transport to Makore at $4 per person making the buying trip;
- casual work for roasting and selling, which is paid for in kind at the rate of 10 cobs per 100 for the four people hired by the Roy vendor group; and
- salt purchases of 4kg per month at 60 cents per kilogram.

Table 19 summarises the costs incurred by the Roy market group. It shows that the group incurs $7442 in expenses per year, with $3161 of this being on maize procured from Mr Makore. The net income earned by the Roy vendors is $8558, with $3539 of it from Makore farm business. Makore trade accounts for $408 in firewood, $120 in transport and $2720 worth of labour.

Table 19: Detailed costs excluding maize acquisition costs

	Costs				
Source of produce	Firewood ($)	Transport ($)	Labour ($)	Salt ($)	Total ($)
Makore	408	120	2720	13	3261
Bere-local	72	-	480	2	554
Local dryland farmers	216	-	1440	7	1663
Chiredzi & Chipinge	144	300	960	5	1409
Marowa irrigation	72	-	480	2	554
Total	912	420	6080	30	7442
Cost location	Around Roy	Masvingo	Around Roy	Roy shops	

[5] It is reasonable to assume that there will be spoilage, drying up of maize or unsold prepared maize.

Case A12: Mr Makore's OK Supermarket market, Masvingo town

According to the fruit and vegetables supervisor, Mr Mukwauri, the OK sources some leafy vegetables from Mr Makore. The OK is an Harare-based supermarket chain with links to South Africa. The fruit and vegetables section employs five people, all of them originally from outside Masvingo but who are now resident in the city. In general, the highest retail prices for cabbages are realised in December and January, due to festive season demand. They are lowest from September to November, and from February to March. The September–November price slump is due to the influx of cheap produce from Harare, while the February–March dip is associated with black cabbage rot disease and farmers trying to off-load their produce.

Between June and September, Mr Makore supplies the supermarket with 9200 heads of cabbage, at a cost of $5 280, which are on-sold for $8040. In the February to September period, he supplies 30000 bundles of rape, at a cost of $7 500, which are sold by the OK for $18000. Thus, the supermarket potentially earns $13260 from Mr Makore's vegetables. If one assumes that a shop assistant earns $250 per month, the business Mr Makore generates for the OK is enough to cover the wages of the five workers in the fruit and vegetables section.

Table 20: Supermarket vegetable acquisition costs and shop revenue

Produce	Season	Quantity	Buying cost ($)	Shop revenue ($)
Cabbages	June–Sept	9200	5280	8040
Rape	February–Sept	30000	7500	18000
Total			12780	26040

The transport links generated by the horticulture value chain are connected to the above market linkages. Below, we assess the economic activities generated by the Makore horticulture enterprise for two transporters.

Case A13: Mr Gava

Mr Rogers Gava, based in Masvingo town, provides transport services to both Mr Makore and the Masvingo Train Station vendor group. Until July 2012, he used to contract three people from Masvingo town to drive his trucks. However, following an accident, he stopped hiring drivers and has decided to go it alone. The cost of fuel, repairs and maintenance over the twelve months prior to July 2013 amounted to $960, incurred mostly in Masvingo town, while revenue was $8 320, resulting in a net income of $7350 in Mr Gava's relationship with the Train Station market women. Makore-related transport business accounted for $480 of the revenue or $424 of the net income earned by Mr Gava.

Table 21: Gross income generation from vegetable transport services provided by Mr Gava

Destination & distance	Period	Trips	Total charges ($)
Makore(30km)	Oct12–Jan 13	16	480
Jabson (80km)	Feb–May 2013	16	640
Birchenough Bridge (140km)	Jul–Sept 2012 and June 2013	48	7200
Total		80	8320

Case A14: Mr Muzambi

Mr Muzambi, a fellow 'Mupostori' church member, provided transport to Mr Makore for servicing his supermarket and Zaka markets until December 2012, when Mr Makore bought his own truck. Mr Muzambi farms in the Gutu Communal Areas in Headman Guni's area, 20km north of Mr Makore's plot. He drives his own truck on transport business. Table 22 summarises the trucking business provided by Mr Makore's horticulture enterprise. It shows that between July and December 2012, Mr Makore gave him about $4000 worth of business.

Table 22: Gross income generation from vegetable transport services provided by Mr Muzambi

Destination	Period	Trips	Total charges ($)
Makore-Masvingo (30 km)	Jul–Sept 2012	36	720
Masvingo-Zaka (Ndanga/Gumbo/Jerera)	Jul–Dec 2012	48	3360
Total		84	4080

In serving Mr Makore, he incurred about $2000 worth of expenses, covering fuel and service costs (see Table 23). This suggests that Mr Muzambi earned a net income of close to $2000 from his business with Mr Makore.

Table 23: Costs incurred in vegetable transport services provided by Mr Muzambi

Destination	Period	Fuel ($)	Cost of service ($)	Total
Masvingo	Jul–Sept 2012	288.00	31.58	319.58
Zaka	Jul–Dec 2012	1440.00	268.42	1708.42
Total		1728.00	300.00	2028.00

Tobacco value chain

From a regional economic development point of view, tobacco creates significant inflows of cash for local economies over long periods of the year. The marketing period begins in February and ends in August; in some years, it is extended to September to facilitate 'mopping up' remaining tobacco.The peak period of cash inflow is between March and May, when most other annual crops are yet to be harvested. For example, $44 million of the $49 million that was earned from flue-cured tobacco by farmers in Mazowe came between February and May (see Table 24).

Table 24: Monthly flue-cured tobacco revenue cash inflow into Mazowe district, 2013 season

Month	Contract ($)	Non-contract ($)	Total inflow ($)	% of total inflow
February	4420100	1152197	5572297	11%
March	9032443	4558144	13590587	28%
April	10746297	4948072	15694368	32%
May	6600188	2668723	9268910	19%
June	2598982	329376	2928358	6%
July	1555733	103212	1658945	3%
August	173062	16320	189382	0%
September	34225		34225	0%
Season total	35161029	13776043	48937072	100%

Source: TIMB Statistical Databases

To explore value and employment creation patterns in the tobacco value chains, we track these from farm level to back and forward links into input markets, output markets and consumption and investment markets. Recognising the differences between farmers who are contracted, those who are not, and larger-scale of producers, we selected three case farmers.

Farm-level tobacco income and employment

Table 25 lists the farming cases considered. In the A1 areas, there are three types of tobacco farmer–those who are still 'starting', those who are 'growing' and those who are 'accelerating'. Starting farmers generally do not have access to contract growing facilities, and farm using their own resources and market their tobacco through auctions. Contract merchants are attracted by a farmer's accumulation of experience and a sales record showing a certain level of productivity. Access to credit spurs a few highly productive farmers to expand their production beyond the 1ha limit set by merchants for A1 farmers. The extra tobacco grown by these enterprising or accelerating farmers is sold on the auction floor. Below, we profile and follow the network of links generated by three farms that fit the three characterisations of tobacco farmers (see Table 25 for an overview).

Table 25: Tobacco case study farms

Case farmer	Plot-holder's sex	Settlement type	Marketing mode	Area under tobacco (ha)	Other major enterprises
Hukuru	Male	A2	Contract only	1	Maize, vegetables, cattle
Toro	Male	A1 (Wendiri)	Auction only	1	Maize, soyabeans, cattle
Charumbira	Male	A1 (Lucknow Ext)	Contract & auction	3	Maize, sugar beans, sweet potatoes

Case B1: Mr J Hukuru

Mr J Hukuru was allocated an A2 plot on Pembi Chase, which borders Mvurwi town. The plot is 65ha, 30ha of which are arable. Despite the large plot size, Mr Hukuru's level of production is not much different from that of A1 plot-holders allocated one-fifth of his arable land. Mr Hukuru grew tobacco on 1ha under contract to the Zimbabwe Leaf Tobacco Company (ZLT), harvesting fourteen bales, sold at an average price of $3.80 per kilogram, and generating $6000 in revenue. Figure 9 maps the linkages radiating from Mr Hukuru's tobacco enterprise.

Tobacco cash inputs

Mr Hukuru got most of his tobacco cash inputs from ZLT under contract farming credit. These included 14 bags of fertiliser worth $532, 15g of tobacco seed worth $30, agrochemicals worth $150 and one tonne of coal for curing worth $230. He tilled his tobacco field using his own oxen and labour. The coal obtained under the ZLT contract was used in combination with firewood sourced from the plot to cure the tobacco. In addition, Mr Hukuru hired a Mvurwi-based transport operator, Mr Karembo, to ferry the 14 bales of tobacco at a cost of $10 per bale (i.e. $140).

Tobacco on-farm employment

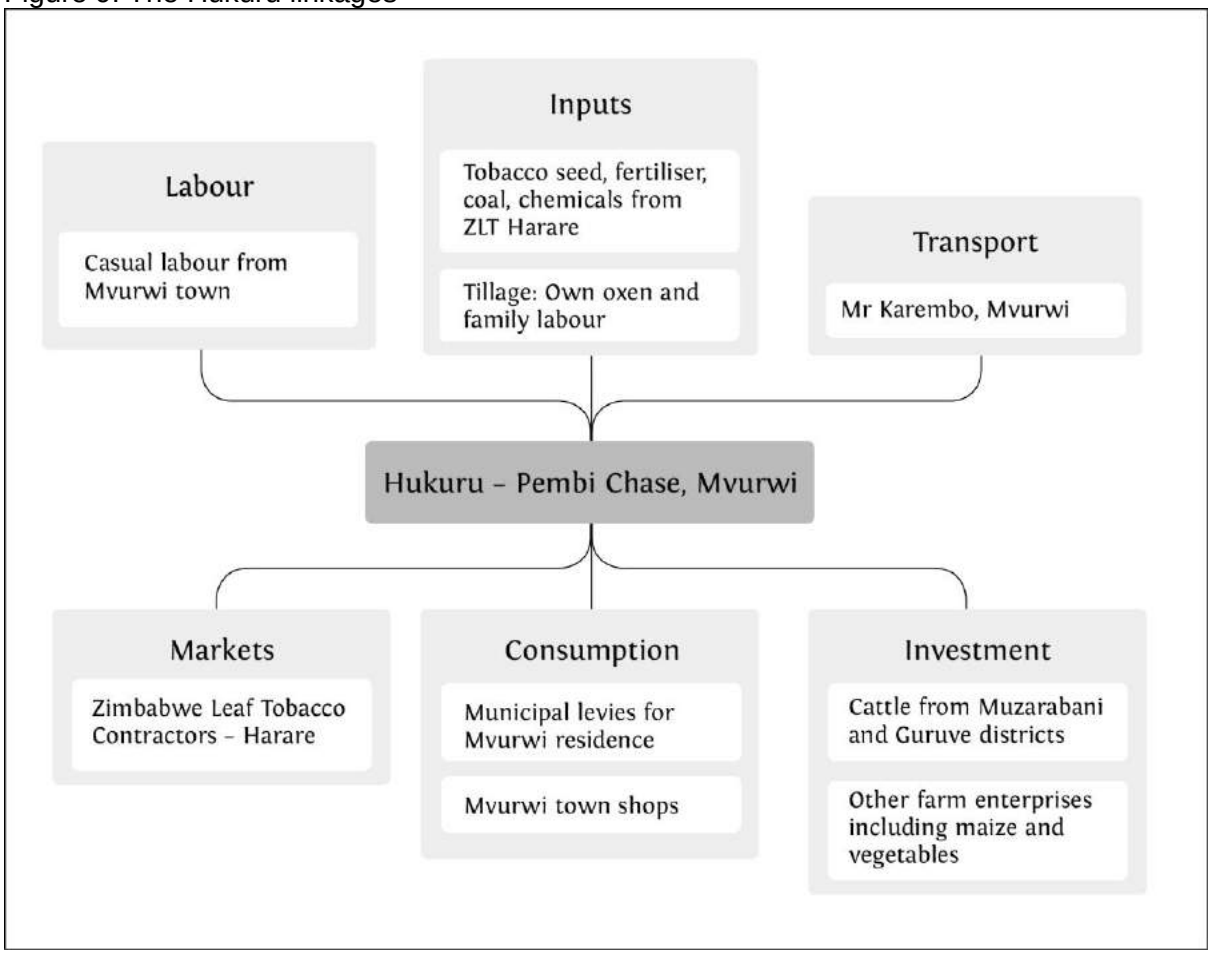
Mr Hukuru does not hire any permanent workers for his tobacco operations. However, he engages four casual workers – none of whom are related to him – from Mvurwi town, a kilometre away from the farm. For pre-harvest chores, these workers are paid at the rate of $3 per day, while for harvesting and grading they are paid at the rate of $4 per day. The family provided 519 labour days, while the hired workers provided 216 labour days on the tobacco crop (see Table 26). In total, Mr Hukuru paid $768 for hired labour.

Table 26: Tobacco-related employment on Mr Hukuru's farm

	Family			Hired						Service			Total
	No.	Days	Labour days	No.	Days	Labour days	Rate ($)	Cost ($)	Source ($)	Type	Rate /ha ($)	Cost ($)	Cost ($)
Land clearing													
Ploughing	2	1	2							ox plough			
Weeding	6	20	120	4	20	80	3	240	Mvurwi				240
Nursery watering	2	90	180			0		0					0
Field watering	6	15	90	4	4	16	3	48	Mvurwi				48
Spraying	3	3	9			0		0					0
Harvesting	4	30	120	4	30	120	4	480	Mvurwi				480

Total			519			216							768

Figure 9: The Hukuru linkages



Net tobacco income

Based on the above, Mr Hukuru received $6118 in sales and contractual cash advances, and spent about $1850 in producing and marketing his tobacco, generating a net income of $4268 during the 2012/13 season (see Table 27).

Table 27: Mr Hukuru's tobacco enterprise budget

	Item	Value ($)
Cash inflow	Gross income from sales	6000
	Cash advance on contract	118
	Gross inflow	**6118**
Cash outflow	Fertiliser	532
	Agrochemicals & seed	180
	Permanent labour hire	0
	Casual labour and tillage	768
	Transport	140
	Coal for curing	230
	Gross cash outflow	**1850**
Net cash inflow		4268

Other livelihood activities

In addition to the tobacco, Mr Hukuru grows some maize for subsistence and vegetables for both his own consumption and sale to local walk-in customers. In the 2012/13 season, he harvested three tonnes of maize worth $1000 and sold vegetables worth $400. He has also invested in a cattle herd numbering some 40 animals – acquired mainly from the Muzarabani and Guruve districts to the north of Mvurwi – worth about $14 000, which he uses as a store of savings for redemption in time of need. His 31-year-old cousin, Misheck Marezva, who resides on the farm, also contributes income from his motor mechanic work for local car-owners on the Pembi Chase scheme.

Expenditure

Income generated on-farm in the 2012/13 season was spent largely on inputs for the 2013/14 season procured in Harare some 100km away. All other key expenditures by the household, including payment of wages, buying of cattle remedies, rental for his Mvurwi residence, and purchase of groceries and clothes were made in Mvurwi town, a kilometre from Mr Hukuru's Pembi Chase plot.

Table 28: Spatial distribution of Mr Hukuru's expenditure

Rank	Item in order of size of expenditure	Location of expenditure	Distance from homestead (km)
1	Tobacco inputs	Harare	100
2	Labour payments	Mvurwi	1
3	Cattle remedies	Mvurwi	1
4	Mvurwi town home rental/mortgage	Mvurwi	1
5	Groceries and clothes	Mvurwi	1

Case B2: Mr Charumbira

In 2001, Mr S Charumbira, from the nearby Chiweshe communal area, was allocated a 6ha A1 plot on Lucknow Extension farm in Msonedi, 15km south of Mvurwi town. He was one of the early adopters of tobacco farming, harvesting his first crop in 2003. His experience in tobacco-growing has enabled him to secure a contract-farming agreement with the Harare-based Shasha Tobacco Company, which has facilitated his tobacco-growing on 1ha since 2010.The contract enables him to get inputs on credit for the 1ha. However, contracting companies are reluctant to finance more than 1ha of tobacco for A1 farmers. To expand his production, he has had to self-finance the tobacco-growing area in excess of the one hectare. Figure 10 maps Mr Charumbira's backward and forward linkages related to his tobacco enterprise.

The sources of draft over the past thirteen years provide an indication of the availability of mechanised draft in the area. In 2001, when he was allocated land, Mr Charumbira settled on a plot that had already been ploughed by Mr Phillip, the former commercial farmer. From 2001 to 2004, the Charumbira family used their two spans of oxen to plough all their land for growing maize, tobacco, groundnuts, sugarbeans and soyabeans. Better yields are obtained from early planting of tobacco. This takes advantage of more sunshine and warmth in late October and early November. However, ploughing during this time of no rainfall is difficult for oxen that are in poor condition because of the long dry period. This is why farmers, even those with their own draft power, hire tractors for the early

tobacco. In 2005, Mr Charumbira hired a District Development Fund tractor from the Nzvimbo Business Centre, located some 25km from his farm in Chiweshe, to plough 3ha, and used his oxen to plough the rest of the plot. In 2006, the Charumbiras hired Mr Ngongoni's tractor to plough 2ha, while in 2007, they hired a Negomo Irrigation Scheme tractor from the Chiweshe communal lands to plough 2ha.

Since 2008, and financed by tobacco proceeds, the availability of tractors in and nearby the Msonedi area resettlement schemes has increased. In 2008, the Charumbiras obtained tractor services for 2ha from Mr Chinhema, an A1 farmer at the Ruia A scheme along the Harare-Mvurwi highway, 6km east of their plot. In 2010, they hired a tractor from Mr Zambara, an A1 farmer from the Mandindi farm, 8km away, to plough 1ha, for which Mr Charumbira was charged $60 plus 25 litres of diesel per hectare. In 2013, the Charumbira's son-in-law, Mr N Kurima, settled in the Lucknow A1 scheme; he had just bought a tractor, and ploughed all 6ha of Mr Charumbira's allocated lands at a cost of $60 per hectare and 20 litres diesel per hectare.

Yield, markets and realisation

In the 2012/13 season, Mr Charumbira grew 3ha of tobacco, selling the yield from the contracted 1ha through ZLT and the rest through Boka Tobacco Auction Floors (BTF) and Tobacco Sales Floors (TSF). In the 2013 marketing season, Mr Charumbira realised $11000 from 43 tobacco bales at an average price of $3 per kilogram.[6]

Cash inputs

The contract package is worth around $1200 per hectare, and includes ten 50kg bags of basal fertiliser, four 50kg bags of ammonium nitrate, seed, agrochemicals and a cash advance to cover tillage and labour. To increase his area planted to three hectares, Mr Charumbira bought an extra 42 bags of fertiliser from Windmill Fertilisers, Harare, at a total cost of $1980. He also bought an extra 15g of seed from the Kutsaga Tobacco Research Board outlet based at BTF, Harare. He purchased $200 worth of agrochemicals from the Agricura shop in Mvurwi town, and firewood for curing was harvested from the Msonedi communal gum forests at no cost.

To transport his tobacco to market during 2013 and 2014, Mr Charumbira hired trucks from Mr Nyamurowa of Mabu Estate and Mr Sekere, a resident of the Lucknow farm compound and whose parents were former workers at the Lucknow Extension farm. Both transporters charged him $10 per bale transported to selling points in Harare. As in the case of tractor services, Mr Charumbira is now able to access transport closer to home. Between 2003 and 2009, the Charumbira family depended on transporters from Mvurwi and Harare who came to Msonedi seeking clients. Since 2010, all tobacco transport has been provided by farmers or residents within the Msonedi resettlement schemes. Mr Chiromo, an A1 farmer in Lucknow, provided transport services in 2010. In 2011, Mr Stanley, a Lucknow compound resident whose parents are former farm workers, was hired. During 2012, Mr Chikwanda, an A1 farmer at Lucknow Extension, transported Mr Charumbira's tobacco. The major advantage with the current transport arrangements according to Mr Charumbira is that they involve people who know each other. Prior to 2009, farmers could not trust the transporters

[6]A bale of flue-cured tobacco weighs between 90 and 110 kilograms.

coming from outside the area and had to accompany their tobacco on the transport rig, and it was difficult to co-ordinate the booking of sales, leading to delays at the sales floor. Increased investments in trucks by local farmers funded from tobacco earnings since then have improved local availability of transport services.

On-farm employment

Mr Charumbira has one permanent worker, from his original home area of Muzarabani, who he pays $40 per month in cash; the worker receives free food and accommodation, as well as access to a piece of land on which he grows his own crops. This employee contributed 21 labour days to the tobacco enterprise at a pro rated cost of $82. In addition, for specialised tobacco production tasks, Mr Charumbira supplements his family's labour with seven experienced workers from the former worker compound on the scheme on a casual basis. The casual workers contribute 225 labour days over the growing season, at a rate of $4 per labour day, while the household and the permanent worker contribute 462 labour days to the tobacco enterprise. For ploughing, Mr Charumbira hires a tractor from a neighbouring A2 farmer at a rate of $90 per hectare, creating a half-day job for the tractor driver. The total on-farm employment and tractor service cash expenditure for the 2012/13 tobacco season amounted to $1252 (see Table 29).

Net income from tobacco

Based on the above, Mr Charumbira received $11500 in sales and cash advances and spent about $4562 in producing and marketing his tobacco, generating a net income of $6938 during the 2012/13 season (see Table 30).

Figure 10: The Charumbira linkages

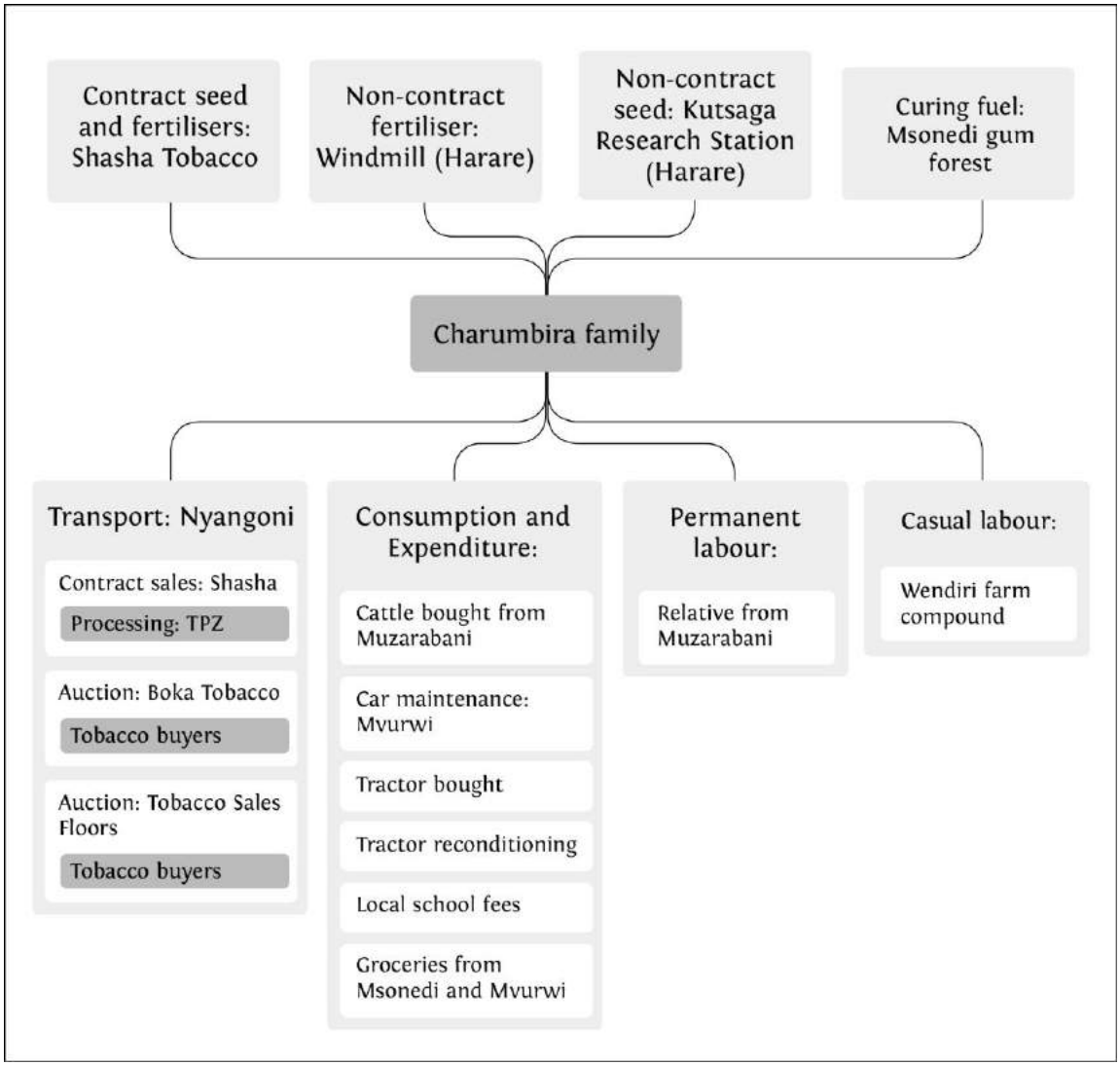

Contract seed and fertilisers: Shasha Tobacco
Non-contract fertiliser: Windmill (Harare)
Non-contract seed: Kutsaga Research Station (Harare)
Curing fuel: Msonedi gum forest
Charumbira family
Transport: Nyangoni
Contract sales: Shasha
Processing: TPZ
Auction: Boka Tobacco
Tobacco buyers
Auction: Tobacco Sales Floors
Tobacco buyers
Consumption and Expenditure:
Cattle bought from Muzarabani
Car maintenance: Mvurwi
Tractor bought
Tractor reconditioning
Local school fees
Groceries from Msonedi and Mvurwi
Permanent labour:
Relative from Muzarabani
Casual labour:
Wendiri farm compound

Table 29: Tobacco-related employment on Mr Charumbira's farm

	Family			Hired						Service			Total
	No.	Days	Labour days	No.	Days	Labour days	Rate ($)	Cost ($)	Source	Type	Rate/ha ($)	Cost ($)	Cost ($)
Ploughing										Tractor	90	270	270.00
Weeding	5	24	120	5	24	120	4.00	480.00	Farm compound				480.00
Nursery watering	2	90	180	0		0		-					-
Field watering	5	12	60	1	12	12	3.91	46.96	Muzarabani				46.96
Spraying	3	9	27	1	9	9	3.91	35.22	Muzarabani				35.22
Harvesting	5	15	75	7	15	105	4.00	420.00	Farm compound				420.00
Total			462			246							1252.18

Table 30: Mr Charumbira's tobacco enterprise budget

	Item	**Value ($)**
Cash inflow	Gross income from sales	11000
	Cash advance from contractor	500
	Gross cash inflow	**11500**
Cash outflow	Contract inputs	(1 200-500) 700
	Non-contract fertiliser	1980
	Non-contract agrochemicals	200
	Labour and tillage	1252
	Transport	(43 bales x 10) 430
	Gross cash outflow	**4562**
Net cash inflow		6938

Other income-generating activities

In addition to tobacco, Mr Charumbira grew maize, sugar beans and sweet potatoes during the 2012/13 season. He harvested 5MT of maize valued at $1400, 1MT of beans valued at $1200 and 40 buckets of sweet potatoes valued at $200. Some of this harvest was retained for personal consumption, with the surplus sold to outside vendors. Mr Charumbira also buys cattle during the tobacco marketing season as a store of money and to sell as needed towards the start of the growing season to finance his crop input requirements. Most of the cattle are bought relatively cheaply from his Muzarabani home region, a food deficit area, using his relatives as sourcing agents. Thus, the trade in cattle is a form of banking to manage liquidity during the year.

Expenditure

Mr Charumbira bought a used Nissan Terrano for $6500 with his 2009/10 season's tobacco income. In the 2011/12 season, he invested in a second-hand tractor. From his 2013 tobacco earnings, the reconditioning of this tractor was his major expense. Others expenses were school fees, groceries and building materials to improve his homestead. All of his expenditure from tobacco profits was made either in the Msonedi farming areas or in Mvurwi town (see Table 31).

Table 31: Spatial distribution of Mr Charumbira's expenditure

Rank	Item in order of size of expenditure	Location of expenditure	Distance from homestead (km)
1	Tractor overhaul	Local farmer	3
2	School fees	Local school	2
3	Groceries	Mvurwi	13
4	Home improvement	Mvurwi	13

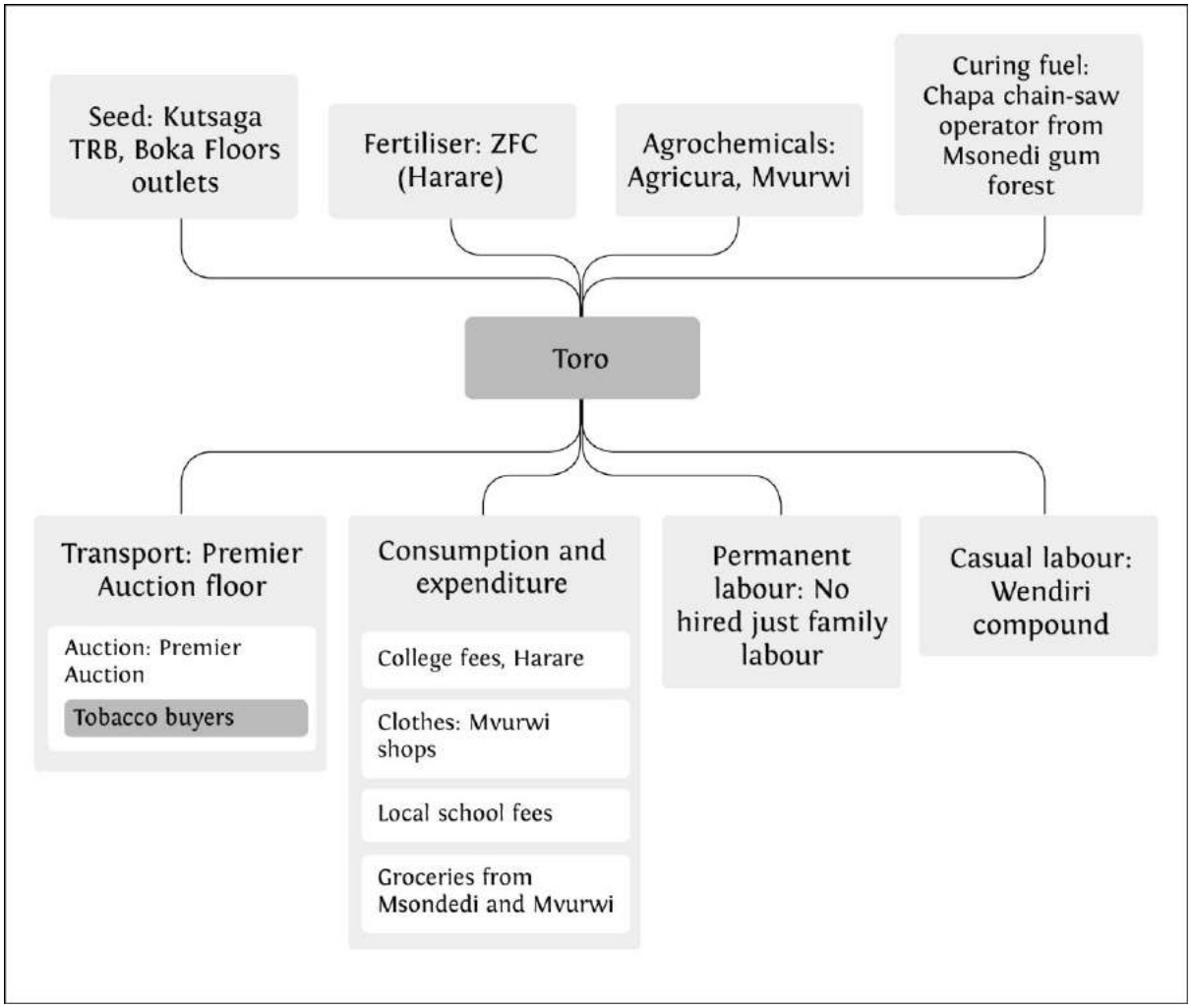
Case B3: Mr A Toro

Mr Toro, originally from the Chiweshe communal areas, was settled on an A1 plot at the Wendiri farm. In the 2012/13 season, he grew 1ha of flue-cured Virginia (FCV) tobacco from which he harvested seventeen bales of tobacco, which were marketed through the Premier Tobacco Auction Floors (PTF) at an average price of $3.50 per kilogram, a gross value of $7700. Figure 11 maps Mr Toro's backward and forward linkages related to his tobacco enterprise.

Cash inputs

To grow his hectare of tobacco, Mr Toro procured fourteen bags of fertiliser for $520 from Zimbabwe Fertiliser Company (ZFC) in Harare. Seed was obtained from Kutsaga's BTF retail outlet in Harare at a cost of $30. Agrochemicals were purchased for $100 from Agricura Mvurwi. Transport was provided by PTF at a cost of $10 per bale. Curing firewood was bought from chain-saw operator, Mr Chapa, who obtained wood from Ruia D farms. Mr Chapa sells wood at $40 per cord, or $560 for the fourteen cords required to cure a hectare of tobacco, with Mr Toro providing his own ox-drawn cart to transport the wood to his farm.

Figure 11: The Toro linkages



Tobacco on-farm employment

The Toros depend largely on family labour for tobacco-related farming activities, apart from the skills-intense harvesting, curing and grading, for which Mr Toro engages five casual workers from the Wendiri farm worker compound. In the 2013 harvest season, he hired five casual workers for 60 labour days at a rate of $4 per day (see Table 33).

Net tobacco income

Based on the above, Mr Toro received $7700 in sales and spent about $1620 in producing and marketing his tobacco, generating a net income of $6080 during the 2012/13 season (see Table 32).

Table 33: Mr Toro's tobacco-related employment

	Family			Hired						Service			Total
	No.	Days	Labour days	No.	Days	Labour days	Rate ($)	Cost ($)	Source	Type	Rate/ha	Cost ($)	Cost ($)
Land clearing													
Ploughing	4	3	12							Ox-plough			
Weeding	5	20	100			0		0					0
Nursery watering	3	90	270			0		0					0
Field watering	3	21	63			0		0					0
Spraying	2	3	6			0		0					0
Harvesting	4	12	48	5	12	60	4.00	240.00	Farm compound				240.00
Total			487			60							240.00

Table 34: Spatial distribution of Mr Toro's expenditure

Rank	Item in order of size of expenditure	Location of expenditure	Distance from homestead (km)
1	College fees	Harare	88
2	Crop inputs	Harare	88
3	Tractor hire	Local	1
4	Grocery	Mvurwi	13
5	Clothing	Mvurwi	13

Table 32: Mr Toro's tobacco enterprise budget

	Item	Value ($)
Cash inflow	**Gross income from sales**	7700
Cash outflow	Fertiliser	520
	Agrochemicals & seed	130
	Permanent labour hire	0
	Casual labour and tillage	240
	Transport	170
	Curing wood	560
	Gross cash outflow	1620
Net cash inflow		6080

Other livelihood activities

Mr Toro grows maize and soyabeans, too. In the 2012/13 season, the Toros harvested 0.5 tonnes of soyabeans worth $250 and 1.5 tonnes of maize worth $480; in addition, they had seven head of cattle valued at $2450. Mr Toro, his wife, two sons and their wives are also involved in market gardening for the local market.

Expenditure

Most of the net income from the 2012/13 season was spent in Harare, 88 kilometres away, paying for college fees and crop inputs for the 2013/14 season. The rest of the money was spent either in the Msonedi community or Mvurwi town 13 kilometres away (see Table 34).

Off-farm income and employment creation in tobacco

To help us understand the income and employment generating ability of the backward and forward linkages revealed in the case tobacco farms, we further investigated these links. The results of this investigation are reported below.

Tractor hire

Case B4: Mr Ngongoni

Mr Ngongoni is a tractor-hire service provider who has ploughed for many farmers in Msonedi, including Mr Charumbira and Mr Toro. In 2013, he provided tractor ploughing services to 50 farmers, earning $6000 from the business. Mr Ngongoni is a 60-year-old son of a prominent Chiweshe communal area businessman. Prior to him being allocated a 250ha A2 farm in Msonedi, he was already in the transport business. Despite inheriting a fully developed plot with a former main farmhouse and ancillary farm infrastructure such as tobacco barns and sheds, only 10ha were under cultivation in 2013. His main business focus prior to 2012 was on transport and contract ploughing services, operating with one 30-tonne truck, two tractors and two 5-tonne trailers. In July and August 2013, he transported 30MT of maize from Msonedi and nearby farms to traders in Mvurwi, charging $1 per bag. In March and April of that year, he transported 500 bales of tobacco from Msonedi and nearby farms to auction floors in Harare, charging $10 per bale. Between April and June 2013, he transported 5MT of soyabeans from Msonedi and nearby farms to traders in Mvurwi, charging $1 per bag. He currently employs four drivers and three assistants who he pays $150 per month. One of his sons can also be called upon to drive. On each hired trip,

he engages six locally sourced casual workers at $3 per person per load, to load and unload. His tractors and truck are maintained by mechanics based in Mvurwi at a cost of $1000 per month during the peak transport season. He spends $360 per month on fuel and $150 per year on insurance. On the farm, he has twenty permanent employees (fifteen male and five female), none of whom is a family relation. These workers are paid $90 per month in wages. Figure 12 maps backward and forward links related to Mr Nyagoni's tractor and transport hire enterprise.

Mr Ngongoni's trucking business has enabled him to invest in farming, purchasing a tractor, a Toyota van and irrigation equipment. However, Mr Ngongoni bemoans a marked decline in large truck business, due to delays and traffic fines at an increasing number of police roadblocks, competition from smaller, more nimble low-maintenance trucks being bought by tobacco farmers, and high vehicle maintenance costs because of poor roads. These challenges have encouraged Mr Ngongoni to shift focus onto agricultural production on his plot. In 2013, he reaped 120 bales of tobacco ($48000), 30MT of maize, 60 baconers from his piggery ($18000) and 2MT of soyabeans ($1200). Soyabeans and maize are used on-farm for family and worker consumption, as well as feeding the pigs.

Farm labour

Observations in the Mvurwi study area indicate that the majority of former workers on farms acquired during the post-2000 land reforms have remained in their compounds. For example, at the Hariana A1 farm, there are in excess of 400 former farmworkers in the compound. On the Pembi Chase farm, 500 of the original 540 employed on the farm prior to resettlement remained in the compound. This trend was observed at other compounds, including those at Ruia Ranch, Wendiri, Machere and Lucknow in the Msonedi A1 resettlement areas. Farmworker compounds have also been recorded in A2 areas covered by the present study. On Mr Mondo's A2 farm on the border between Mvurwi and Guruve, a compound with more than 500 workers remains a major labour reserve for Mr Mondo and his neighbours. The former farmworkers have been vital in helping new tobacco farmers to prosper in their new enterprise through the knowledge and skills gained in the workers' past employment.

However, a significant number of people now resident in the compounds are not those originally from the scheme, having moved in from farms where workers were either evicted or did not have the opportunity to be gainfully occupied as workers or farmers. In a sample of 100 people resident in the Hariana, Ruia A and Ruia B farmworker compounds, only 51% of respondents were farmworkers at the farm before FTLR, while 38% were farmworkers at other farms that were resettled. In addition, fourteen years after the start of FTLR, a large number of residents in compounds were not yet old enough to have worked before 2000. In our sample, 11% of the current household heads in the compounds were younger than twenty years old in 2000.

Most former farmworkers combine casual labour supply to A1 beneficiaries with micro-scale farming activities. However, there are wide variations in the combination of these livelihood strategies, depending largely on how much land the scheme leadership have allocated to former farmworkers. For example: in Hariana, 76% of those surveyed were allocated an average of 1.2ha each; in Ruia B, 66% were allocated an average of 0.25ha each; and in Ruia A, only 40% of farmworkers were allocated an average of 0.24ha each (see Table 35). In addition, 27%, 30% and 17% of farmworkers in Hariana, Ruia A and Ruia B, respectively, rent on average 0.25ha of land from A1 beneficiaries to grow crops.

Figure 12: The Ngongoni linkages

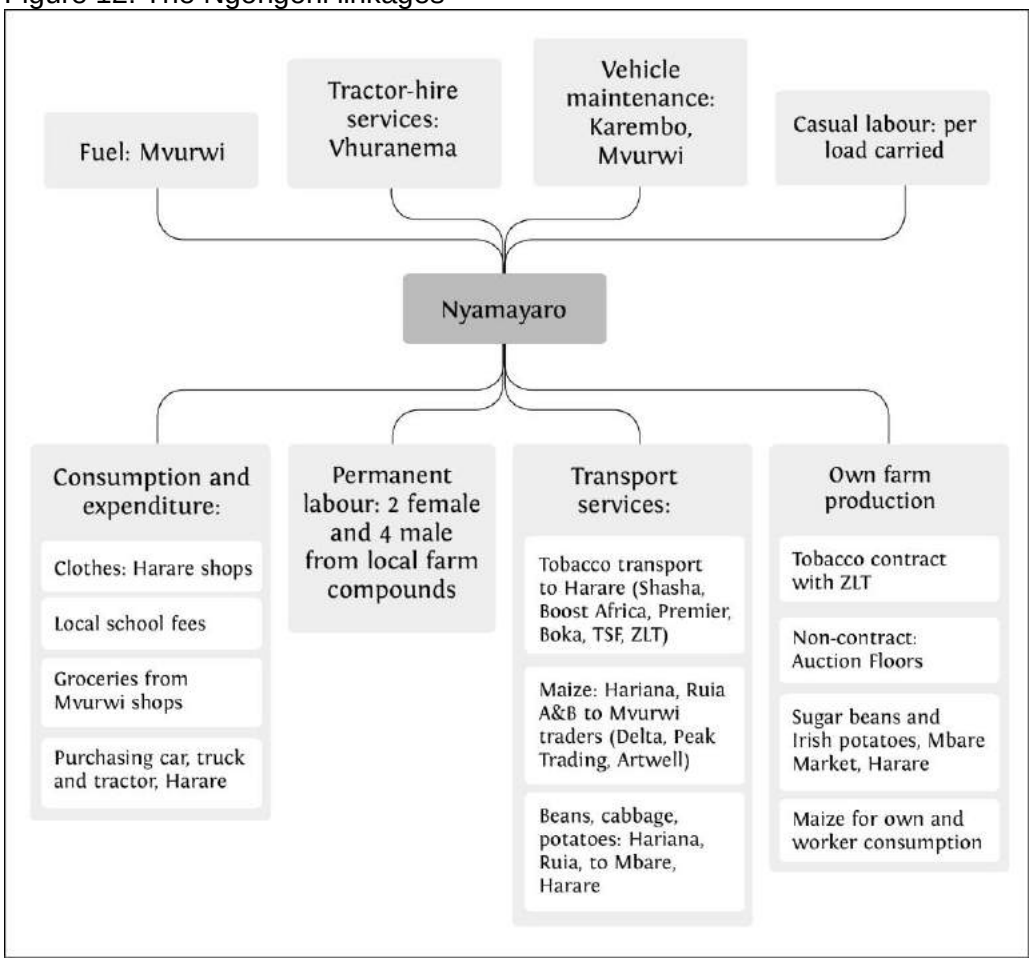


Table 35: Land allocated to a sample of former farmworkers in Msonedi farming areas

Land allocated	Hariana	Ruia A	Ruia B	Total
0	24%	60%	34%	38%
0.1–0.25ha	0%	17%	50%	20%
0.25–0.99ha	0%	23%	10%	10%
1ha	58%	0%	3%	24%
>1ha	18%	0%	3%	8%
Average ha per allottee	1.20	0.25	0.24	0.63
Total respondents	40	30	30	100

The differences in access to land by former farmworkers are reflected in the degree of dependency on their own production relative to casual farm work. In Hariana, where farmworkers were allocated more land, 82% of farmworkers reaped an average of 16 bags of maize, 57% of farmworkers reaped an average of 696kg of tobacco in the 2014 harvest, and each household supplied 120 labour days to neighbouring A1 farms. In Ruia A, where access to land by former farmworkers was much more limited, 60% reaped 8 bags of maize, 30% reaped 470kg of tobacco, and each household supplied 428 labour days to A1 farms. In Ruia B, 67% reaped 9 bags of maize, 10% reaped 1500kg of tobacco, and each household supplied 218 labour days to A1 farms. Thus, in general, where more farmworkers have been allocated reasonable tracts of land, income generation is greater and there is more upward mobility.

Below, we present a few farmworkers' stories, which showcase the diversity of the former farmworkers in the farming areas and how they are faring.

Case B5: Mr Kayisa

Mr E Kayisa is a farmworker, originally employed as a general hand at Forester Estate, who moved to the Ruia A compound following the acquisition of a portion of the large estates for resettlement. A descendant of immigrants from Malawi, who came to do farm labour, the 55-year-old received less than seven years of education and is one of those former farmworkers who has struggled in life after FTLR. Housing in the compound consists of a four-roomed house, with a communal borehole as the main domestic water source. Currently, two adults and two children are resident at the Kayisa home.

Prior to FTLR, Mr Kayisa was a full-time employee earning $35 per month, supplemented by periodic sales of poultry, brick-making and thatching, vegetable selling, fishing and petty trading. At Ruia A, two males in the household and a single female participate in casual labour on nearby Ruia A A1 plots. The three supplied 600 labour days to the farms in the 2013/14 season at a daily wage of $3, generating $1800 in household income. The household has access to 1000m^2 of land on which they grow subsistence crops. They also receive remittance income from a son who is employed elsewhere as a security guard.

In the pre-resettlement period, the Kayisas did not have access to land or large animals (cattle, goats, and sheep). This has not changed much since resettlement.The family has access to one cell phone and has two photovoltaic panels for night lighting. They also keep a few scavenging chickens, which they sometimes sell for extra income.

Case B6: The Tobias family

A number of farmworkers moved from other farms that were occupied, especially under the A2 programme, to Msonedi A1 areas. Mr R Tobias, who lives in the Ruia A compound, is one of them. A Mozambican national, the 45-year-old Mr Tobias is one of the more successful ones. Before coming to Ruia A, he worked at the ADA farm as a general hand. In 2000, he earned $30 per month. Currently three adults (older than 20 years) and six children (younger than 20 years) live at the compound residence. Mr Tobias did not go beyond Grade 7 in his education. The family resides in a four-roomed residence without electricity or running water. They get water from a communal borehole. The most valuable asset owned by the family is a motorcycle. They have two cellphones for communication and a solar panel for lighting their home at night. The Ruia A committee allocated Mr Tobias 0.3ha of land, all of which is cropped to maize and a few lines of tobacco. In the 2013/14 season, the family reaped twenty bags of maize and 50kg of tobacco. In addition, Mr Tobias has access to a small garden in the vlei area for vegetables.

Three members of the Tobias family, one male and two female, are involved in farm labour on the Ruia A A1 plots. In the 2013/14 growing season, the family supplied a total of 500 labour days at a wage of $3 per day, generating an income of $1500. Prior to resettlement, Mr Tobias had access to only 1000m^2 of land and did not have any large livestock. Currently, the family has six cattle, three of which were acquired in the past five years. They also have a goat. Mr

Tobias earns some extra money from periodic sales of cattle and vegetables, and from providing building and carpentry services. The Tobias family feel that their welfare has improved since FTLR.

Case B7: Mr Mwale

Mr V Mwale, a 45-year-old descendant of migrant workers from Malawi, worked at Ruia A as a general hand earning $30 per month prior to FTLR. Mr Mwale, who did not receive any formal schooling, remained at the Ruia A worker compound when the farm was parcelled out to A1 scheme farmers. Currently, three adults and four children are resident in the Mwale's four-roomed dwelling. Two men and one woman in the Mwale household contribute to household income through casual labour for maize and tobacco farmers on the surrounding farms of the Ruia A, Ruia B and Lucknow A1 schemes. In the 2013/14 season, these three worked for a total of 400 labour days at a wage of $3 per day, amounting to an income for the household income of $1200. This income was supplemented by income from the sale of poultry and vegetables, brick-making and thatching. Prior to resettlement, the Mwales had no access to allocated or rented land, and very few assets. The welfare of household has improved since FTLR, with the family having access to 0.4ha allocated by the Ruia A leadership, and having invested in two cellphones, a bicycle and a couple of solar panels for night light. From the 0.4ha, the family reaped 0.6MT of maize to supplement the family's food needs.

Case B8: Ms Chimusendero

Sixty-year-old Ms S Chimusendero, who received no formal schooling, is resident in the Hariana compound. Prior to settling at Hariana, she worked at the Fia farm in Centenary as a farm guard, earning $20 per month. The household residing at the five-roomed Hariana compound house includes six adults and three children. Farm labour is no longer the main source of income for the Chimusendero household, with more income being derived from their own farming operations. The family secured 1ha of land from the Hariana scheme leadership, and rents a further 0.4ha from an A1 farmer at the Hariana scheme, on which they grow tobacco, maize and sweet potatoes. In the 2013/14 season, the family reaped 0.5MT of maize, all for household consumption, 900kg of flue-cured tobacco worth about $2700 and 1000kg of sweet potatoes, which they sold along the Mvurwi-Harare highway. The family also grows vegetables on a small garden close to the dam; these, too, are marketed to travellers on the highway. Extra income is earned from the sale of goats (Ms Chimusendero keeps five goats on the plot), poultry and tailoring services, while fishing in the Hariana dams supplements household food.

Only one male member of the family is still involved in farm labour for Hariana A1 farmers. During the 2013/14 season, he supplied 120 labour days at an average wage of $3 per day, bringing in about $360 for the household. Using proceeds from the sale of their own produce (and from prior farm labour services) the family managed to sink their own well for domestic water supply, and purchase a bicycle and a car. Two members of the family have cell phones.

Tobacco curing energy

Curing plays a major role in contributing to final tobacco leaf quality. Unlike Burley tobacco which is air-cured or Oriental which is sun-cured, Virginia tobacco is flue-cured – a form of baking requiring

artificial heating.The main sources of energy used by Mvurwi flue-cured tobacco farmers are firewood and coal. Where a combination of coal and wood is used, one tonne of coal and five ox-carts of firewood are required to cure tobacco from 1ha. This was the method used by former white commercial growers prior to FTLR. However, there are no coal retailing outlets in Mvurwi, and only a few growers farming under contract currently use coal. The majority of tobacco farmers use firewood, buying it from A2 farms, as well as Mvurwi local authorities, who harvest gum forests in A1 resettlement schemes as a revenue-generating venture.[7]

The demand for curing wood is very significant. It takes 14 cords or 27MT of wood to cure 1ha of tobacco.[8] Indigenous forest timber yields between 7 and 10MT per hectare, which implies that 3ha of indigenous woodlands are needed to cure 1ha of tobacco. Most resettlement farms in Msonedi have a history of tobacco production and have surviving eucalyptus lots planted by previous farmers. However, these are being heavily exploited and regrowth of coppices is being hampered by seasonal fires. Extension workers also fear that extensive tree cutting is removing windbreaks, leading to an increase in wind damaged tobacco leaves.[9]

The Tobacco Industry and Marketing Board (TIMB) and tobacco merchants have mounted a massive campaign to promote forestation within tobacco-growing areas. The merchants have banded together to fund the Sustainable Forestation Programme, which aims to establish woodlots in all tobacco-growing districts, as well as setting up a revolving fund to help farmers to invest in energy-saving curing barns, using the Rocket Barn technology pioneered in Malawi.[10] The fund will also finance modification of existing curing facilities to better utilise alternative fuels such as coal and biogas. Contracting companies have employed extension foresters to help farmers establish eucalyptus woodlots on their plots. ZLT's Mvurwi office has one such forester who is promoting a sustainable seven-year tree planting and harvesting programme.[11]

Firewood harvesting has created a thriving business in the wood-cutting services offered by individuals using $200 chain saws. One such entrepreneur is Mr Chapa, who scours the A2 farms for farmers with eucalyptus plots. He buys firewood from the farms at $10 per cord and sells it at $65 per cord, including cutting, loading, and transport and unloading. He hires trucks with 30MT capacity capable of carrying twelve cords per load at $25 per cord. On average, Mr Chapa harvests 96 cords per month or about 1000 cords per year.[12]

The harvesting of woodlots is subject to control by two authorities that fall under the Ministry of Environment and Tourism – the Forestry Commission and the Environmental Management Agency (EMA). Cutting and ferrying wood requires a permit from the Forestry Commission based in Bindura, 90km east of Mvurwi. Before a woodlot is harvested, the EMA has to inspect it for the suitability of the wood for harvesting. Thus, timber harvesters such as Mr Chapa have to arrange for an inspection by one of two inspectors based in the town of Glendale, some 60 km south east of Mvurwi, and be issued with a permit before any harvesting can take place.

7 Mr Kuretu, ZLT forestry extension officer, October 2013.

8 A cord of wood is 2.4m long by 2.4m wide by 1.2m high.

9 Ms Samende, extension worker, Hariana farm, October 2013.

10 Annual Report of the TIMB, 2013.

11 ZLT forestry extension officer, October 2013.

12 Interview with Chapasuka, chain-saw timber harvester, October 2013.

Transporters

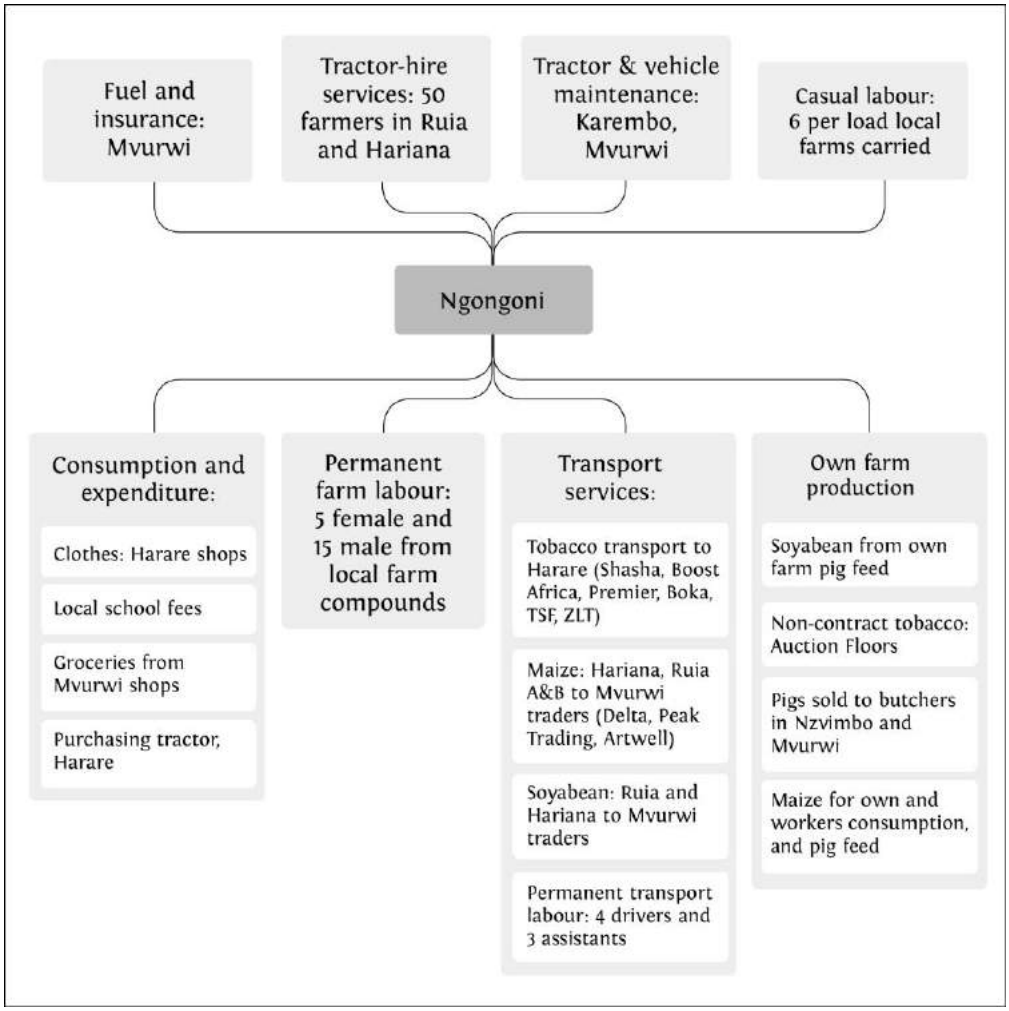
Case B9: Mr Nyamayaro

The emerging tobacco-financed small-truck transport business is exemplified by 41-year-old Mr Nyamayaro, who provided Mr Charumbira with transport services during 2013. Mr Nyamayaro is primarily a farmer who is now venturing into the transport business, financed by cropping proceeds. He is originally from the Chiweshe communal areas. Before land reform in 2000, he was a farm worker, and when FTLR began, he was working at Mabu Estates, commonly known as Vuranema. When the farm was acquired for resettlement, he lost his job. However, when the farm was being parcelled out, he applied for a plot and was one of 123 beneficiaries who each got 6ha under irrigation. On his 6ha, Mr Nyamayaro is growing irrigated tobacco under contract to ZLT, and a dryland tobacco crop, which he sells on the auction floors. During the 2012/13 season, he sold 100 bales for about $40,000. He also harvested 6MT of maize from a hectare of land, which is 4MT more than he and his family and workers consume in a year. During the non-tobacco-growing season, he grows horticultural products including Irish potatoes and sugarbeans. In 2013, he harvested 1000 15kg pockets of potatoes and 6MT of sugarbeans, which sold for $8000 and $7200, respectively, to traders from Mbare market in Harare. From owning virtually nothing when he was settled in 2004, Mr Nyamayaro has invested in a second-hand 120hp Landini tractor, a 2-tonne truck, a small family car and thirteen head of cattle. The tractor allows him to earn extra income from contract ploughing for his neighbours, while the 2-tonne truck generates income through the transportation of produce to markets. Figure 13 maps out the linkages generated by Mr Nyamayaro's on- and off-farm business enterprises.

In 2013, Mr Nyamayaro earned close to $5000 from ferrying produce for producers on the Msonedi resettlement farms. This was generated through transporting: 300 bales of tobacco to Harare (100km away) at a cost of $10 per bale, between February and June; 20 loads of potatoes to Harare and Mvurwi (15km away), between October and April, at a cost of $100 and $50 per load, respectively; 100MT of maize from Msonedi A1 farms to Mvurwi buyers at a cost of $1 per bag, between July and September; and 60MT of cabbages at a cost of $80 and $40 per load to Harare and Mvurwi, respectively, between September and October.

The transport enterprise generates income without imposing much extra cost on Mr Nyamayaro's business. He drives his own truck and, for produce originating from neighbouring farms, he uses his permanent farm workers to load and unload at no extra expense. He employs two female and four male workers on his farm, at a monthly wage of $60. When his own workers are tied up in on-farm work, he hires four to six casual loading labourers at the source of the produce at $3 per person per load. His other costs include vehicle maintenance by Mvurwi-based mechanic Mr Karembo at $60 per month, fuel costs averaging $50 per trip to Harare and $15 per trip to Mvurwi, and insurance payments of $75 per year. All of these transactions are carried out in Mvurwi town, 20km from his farm, helping to generate income and employment in the town.

Figure 13: The Nyamayaro linkages

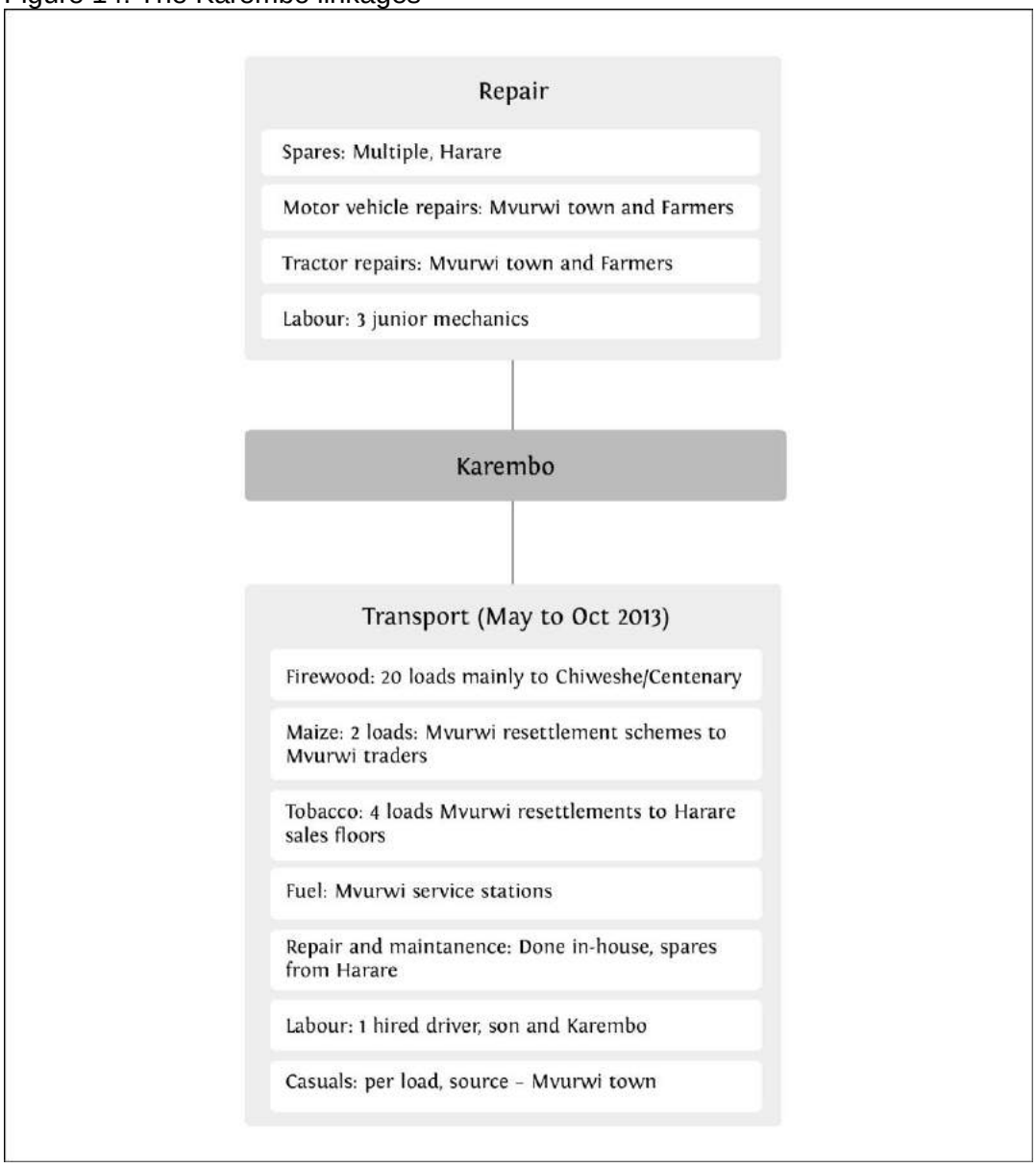


Vehicle and tractor repair services

Case B10: Mr Karembo

Mr Nyamayaro gets his vehicle maintenance services done by Mr Karembo in Mvurwi town. Mr Karembo is a full-time Mvurwi-based mechanic and big-rig transporter operating three 30-tonne trucks. In his vehicle maintenance business, he employs three permanent workers who are each paid $250 per month, and provides services for tractor and small truck owners such as Mr Nyamayaro. Figure 14 maps out the linkages created by Mr Karembo's vehicle maintenance and transport business.

Figure 14: The Karembo linkages



Transport services are Mr Karembo's main business. According to his 36-year-old son, Mr D Karembo, big-rig transporters are facing stiff competition in the tobacco and maize transport business from smaller trucks, which more and more farmers are buying with their tobacco earnings. The small trucks are preferred by customers with lower-volume loads, who previously had to wait longer for 30-tonners to be fully loaded. Big-rig transporters like Mr Karembo have shifted focus to transporting commodities in respect of which they have comparative advantage, such as firewood from farms with gum plantations to tobacco farms without on-farm wood sources. Of the 26 trips the Karembos made between May and October 2013, twenty were for firewood, only four for tobacco and two for maize. The main trade in firewood is between farms around Mvurwi with gum plantations and the Chiweshe communal area tobacco farms 60–70km away. The shift from transporting higher-value commodities such as tobacco to high-bulk, low-value products such as firewood has reduced the profitability of the transport business. One full load of twelve cords, at $28 per cord, yields $336 per trip, most of it on rough roads. In contrast, delivering a full load of tobacco to Harare on a wide, tarred road earns him $500, with opportunities for more income

from back-loads, as farmers buy goods with their tobacco money. Even better, a trip transporting maize from Msonedi farms to Mvurwi maize traders – a 15km journey – would earn Mr Karembo $600 at the standard rate of $1 per bag.

Mr Karembo employs one permanent driver, from the local community, as well as his son in the transport business. When business is high, he also personally provides driving services to the business. He estimated that 10% of his profits go to the salary of the permanent driver. In addition, the transport business creates employment for casual labour. On his firewood transport trips, he employs six local casuals at a cost of $2 per cord, or $24 per trip. On tobacco ferrying trips he employs six local casuals at $3 per person per trip, while on maize transport the client farmers provide loading labour. As a qualified mechanic, Mr Karembo does his own repairs, but spends about $130 per month on spare parts and sundries. He estimates that a trip to Chiweshe or Harare requires $130 worth of diesel. Insurance for his vehicles costs $720 per year. Although small truck transport – due to the boom in tobacco farming – has hurt his transport business, it has boosted his tractor and vehicle maintenance business, as more farmers are buying tractors and cars.

Farm input suppliers

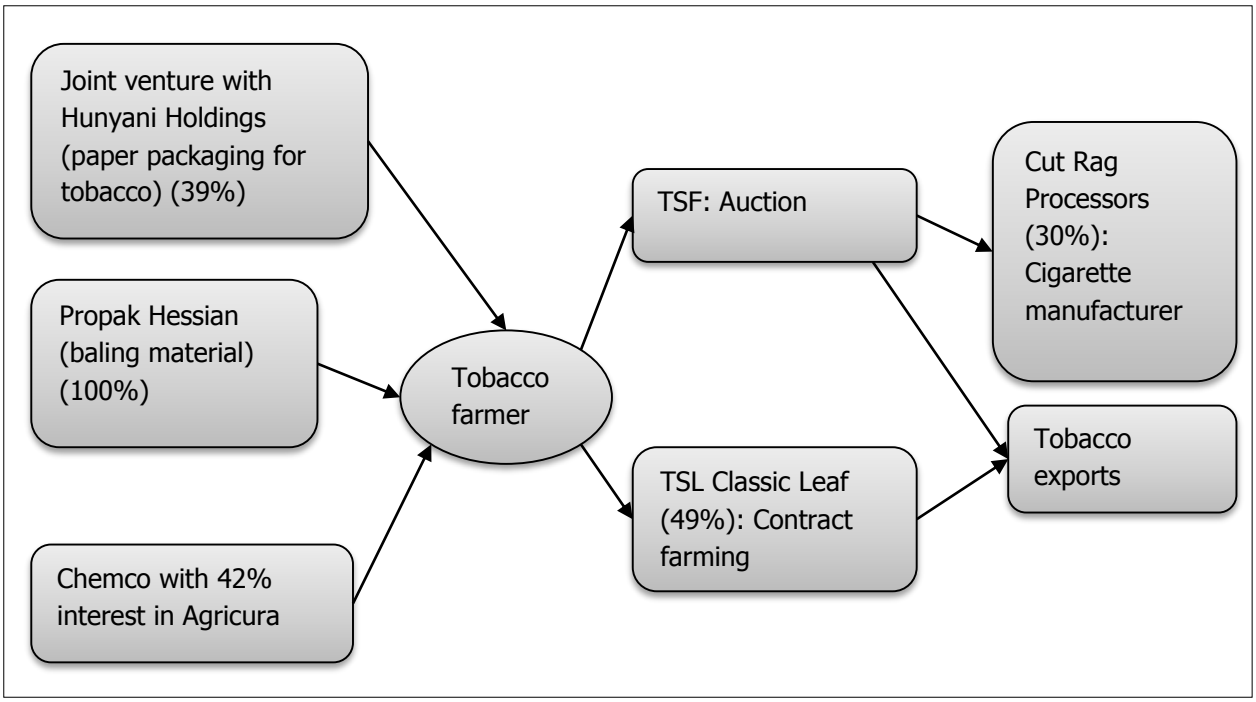
For key cash inputs, such as fertilisers, seed and agrochemicals, Mvurwi is well served by several input suppliers originally set up to service the pre-FTLR large-scale white-owned farming areas of the Mazowe district. These include Agricura, Mashonaland Co-operatives, and Farm and City. The outlets are branches of input dealerships headquartered outside the Mazowe district, generally employing few people and retailing products imported by their main branches in Harare.

Case B11: Agricura

Agricura is part of the tobacco-related conglomerate, TSL Limited, which is 92% Zimbabwean owned and headquartered in Harare. TSL has far-reaching tentacles throughout the tobacco industry (see Figure 14). It has significant shareholdings in: Propak Hessian, which makes hessian string and bales for tobacco packaging; Hunyani Holdings, which supplies tobacco-wrapping paper; TSL Greenbelt, which imports and distributes specialty fertilisers; TSL Classic, which is involved in contract tobacco-growing; TSF, which auctions tobacco; and Chemco Holdings Limited, of which Agricura is a subsidiary.Through Chemco, which reported close to $7 million turnover in 2012, TSL has a 42% shareholding in Agricura.

Agricura set up shop in Mvurwi in 1998 with chemicals as its focal business. The company later diversified its activities, adding a fertiliser retailing business in 2009. Fertiliser is sourced from ZFC in Harare and retailed at Agricura shops in Mvurwi, Centenary and Guruve, with tobacco and maize farmers as the main clients. In some seasons, Agricura participates in the distribution of government-subsidised inputs. The last time the company participated was in 2011, when Agricura was contracted by the government to distribute 960MT of fertilisers. The company employs two permanent workers and three casuals during the peak demand period of August to October.

Figure 15: TSL and its tobacco industry network



Tobacco marketing

Tobacco is marketed through auctions or under contract, under the supervision of the statutory body, TIMB, the history of which dates back to 1936, when it was formed to regulate the marketing of tobacco via auction. Its activities include the licensing of auction floors and buyers, the registration of growers, the co-ordination of deliveries of tobacco to selling points in collaboration with sales floors, and the collection and dissemination of tobacco statistics. In collaboration with its sister institution, the Tobacco Research Board (TRB), it also co-ordinates farmer training.

Case B12: Contract farming in tobacco – ZLT

> *Concerned about the decline in tobacco production after 2000, tobacco merchants successfully lobbied TIMB to allow contract farming of flue-cured tobacco. The contract system was used for the first time in Zimbabwe in the 2003/04 tobacco season. Contractors assist farmers financially and provide them with agricultural inputs, the cost of which is recouped from the farmers once their tobacco is sold. In the 2012/13 season, some fourteen firms were engaged in contract farming – Boost Africa, Chidziva Tobacco Processors, Northern Tobacco (linked to British American Tobacco), Tribac (a subsidiary of Japan Tobacco), Shasha Tobacco (an agent for Tribac), Mashonaland Tobacco Company (a subsidiary of the American company Alliance One International), Curverid Tobacco, Gold Leaf Services, Tian Ze (China Tobacco), Intercontinental Leaf Tobacco, Leaf Trade Company, Midriver Enterprises (a Chinese company), Zimbabwe Leaf Tobacco (ZLT) (a subsidiary of the American company Universal Leaf Tobacco) and TSL Classic Leaf. Of these, the four most active in the areas surrounding Mvurwi are ZLT, the Mashonaland Tobacco Company, Shasha and Boost Africa.*

ZLT is very active in contracting tobacco farmers in the Mashonaland Central Province, where the company is present in Guruve, Centenary, Mazowe and Mvurwi. Nationwide, it contracts about 10000

farmers, 2300 of whom are in Mashonaland Central. In Mashonaland Central, it accounts for 18% of all contracted farmers and 9% of all FCV tobacco growers. ZLT employs 80 people countrywide. ZLT Mvurwi is the heart of the Mashonaland Central contract operations, employing nineteen people who travel throughout the province.

To apply for contract farming with ZLT, A1 farmers need to produce: proof of land ownership in the form of an 'offer letter' or, in the absence thereof, an affidavit; proof of registration as a tobacco grower; production history, based on TIMB records; letter of recommendation from local extension workers; access to own curing facilities in the form of a five-tier barn with V-slot furnace, or the new Rocket Barn; and access to adequate draft power. In addition, the applicant has to be a member of a peer group of between five and eleven growers to facilitate the delivery of inputs as well as the provision of agronomic support by Mvurwi-based support staff. If successful, the farmer receives an input package currently worth around $1200 per hectare, which includes ten 50kg bags of basal fertiliser, four bags of nitrogen fertiliser, seed and agrochemicals. The company also assists farmers to set up tree plantations, providing extension services and tree seedlings. If the farmer wishes to use coal, this is provided at an extra cost to the farmer $230 per ton.The loan is structured such that about three 100kg bales are sufficient to cover the coal, with the expectation that farmers will obtain a yield of about 20 bales per hectare.

Repayment of the ZLT loan is due within 40 days of sales, which are conducted at their buying floors located at ZLT's 10ha Harare complex. To deliver tobacco, farmers need to obtain a booking from the ZLT buying floors, which is done through the area representatives. Deliveries are made a day before the sales. Apart from ZLT area managers and agronomists, TIMB representatives, classifiers and farmers or their representatives are present on the buying floor. TIMB officials are at the floors to adjudicate in case of disputes regarding the classification of delivered tobacco.

Growers can withdraw from the ZLT contract after paying off their debt and having marketed $2000 worth of tobacco per hectare to ZLT. However, farmers rarely choose this route, due to the generally favourable prices enjoyed under contract and the desire to maintain a good relationship with the contractor. Contracted A1 farmers are better at loan repayment than are A2 farmers, according, to ZLT staffers: 'Not only do they [A2 farmers] fail to pay, but some are just too powerful to pursue' when they default.

ZLT is a subsidiary of ZimLeaf Holdings, established in 1956. ZimLeaf Holdings has a subsidiary Lytton Tobacco Company with a rated annual processing capacity of 64 million kilogrammes of tobacco. In turn, Zimleaf Holdings is a subsidiary of the USA-based multinational, Universal Corporation of Virginia, rated as the largest tobacco trading company in the world. Universal also has interests in the Harare-based tobacco processing company, Casalee Tobacco Processors (Pvt) Ltd, which has the capacity to process 28 million kilograms of tobacco per year. All of ZLT's tobacco is processed at Lytton and Casalee plants prior to export. The companies linked to Universal Corporation – Zimleaf, ZLT, Lytton and Casalee – together employ approximately 2500 people.[13]

Case B13: Contract tobacco marketing – Shasha Tobacco Limited

Shasha Tobacco (Pvt) Ltd is a black Zimbabwean-owned tobacco contracting company that was established in 2007. In its first year of operation, it contracted 400000kg of tobacco. The Shasha Tobacco Contract Growing Scheme now averages 20 million kilograms per year. Tobacco bought under the Shasha scheme is sold mainly to Tribac Leaf Limited with which it has a strategic partnership. Tribac Zimbabwe was established in 1995 and employs between

[13] Zimtrade Company Profiles: www.zimtrade.co.zw

200 and 500 people. In mid-2009, Japan Tobacco Inc (JT) concluded an agreement with Tribac Leaf Limited, the owners of Tribac Zimbabwe, to acquire Tribac's business. Tribac operates in several parts of the world, including Malawi, Zambia, China and India. JT is the world's third-largest international manufacturer of tobacco products. The company manufactures internationally recognised cigarette brands including Winston, Camel, Mild Seven and Benson & Hedges. Since its privatisation in 1985, JT has actively diversified its operations into pharmaceuticals and foods. The company's net sales were ¥6.832 trillion in the fiscal year ended 31 March 2009.

Tribac's tobacco is processed at Tobacco Processors Zimbabwe (TPZ), a joint venture company owned by Tribac, British American Tobacco (BAT) and the Inter-Continental Leaf Tobacco Company. In addition to processing its shareholders' tobacco, TPZ also processes tobacco for third parties, including the Mashonaland Tobacco Corporation, Chidziva, Savannah, Deplaat Investments and Tian Ze, which manages the purchasing of Zimbabwean tobacco for the China National Tobacco Company. In 1998, TPZ had a processing capacity of 70 million kilograms. Formed in 1987, TPZ processes 42% of Zimbabwe tobacco and employs about 1700 people at peak processing times.

Case B14: Auction marketing

For the 2013 marketing season, three auction floors were in operation –TSF (with the capacity to sell 15 000 bales daily), BTF (with a 12 000 bales per day capacity) and PTF (with a daily capacity of 6 000 bales). A total of fifteen A-class buyer's licences were issued for the season to conduct business on behalf of international clients. Due to the fixed buying capacity of the different floors, farmers are required to book their sales on a first-come, first-served basis on a floor of their choice. All auctions have adopted the practice of 'deliver today, sell tomorrow'.

The farmers studied tended to use TSF or PTF as their preferred auction floors. TSF is a subsidiary of TSL, a wholly Zimbabwean-owned, highly diversified corporation with interests in a wide variety of companies linked to the tobacco industry. TSL was established in 1957 and all operations under its control employ approximately 2500 people.[14] In addition to TSF, these enterprises include: Agricura, an agricultural input supply chain with a branch in Mvurwi; Hunyani Holdings, which supplies paper packaging for baled tobacco; Propak Hessian, a supplier of tobacco baling and tying products; and Cut Rag Processors, a manufacturer of cigarettes for the regional market. TSL's tobacco operations generated US$9.5 million in revenue, while the agricultural inputs operations accounted for US$6.9 million in revenue during 2012 (TSL Limited 2012).

PTF, formed in 2011, is a company wholly owned by black Zimbabweans. It is one of auction floors that registered in response to the congestion experienced by farmers at tobacco auction floors during the 2009 and 2010 seasons. Premier company also has an interest in non-tobacco auctioning through its subsidiary Premier General Auctions (PGA), which was formed to diversify business operations away from the highly seasonal tobacco auctioning.

[14] Zimtrade Company Profiles, www.zimtrade.co.zw

Farming community retail business: Msonedi shops

Local retail outlets, especially if locally owned, reduce the leakage of money from the local community and help to generate employment. The growth in tobacco production has led to an increase in disposable farming income, attracting a thriving retail trade in Msonedi. The Msonedi Business Centre is well positioned along the tarred road to Harare, Mvurwi, Guruve and Centenary. It is also linked to the Nzvimbo Business Centre in Chiweshe by a tarred 'strip road'. However, the centre has only three 'formal' shops that pre-date the resettlements, with an additional 30 outlets being small 'informal' tuck shops. One outlet, which in the 1990s housed a general dealer, butchery and fuel service station, is currently not functioning due to ownership uncertainties.

One of the two functioning 'formal' shops, the Kaziwai Store owned by Mr T Mutsvairo, has secure ownership as it was acquired prior to the 2000 land reform period. In 1974, Mr Mutsvairo's late father, Michael acquired a shop in Mvurwi town's Kays Corner, in an area then dominated by white-owned businesses. White business owners opposed his operating from the Mvurwi site, until a Mrs Brown offered to exchange the Mvurwi site for freehold titled Lot 2A of Ruia Farm, a 5.2ha subdivision from Ruia Ranch on which the Kaziwai Store is located. The other undisputed shop is the Mashava Store run by Lewis Mashava. Lewis's father, James (born in 1938), then based in Mvurwi, was a pioneer in the acquisition of Ruia D farm, one of the Msonedi group of farms, at the start of the post-2000 land reforms. At resettlement, he was allocated a 5.2ha A1 plot on the farm. On parcelling out key infrastructure at the Msonedi Business Centre among the scheme's leadership after settlement, James Mashava, who had run a successful general dealer shop in Domboshava in Goromonzi District just east of Harare, opted for a shop while others got neighbouring houses, which used to accommodate senior Ruia Ranch employees. Following the death of his father, Lewis inherited both the shop and A1 plot.

The makeshift businesses that were started after settlement, mainly by local plot-holders, were allocated temporary tuck shop licences by the Mvurwi Council. The operators are required to pay $105 in annual rentals to the council. Despite many representations to the council for the allocation of permanent business stands, these have not yet been planned. Business operators need the issue to be resolved to enable investment better serving the community. In the words of one of the operators, Ms E Nyadore: 'Until when shall we trade in cabins? We need formal business stands. We need to go on!'

Some of the products supplied by Msonedi businesses to consumers are groceries, beer, clothing, grinding mills and hardware. The product range is limited by the uncertainties regarding ownership and the lack of permanent structures. A fertiliser company, Nico Orgo, had set up shop at the disputed formal outlet once run by Wedzera (a now defunct fuel retail network), but has since relocated to Mvurwi town. The lack of permanent shop structures limits the development of serious businesses capable of linking farmers to outside buyers. As a result, makeshift retailers concentrate on fast-moving items such as traditional beer and food items. Ms E Nyadore runs an informal business tuck shop, from which she sells 30 to 40 crates of sorghum-based traditional beer and fourteen crates of lager beer per week, as well as bread. She has no problem sourcing the traditional beer and lager, as her husband is an employee of Delta Breweries in Mvurwi, but her customers who drink lager complain about lack of refrigeration, which is blamed partly on lack of permanent, registered structures (a prerequisite for getting connected to the national power grid).

Maize value chain

Farm-level income and employment creation in maize

To help us understand the income and employment generation ability of the current maize production structure following the land reforms in Mvurwi, we look at backward and forward linkage chains radiating from two farmers – Mr Godzamuto and Mr Ruzhowe.

Case B15: Mr Godzamuto

Mr Godzamuto was settled on 6ha at Wendiri Farm, a part of the Msonedi area, in 2006. He did not get cleared land like most farmers who preceded him. His land had tree stumps, precluding the use of tractors for ploughing and limiting him to the use of oxen for draft between 2006 and 2011. Despite these problems, he is now one of the relatively large-scale producers of maize in the scheme. In the 2012/13 season, 3ha were put under maize, harvesting and selling 10MT at a price of $320 per tonne through two white traders in Mvurwi, Mr Artwell and Peak Trading. Figure 16 maps linkages radiating from Mr Godzamuto's maize enterprise.

Cash inputs

To grow his maize, Mr Godzamuto used eighteen bags of fertiliser worth $612 and 60kg of seed worth $144, purchased from ZFC in Harare. In addition, $120 worth of agrochemicals including, herbicides, were bought from Harare shops. To deliver his produce to markets in Mvurwi, he spent $200 ($1 per bag of maize) to hire Mr Ngongoni an A2 farmer in Msonedi.

Maize employment

A combination of family, one permanent worker and casual labour was used in the Godzamuto's maize enterprise. Mr Godzamuto employs one permanent worker on the farm, who is involved not only in the maize enterprise but also in other farming operations. The worker is paid a monthly wage of $70. On the maize enterprise, 51 days of family labour and 74 days of casual labour (sourced from the Wendiri farm worker compound) were used in the 2012/13 season. Casual workers were paid at a rate of $3 per day, costing the family a total of $222. Due to the use of herbicides, weeding labour was significantly lower than it would have been had all of the weeding been done manually. The family also hired Mr Ngongoni's tractor for $240 to plough the 3ha put under maize (see Table 36).

Figure 16: The Godzamuto linkages

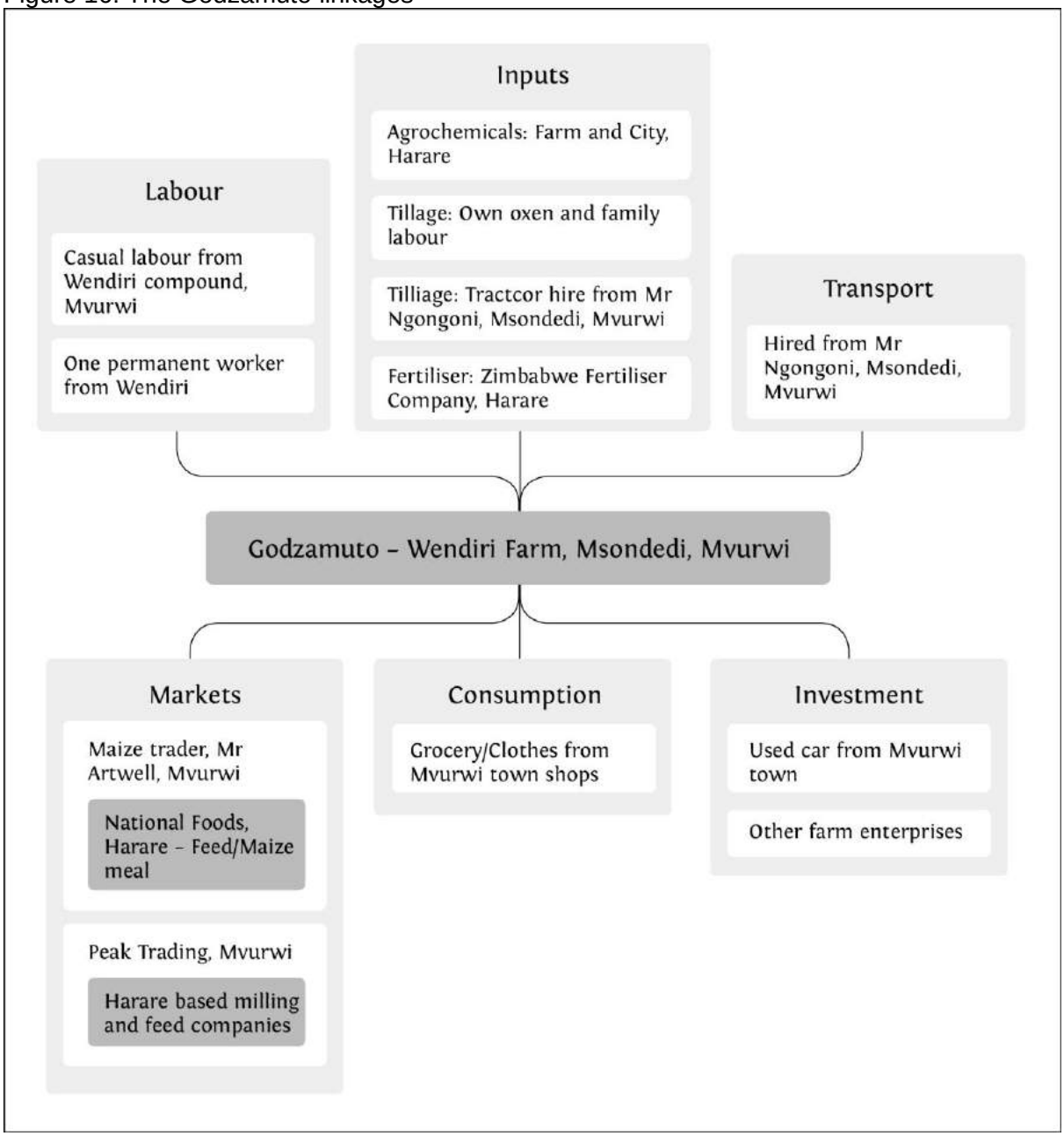


Table 36: Mr Godzamuto's maize-related employment

	Family			Hired						Service			Total
	No.	**Days**	Labour days	No.	Days	Labour days	Rate ($)	Cost ($)	Source	Type	Rate /ha ($)	Cost ($)	Cost ($)
Land clearing													
Ploughing										Tractor hire	80	240	240
Weeding	2	12	24	2	2	4	3	12	Wendiri compound				12
Harvesting	3	9	27	5	14	70	3	210	Wendiri compound				210
Total			51			74							462

Net maize income

Based on the above Mr Godzamuto received $3200 from maize sales and spent about $1748 in producing and marketing his maize, generating a net income of $1452 during the 2012/13 season (see Table 37).

Table 37: Godzamuto's maize enterprise budget

	Item	Value($)
Cash inflow	**Gross income from sales**	3200
Cash outflow	Fertiliser	612
	Agrochemicals & seed	264
	Permanent labour hire (4 enterprises)	210
	Casual labour and tillage	462
	Transport	200
	Total outflows	1748
Net cash inflow		1452

Other livelihood activities

In addition to maize, the Godzamuto family also grew 1ha of tobacco and 2ha of soyabeans. The tobacco yielded nine bales, which were sold for $3 400, while the soyabean crop yielded 3MT and was sold through the National Foods agent Mr Artwell in Mvurwi for $1350. The Kodwas also raised a total of 300 broiler chickens, which sold for $1800 within the Msonedi farming area.

Expenditure

Most of the proceeds of the 2013 harvest were spent in purchasing a car and procuring inputs for the 2013/14 season from Harare (see Table 38). The rest of the proceeds were spent in Mvurwi (clothes and groceries) and the local community (farm labour).

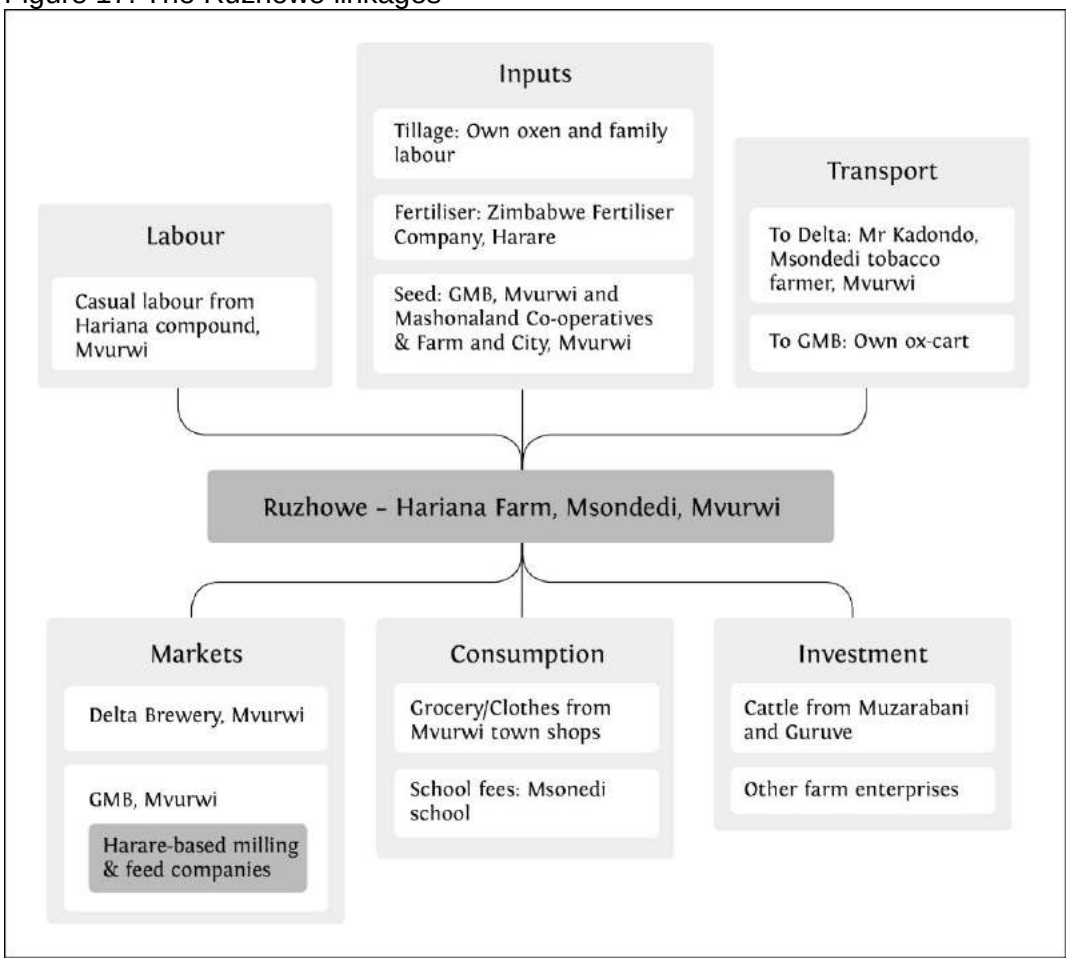
Table 38: Spatial distribution of Mr Godzamuto's expenditure

Rank	Item in order of size of expenditure	Location of expenditure	Distance from homestead
1	Bought car	Harare	100 km
2	Crop inputs	Harare	100 km
3	Grocery and clothing	Mvurwi	16 km
4	Labour	Local compound	2 km

CaseB16: Godfrey Ruzhowe

69-year-old Godfrey Ruzhowe is one of the 77 A1 farmers officially settled at Hariana farm in the Msonedi farming area. In the 2012/13 season, the Ruzhowe family planted 2ha of maize yielding 12MT. The harvest was marketed to Delta Breweries and the Grain Marketing Board (GMB), both in Mvurwi town. Prices realised were $330 per MT at Delta and $379 per MT at GMB generating a total of $4200 in revenue. Figure 17 maps linkages to Mr Ruzhowe's maize enterprise.

Figure 17: The Ruzhowe linkages



Cash inputs

Cash inputs into the Ruzhowe maize enterprise included 20 bags of fertiliser sourced from ZFC in Harare at a cost of $700, as well as 50kg of seed bought from GMB Mvurwi and a Mashonaland Co-operatives (MashCo) hardware store in Mvurwi, for a total of $150. No herbicides were used in the maize production. To ferry maize to Delta, Mr Ruzhowe hired transport from a Hariana farmer, Mr Robbie Kademba at a cost of $1.00 per bag, but used his own ox-cart to transport maize to GMB. Mr Hodobo, an A2 farmer 6km along the road from Msonedi to Nzvimbo, used to transport Mr Ruzhowe's maize to Mvurwi at $1.00 per 50kg bag. In 2013, he switched to new one-tonne truck owner, Mr Kademba, whose charges are similar to Mr Hobodo's but who is only 3km from the Ruzhowe plot.

Mr Ruzhowe does not hire any draft for ploughing but uses his relatively large cattle herd as a source of draft. He usually hitches up three spans to plough simultaneously, each span manned by two people, all members of the family. The only time since resettlement that he hired a tractor was in 2010, when he hired Mr Ngongoni's tractor to plough a portion of virgin land.

Employment

The Ruzhowe family does not employ any permanent workers but supplements family labour with up to six casual workers, hired from nearby Hariana worker compound, to accomplish some key tasks in its maize enterprise. In the 2012/13 season 128 labour days were used on the maize enterprise, 100 of which were

provided by hired casual labour at the rate of $3 per worker per day (see Table 39).

Table 39: Mr Ruzhowe's maize-related employment

	Family			Hired						Service			Total
	No.	Days	Labour days	No.	Days	Labour days	Rate ($)	Cost ($)	Source	Type	Rate/ha ($)	Cost ($)	Cost ($)
Land clearing													
Ploughing & planting	4	4	16	4	4	16	3	48	Hariana compound	Own oxen			48
Weeding	1	7	7	6	7	42	3	126	Hariana compound				126
Harvesting	3	7	21	6	7	42	3	126	Hariana compound				126
Total			28			100							300

Table 40: Mr Ruzhowe's maize enterprise budget

	Item	Value($)
Cash inflow	**Gross income from sales**	4200
Cash outflow	Fertiliser	700
	Agrochemicals & seed	150
	Permanent labour hire	0
	Casual labour and tillage	300
	Transport	120
	Total outflows	1270
Net cash inflow		2930

Net maize income

Based on the marketing and input usage data above, Table 40 summarises the cash inflow and outflow of the Ruzhowe maize enterprise. It shows that the Ruzhowe family earned a net income of $2930 from their 2012/13 maize crop.

Other livelihood activities

On-farm enterprises other than maize also contribute to the Ruzhowe family income. In the 2012/13 season, the family harvested and sold 30 bales of tobacco for $12000 and 50 pockets of Irish potatoes for $750. The family has accumulated 29 head of cattle, with an estimated value of $10 000, through purchases from neighbouring districts such as Muzarabani and Guruve. The Ruzhowe family gets income from diverse sources, independently of the main farming plot. The 20-year-old son has secured a small plot in the common areas where he grows vegetables for sale at the Msonedi Business Centre. His father runs a grinding mill located at the plot, which provides custom maize milling services for neighbours, while his mother earns money from tailoring services for people in the Hariana farm area.

To take advantage of his large cattle herd, Mr Ruzhowe has been providing animal draft ploughing services since 2002 to a number of fellow A1 farmers, including Mr Chikamba, Mr Chigodora and Mr Makarichi. He charges $60 per hectare for ploughing, with the client providing food for the ploughing team of two people per span. During 2013/14, he ploughed Mr Chikamba's 2ha in exchange for the use of 2ha of land to grow tobacco.[15] *Mr Ruzhowe starts providing tillage services towards the end of November, after completing tillage at his own farm. In November, he ploughs about 3ha, which is increased to 4ha in December and peaks at 5ha in January, as farmers prepare land for growing sugar beans. In addition to ploughing, Mr Ruzhowe provides short-haul transport services, ferrying crops from fields to homesteads using ox-drawn carts. He charges between $2.50 and $3.00 per load, depending on distance. Business is brisk during harvesting, when he typically carries six loads per day. Local Hariana farmers who have used his transport services include Mr Mubaira, Mr Chikamba, Mr Chigodora and Mr Makarichi. The farmers provide their own labour for loading and offloading.*

Expenditure

Most of the proceeds from the 2012/13 season were used to acquire inputs from Harare (110km away) in preparation for the 2013/14 season. The balance was spent either in Mvurwi town or in the local community (see Table 41).

Table 41: Spatial distribution of Mr Ruzhowe's expenditure

Rank	Item in order of size of expenditure	Location of expenditure	Distance from homestead
1	Crop inputs	ZFC Harare	110km
2	Grocery and clothes	Mvurwi	13km
3	School fees	Local	3km

[15]This is not reflected in the household income stated above, which captured the 2013 marketing season proceeds.

Off-farm income and employment creation in the maize value chain

Labour, draft power, and transport

As in the case of tobacco, labour for maize production is provided by family members or by hired casual workers from farm worker compounds, profiles of which are discussed earlier. However, there is less hiring of casual labour in maize than in tobacco, a highly labour-intensive production process. As pointed out in the tobacco cases, the need for tractor tillage is more critical for tobacco, as it is a crop that is generally planted early, when draft animals tend to be in poor condition. Maize, on the other hand, tends to be planted after the onset of more consistent rains, by which time the animals are in better condition. Most maize farmers, including one of our cases, use their own animal draft power to till the maize fields.

Because of its low-value, high-bulk nature, maize is more economically transported using large trucks. A key provider of farm-to-market maize transport services for farmers in the Msonedi resettlement schemes is Mr Ngongoni, who doubles as a major tractor tillage supplier. His large trucks and high-capacity tractor trailers give his operation the economy of scale necessary for transporting maize. A profile of his operations is provided in Case B4 above.

Input markets

In addition to Agricura, described earlier, maize farmers identified MashCo and Farm and City as key sources of inputs such as seed, fertiliser and agrochemicals within the Mvurwi area.

Case B17: MashCo

MashCo is an input retail organisation started by white Mashonaland East tobacco farmers in Marondera in 1948. The Mvurwi outlet was established in the early 1990s. In addition to retailing agricultural inputs, the Mvurwi shop stocks a variety of hardware products, including building materials. In the 2012/13 season, it sold about 600 MT of fertiliser, which is usually insufficient to satisfy local demand. For hardware products, the main customers are council schools, hospitals and A1 farmers in the Mvurwi areas. As is the case with Agricura, MashCo regularly assists in distributing inputs subsidised by the government and NGOs. The company employs six permanent workers and four seasonal workers in periods of high demand.

Case B18: Farm and City

Farm and City started as the Farmers Co-op way back in 1908. It is now a publicly owned company with significant black shareholding. The company is supplied with fertilisers by the Harare-based fertiliser blending company, Windmill. It gets soyabean seed from SeedCo, and sugarbean seed from Pannar Seed, a subsidiary of Pannar International, both based in Harare. It also distributes sugarbean seed from the Harare-based Prime Seed company. The shop manager projected that business would grow from March 2014, when the Mashonaland Tobacco Company commenced the buying of contracted tobacco on the Farm and City grounds. To further boost business, Farm and City provides loan facilities to civil servants, redeemable through stop orders negotiated with the public service's Salary Services Bureau. The facility covers both agricultural

inputs and hardware. The company employs three permanent workers and six casuals.

Grain marketing

Despite a deficit in the production of maize and soyabeans countrywide over the past few years, the Mashonaland Central and Mashonaland West areas have had a relative surplus, especially early in the harvest season. Several traders have buying stations in Mvurwi town. Our case farmers identified Delta Beverages, Profeeds, GNB, Peak Trading and a National Foods Limited long-term buying agent, Mr Artwell, as buyers of their maize.

Case B19: Delta Beverages

Delta Beverages is the largest locally based processor of grain. Headquartered in Harare, Delta has a near monopoly on the brewing of alcoholic beverages in the country.[16] In Mvurwi, it has a maize-sorghum-based traditional beer brewing plant that services beer outlets in the Mazowe, Guruve and Muzarabani districts of Mashonaland Central. The Mvurwi complex also acts as a distribution point for lager beers and soft drinks made under franchise from the South African brewery, SAB-Miller, and multinational soft drinks giant, Coca Cola. In its traditional beer brewery, Delta uses maize, sorghum, barley and yeast to brew the Chibuku traditional beer brand. Maize constitutes 95% of the inputs, while sorghum contributes 5%, to the Chibuku beer brewing process. In the past, the GMB depots in Mvurwi, Centenary, Bindura, Concession and Nzvimbo in the Chiweshe communal areas were the main suppliers to Delta Mvurwi. Due to limitations at GMB resulting in late payment to farmers, Delta now sources most of its raw material directly from farmers in the Mazowe and Bindura farming areas at a price of $340 per tonne, cash on delivery. In the 2013 marketing season, Delta Mvurwi bought 1400MT of maize ahead of the 2014 beer brewing period. In addition, it currently contracts ten to twelve A2 farmers in the areas surrounding Mvurwi to grow sorghum for its plant. Delta Mvurwi employs 49 permanent workers, making it the largest private sector employer in the town.

Case B20: Profeeds

One of the processors that has setup shop in Mvurwi is feed processor Profeeds, a subsidiary of the Probrands feed and food wholesaling company. Profeeds opened its Mvurwi depot in 2012. Although focused primarily on distributing its products to farmers and peri-urban stock-keepers around Mvurwi, the depot also serves as a buying point for maize and soyabeans from Guruve and Mvurwi farmers to supply the company's feed mill in Harare, 100km away.[17] The buying of raw materials directly from farmers by stock feed companies is a strategy increasingly being used by most feed mills, due to problems being experienced by traditional grain traders such as the Goblin during the 2013 buying season, which began in July and ended around September, Profeeds bought 1000MT of maize, from 200 farmers, and 900MT of soyabeans, also from 200 farmers, at its Mvurwi depot. It pays farmers cash on delivery. The buying season is truncated by the high prevalence of moist grain before July and an increase in weevil-damaged grain after September. In the 2013 buying season, maize prices started at $285 per MT and ended at $310 per MT. Soyabean prices were $540 per MT

[16] Interview with Mr Chinyama, SMEAD November 2013.

[17] Interview with Mr D Mtisi, ProFeeds Depot manager, November 2014.

at the start and 600 per MT at the end of the season. Farmers use their own or hired transport to bring their produce to the Profeeds depot, and trucks bringing feed supplies from Harare are used to carry the maize and soyabeans bought by the depot back to the feed mill in Harare, helping to optimise transport use. The depot has two permanent employees, the depot manager at $350 per month, and an assistant at $250 per month. It also employs six casual labourers from the Mvurwi town who are each paid $10 per load for loading or unloading a 30-tonne truck. In addition, the company contracts the local Brising Security Company to guard its premises.

The main products sold at the Profeeds depot include poultry, pig and cattle feeds produced by the company's Harare mill. In addition, the depot distributes day old chicks for the poultry breeder Irvine's, as well as animal remedies. Distribution of day-old-chicks started in March 2013, and between March and October some 129 900, or an average of 16238 chicks per month, were sold through the depot at 85 cents per chick.[18]This complements the poultry feeds business, which constitutes the bulk of the sales. Chicken production has increased in the past two years in the Mvurwi area in response to increased demand for meat, driven largely by the tobacco boom.

Case B21: Mr Artwell

Since 2006, Mr Lins Artwell, a Mvurwi-based 50-year-old white grain trader,who has been a commodity trader since the 1990s, has been a grain and soyabean buying agent for Harare-based National Foods Limited, the largest grain milling and feed processing company in the country.[19] In 2013, he bought 2500MT of maize from some 1500 farmers and 500MT of soyabeans from 300 farmers on a cash-on-delivery basis. His buying season is July to August for maize and May to July for soyabeans. In the 2013 buying season, prices started at $280 per MT and ended at $340 per MT for maize. Soyabean prices were $480 per MT at the start, and ended at $550 per MT.Since 2012, Mr Artwell has also been retailing day-old chicks for poultry breeder, Lunar Chicks, as well as stockfeed for National Foods. To ferry produce to Mr Artwell's premises, farmers use their own or hired transport, while National Foods provide transport to their Harare processing plants. For other Harare-based customers, he hires transport from Mr Gono and other Mvurwi-based transporters like Mr Karembo at a cost of $500 per 30MT load. Mr Artwell has six permanent workers in his employ, all sourced from outside Mvurwi town. He typically hires three casual labourers from Mvurwi town to help with offloading during the buying season. In addition, he employs one security guard.

Case B22: Peak Trading

The other group of players active in procuring grain for sale to mainly Harare-based processors are large-scale grain traders.These include companies such as Staywell, which has a depot in Concession town, and Peak Trading, which started doing business in Mvurwi in 2012. Both companies buy maize, soyabeans and sugar beans from Guruve, Chiweshe and Mvurwi farmers for resale to companies in Harare, 100km away. Peak Trading is owned by a white businessman, Mark Townsend, who, in addition to local commodity buying, is also involved in the importation of maize and soyabean meal from Zambia for

[18] Interview with Irvine's Day Old Chicks sales representative

[19] Interview with Mr Lins Artwell, National Foods Agent, November 2013.

resale mainly to stockfeed companies, including ABSTCM Limited.[20] *The company has its base in the Southerton industrial zone of Harare. In the 2012/13 season, Peak Trading bought 950MT of maize, 500MT of soyabeans and 200MT of sugarbeans at its Mvurwi depot. It bought from 200 maize farmers, 70 soyabean farmers and 40 sugarbean farmers. Its advantage relative to GMB is that it offers farmers cash on delivery. The buying seasons are May to November for maize, May to October for soyabeans and February to May for sugarbeans. Prices for maize and soyabeans are generally low at the beginning of the season and peak at the end of the season. In the 2013 buying season, prices started at $285 per MT and ended at $340 per MT for maize. For soyabeans, prices were $540 per MT at the start and $570 per MT at the end of the season.Sugarbean prices remained constant at $1250 per MT throughout the buying season. Farmers use their own or hired transport to bring produce to Peak Trading. Peak Trading's Harare head office has allocated a 7-tonne truck for use by the Mvurwi depot to periodically deliver commodities to Harare. The depot employs only two people permanently, the depot manager and a driver. It also employs six casual labourers who are paid $30 for unloading a 30-tonne truck.The truck is repaired in Harare.*

Case B23: Mr Gono

A big-rig truck operator who has received business from Mr Artwell to ferry maize from his depot to National Foods in Harare is Mr Gono. Although Mr Gono and his wife were allocated an A1 plot in Centenary, their main interest is in the transport business they have set up in Mvurwi town. They operate two 30-tonne trucks and their main transported product is fuel wood – linking farmers with gum plantations to tobacco farmers without their own wood in Centenary. Such business currently accounts for 84% of their trips (see Table 42).This is a major shift in their business, which previously was dominated by the transport of tobacco and maize from farms to market. The change is attributed largely to an increase in the number of smaller trucks funded by tobacco proceeds. Mr Gono sees the greatest potential for large-rig transporters in servicing grain and soyabean traders like Mr Artwell and GMB, who transport commodities from buying centres in Mvurwi to customers in Harare. These command the larger tonnages that make the business viable. Despite the drop in business, the Gonos are still bullish about the future. They have just invested in a business stand in Mvurwi town at a cost of $19000 and plan to build a proper garage and other infrastructure there, and to move from the space they now rent in the Mvurwi council yard.

Mr Gono employs two drivers for his trucking business at a monthly wage of $200 each, and a tyre fitter. He requires clients to arrange their own labour for loading and unloading. He also out-sources truck maintenance to mechanics in Mvurwi at an average cost of $350 per month. He uses on average 150l itres of diesel per month and spends $300 per year on insuring his vehicles.

Table 42: Mr Gono's transport business, January–October 2013

Transported product	No. of trips	Season	Main destination	One way (km)	Transport rate ($)
Fuelwood	95	June–Sep	Centenary A2 farms	54	28/cord
Maize	5	Jul–Sep	GMB to GMB transfers	50	250/trip
Soyabeans	2	May–June	National Foods Harare	100	450/trip

[20] Interview with Mr D Mafunga, depot manager for Peak Trading Mvurwi.

Tobacco	3	Mar–July	Harare Floors	100	450–500/trip
Fertilisers	3	Sep–Oct	Mvurwi	50	250/trip

6 Space, markets, employment and agricultural development

This section distils emerging themes from the case studies on links between agricultural value chains and market development, income and employment creation, their spatial orientation and how they relate to overall rural development. Built into the discussion are the roles of policy, how social and economic relations have influenced developments in post-FTLR in two ecologically distinct regions of Zimbabwe.

Linkages: lessons from the cases studies

The studies indicate that the types of linkage that occur are highly dependent on the structure of the agricultural value chain, as Davis et al. (2002) amply demonstrated. If significant external inputs are needed by the value chain, this creates backward production linkages. Agricultural outputs that require processing before reselling induce forward production linkages. If a value chain generates significant income growth, then consumption and investment growth will be induced though expenditure linkages.

Backward linkages

Backward linkages include input suppliers (of labour, fertilisers, agrochemicals, etc).Their location and the level of money flow to obtain the inputs determine the expected multiplier effects that are generated in backward linkages.

Spatial spread of backward linkages

Figures 18–21 show the location of sources of inputs for the four value chains looked at in Masvingo and Mvurwi. Although labour, manure and tillage are locally sourced, the location of sources for other inputs varies.The primary retail outlets for inputs tend to be in nearby towns, in this case Masvingo and Mvurwi. However, these are invariably linked to supplier chains headquartered outside the study area, primarily in Harare. Apart from seed that is locally produced, most other inputs are imported from either South Africa or the Middle East.

Figure 18: Beef spatial backward linkages

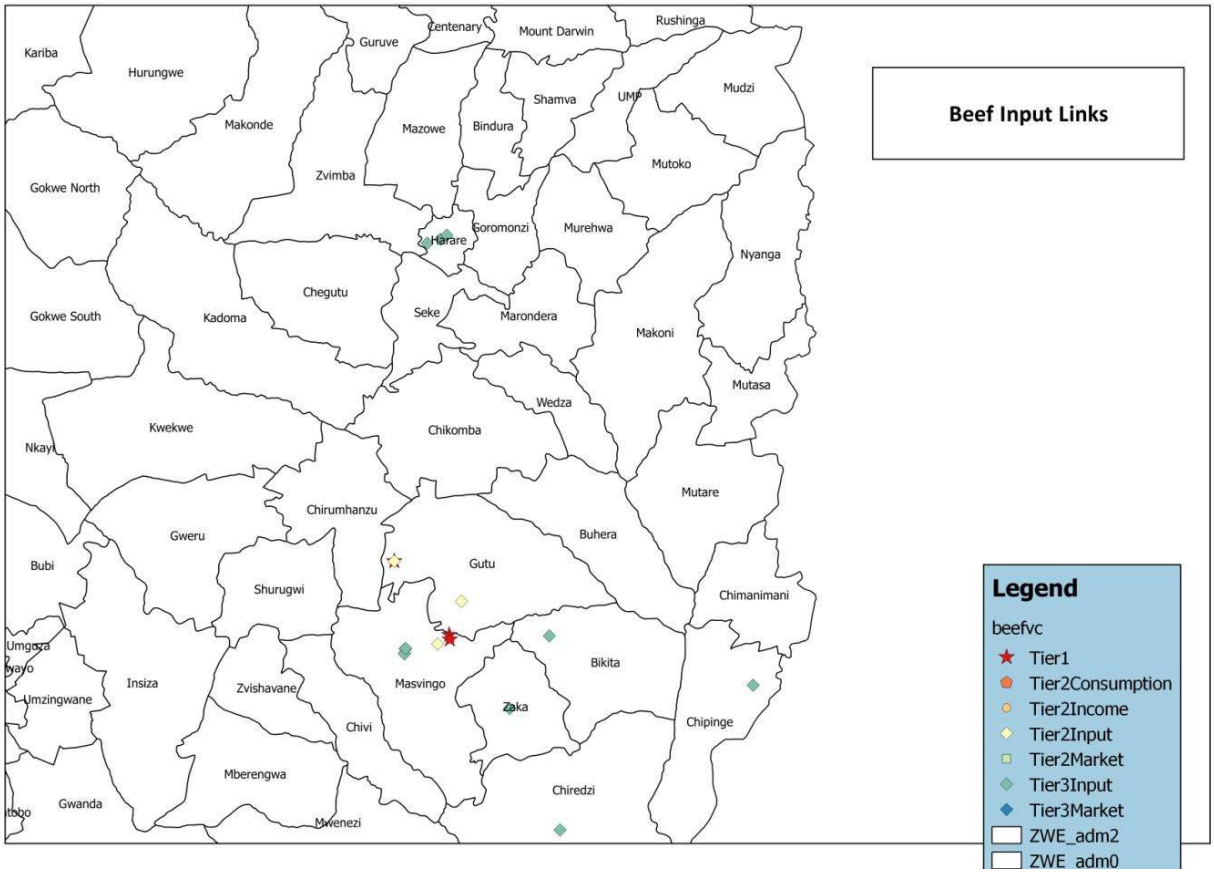


Figure 19: Horticulture spatial backward linkages

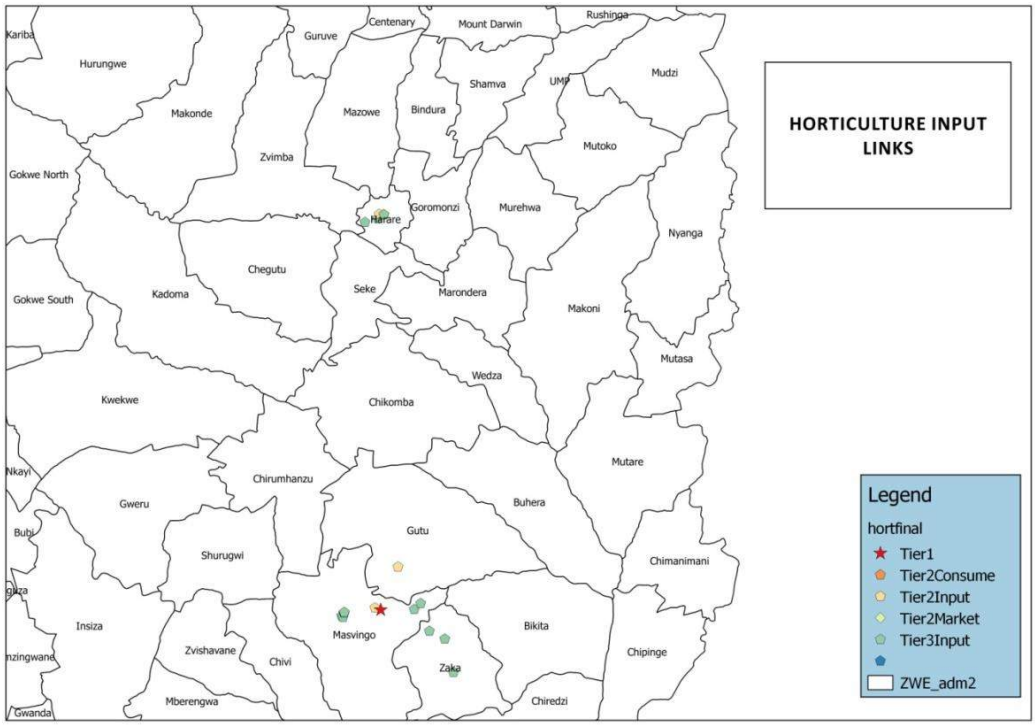


Figure 20: Tobacco spatial backward linkages

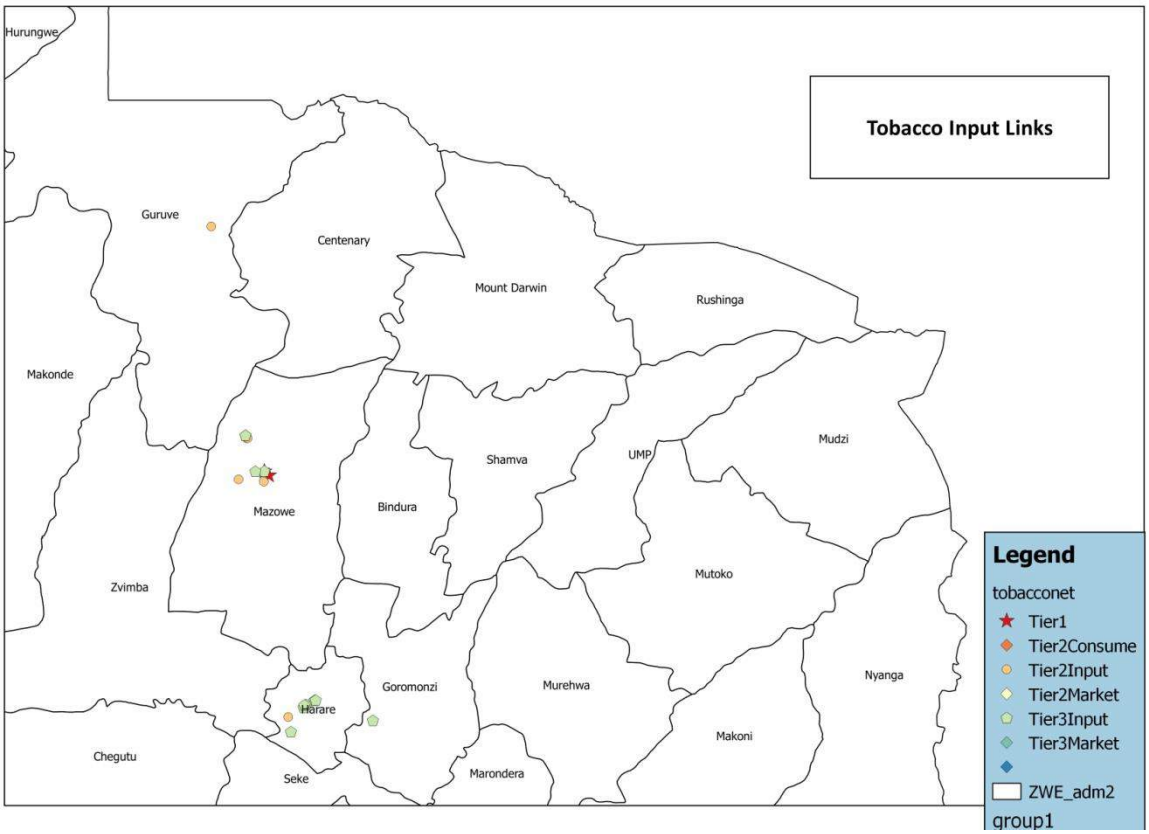
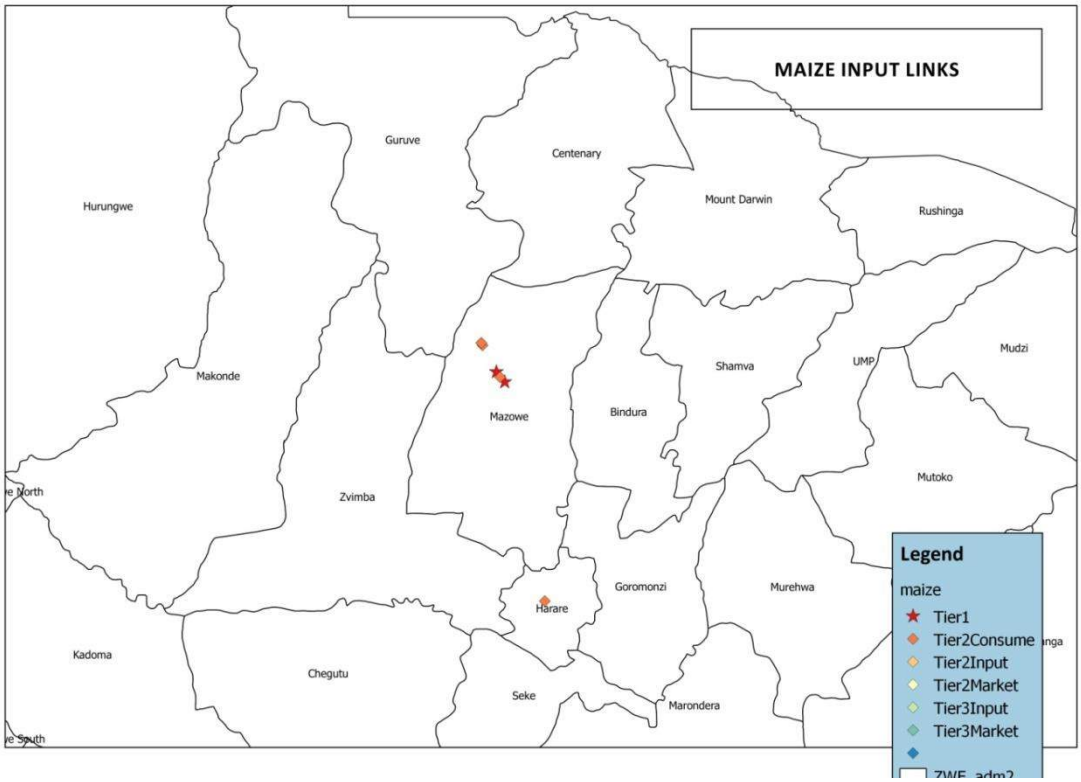


Figure 21: Maize spatial backward linkages



Nature and significance of backward linkages

Farm labour and income generation

Horticulture, tobacco and maize value chains show significant backward links into farm labour and wage generation, though labour intensity is much higher in horticulture and tobacco production.Table 43 summarises the farm labour use intensity of the four commodities studied. It shows that horticulture has the highest labour use per hectare planted, followed by tobacco, maize and beef. Horticulture and tobacco tend to require more tasks performed over a longer period than do maize or beef. Both of the former start with initial grow-out in the nursery, and involve several rounds of weeding and pest control, manual removal of suckers on plants and multiple rounds of harvesting. Tobacco, further, requires curing, grading and baling before marketing.

Although earnings are lower than the poverty datum line, the wage rates are much higher than cash wages were prior to resettlement. However, during the pre-settlement period farmworkers enjoyed better in-kind payment in the form of food rations and more secure tenure. The greater labour inputs and earnings in horticulture and tobacco are likely to generate more activity in local community retail businesses, where most farmworkers buy groceries and personal services, leading to local multiplier effects.

Table 43: Comparison of farm labour use and wage income generation across value chains

		Beef	Horticulture	Tobacco	Maize
Hectares		50	3	1	1
Labour days	Own	0	3120	487	16
	Hired	365	846	174	81
	Total	365	3965	661	97
	Days/ha	7	282	174	81
Labour costs ($)	Cost of hired labour	840	1102	522	244
	Opportunity cost of labour/ha	23	1722	1,983	291
	Per ha hired cost	17	367	522	244
	Wage rate/day	3.18	1.30	3.00	3.00
Length of season (months)		12	12	7	4
Poverty datum	Food per capita	31	31	31	31
	Food per 5 people	155	155	155	155
	Total per capita	100	100	100	100
	Total per 5 people	500	500	500	500
Farm wage prior to resettlement ($)		30	30	30	30

Although the bulk of the labour is casual, most case farmers have at least one permanent worker whose duties run across a wide spectrum of farm tasks. Beef on-farm production generates the least amount of hired labour. In Mvurwi, there exists a pool of labour in the compounds left after acquisition of white-owned farms. These provide the bulk of casual labour for the tobacco and maize producers in the area. However, the compound labourers also have access to some land (though limited), and some lease land on which they grow crops for home consumption and sale, financed to a large extent by their wages for casual labour. Earnings from farm labour have spawned growth in small retail activities owned and operated by the more entrepreneurial of the former farmworkers

within the compounds. In Masvingo, the situation is different. Most labour for horticulture is supplied by other land reform beneficiaries, who tend to be resource poor. The earnings from farm labour are used to finance own crop production and to purchase household goods and services from the community retail outlets and neighbouring Masvingo town. These spin-offs help to retain most wage income in the local economies.

Input sourcing labour and income

Horticulture and tobacco require large amounts of bought inputs in the form of seed, fertiliser, pesticides, fuel for irrigation and packaging and tying materials. Tobacco also needs fuel for curing. These two value chains also require special intermediate inputs, such as generators, pumps and pipes. As a result, there are many and strong backward linkages to input suppliers in the two value chains.The nearby towns of Mvurwi and Masvingo are the primary sources of inputs, although farmers also go further afield to Harare for intermediate inputs or when selling trips to Harare make it more convenient to source inputs there. Most input suppliers in the rural towns are branches of input supplier firms headquartered in Harare.These branches are usually manned by two or three workers, but they occasionally hire local casual workers to load purchased inputs or to unload supplies sent from headoffice to the branch.Thus, the bulk of the money spent by farmers at local input suppliers quickly leaks out of the local economy. Transport is provided typically by Harare-based logistics resources belonging to or hired by the suppliers.

Tillage supply, labour and income

Tillage services are important generators of income and labour. In Masvingo, most tillage is animal powered but, due to the uneven distribution of oxen within the study site,there is an active ox-drawn tillage service market, which has been captured by the more affluent land reform beneficiaries. In Mvurwi, there is an even more active tillage market, due to the higher demand for early ploughing by tobacco farmers, including those with oxen.The early tobacco crop is typically sown in November, when oxen are in poor condition and the ground is still too hard for ox-drawn ploughing. Another key driver is that increased tobacco proceeds have financed the purchase of tractors within the study areas. Being locally supplied, tillage services help to retain most of the money generated within the farming communities.

Forward production linkages

Several types of forward linkage were identified in the study, including product aggregation, packaging, transport, processing and retailing. How are these distributed spatially and what is the nature and significance of the links? This is discussed below.

Spatial spread of forward linkages

Figures 22–25 show the location of sources of transport, markets and processing services for the four value chains looked at in Masvingo and Mvurwi. Compared to backward linkages, there is greater variation in the spatial distribution of the forward links. Horticulture forward links are more local, with most transport and market linkages starting and terminating in the Masvingo district or neighbouring districts. Tobacco and maize have locally sourced transport and aggregator entities, but the bulk of the produce is moved quickly outside the production district for beneficiation in Harare. After processing, tobacco is exported to numerous destinations around the world, while most maize products are sold across the country. With beef, although aggregation, transport and processing links are established within Masvingo, only a small proportion of beef is supplied to local butcheries, with the rest being 'exported' to major consuming centres such as Harare.

Figure 22: Beef spatial forward linkages

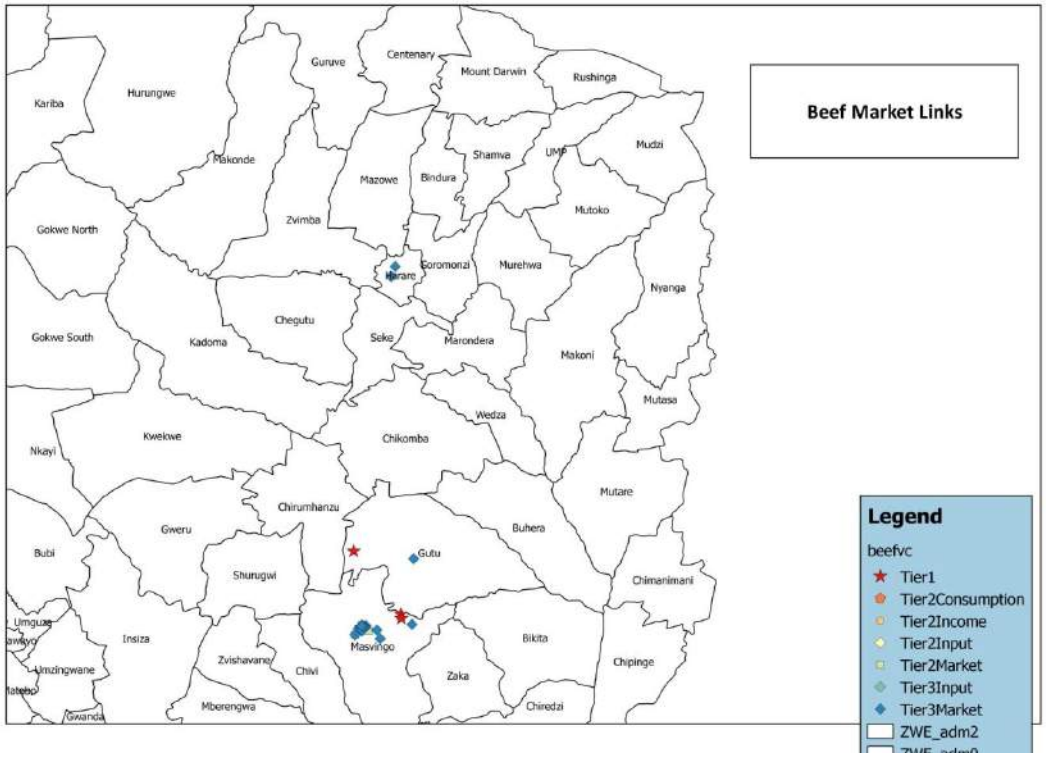


Figure 23: Horticulture spatial forward linkages

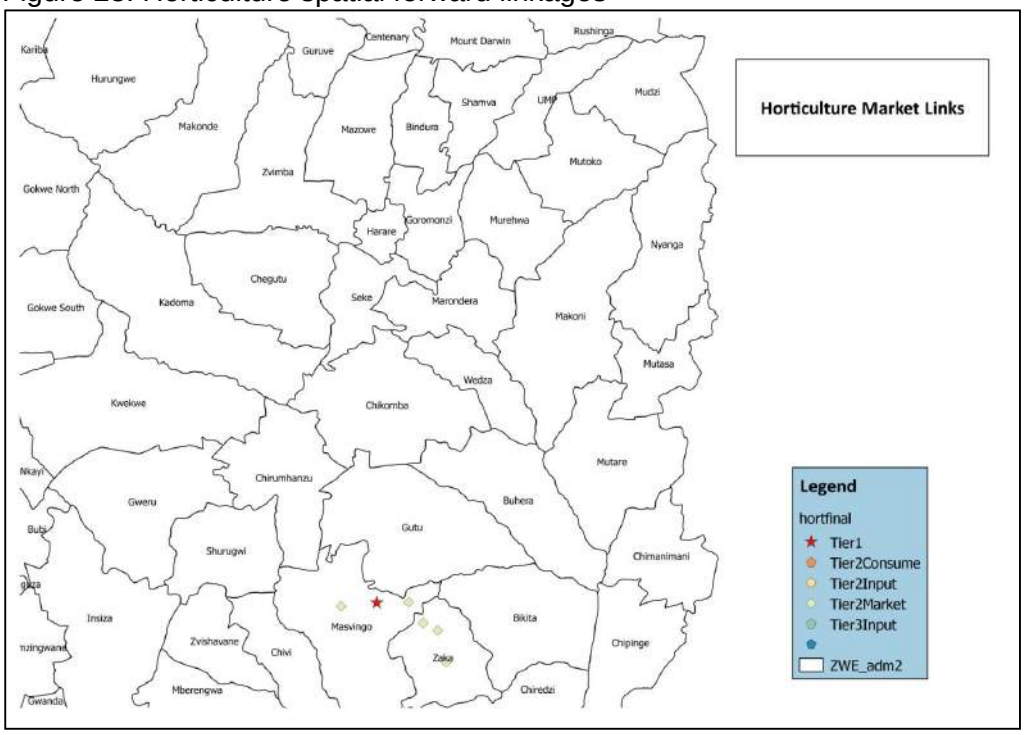


Figure 24: Tobacco spatial forward linkages

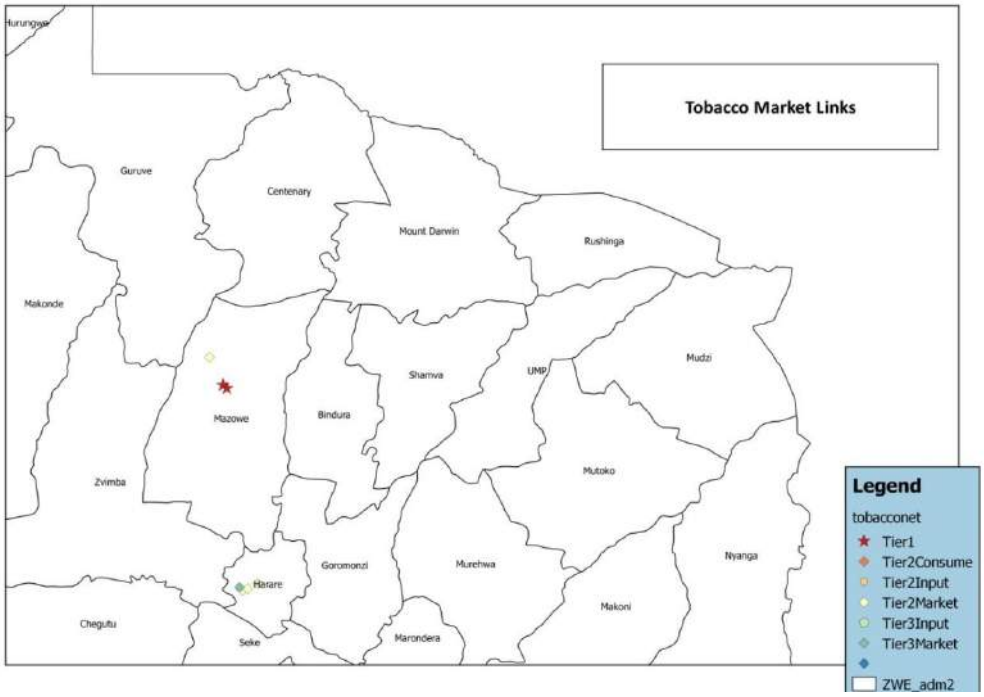
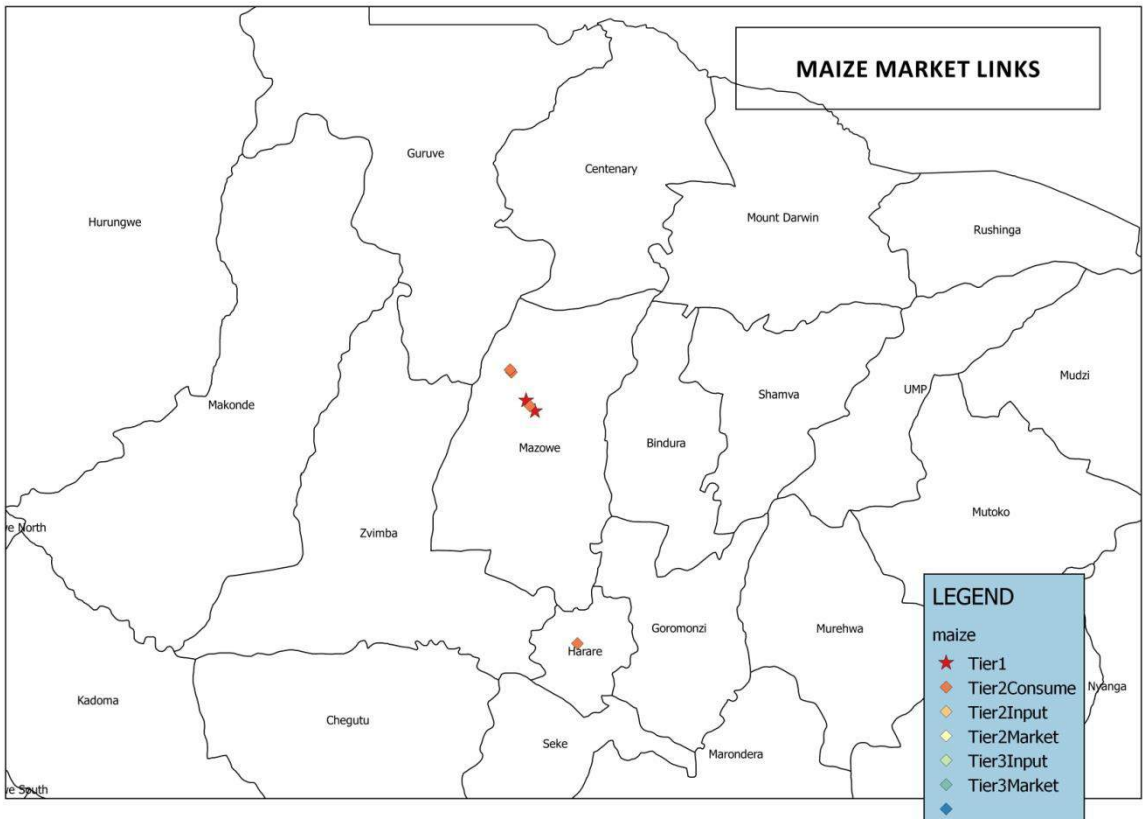


Figure 25: Maize spatial forward linkages



Nature and significance of forward linkages

Forward linkages are more evident in horticulture, maize and beef than in tobacco.

Packaging

Horticulture, tobacco and maize farmers are linked to suppliers of packaging materials. For tobacco, specialised packaging that complies with international regulations (e.g. protecting the tobacco from moisture fluctuation, and avoiding materials that alter the integrity of the tobacco) is required before it can be presented on the market.This includes special wrapping of tobacco prior to baling, the baling material and strings used to secure the bales.Most of these materials are not available in local input markets and are sourced in Harare. Auction floors, contractors and specialised packaging suppliers are the main sources. With the exception of the wrapping, which is produced by paper manufacturing companies such as Hunyani Pulp and Paper, a wholly owned Zimbabwean company, packing products are imported mainly from the Far East (India and China, in particular). Propak, a company in the same stable as the auction house TSF, is the main importer and retailer of hessian baling material in Zimbabwe.

Fifty-kilogram polypropylene bags are the standard packaging used in marketing maize.These are available from agricultural input shops and hardware suppliers in rural towns like Mvurwi and Masvingo. Ferrying of some types of vegetable, such as tomatoes, requires crates.These are durable items that are retained by the farmer after delivery. Farmers either make their own crates using recycled timber or buy specialised extruded plastic crates from the Harare-based firm, Megapak. At the retail/vending end, tomatoes are sold in plastic bags bought from either local grocery shops or recycled.

Product aggregation

In all of the case-study commodities, the shift from large-scale production to dependence on small producers brought about by land reform has necessitated the development of aggregation arrangements to reduce transaction costs in marketing, especially for bulky low-value commodities such as maize and beef. Most purchasers of maize have set up buying stations or have engaged buying agents in Mvurwi town or within areas easily accessible to farmers, enabling the bulking of produce for cost-effective transport to processing plants based mainly in Harare. In the farming areas, these agents are either maize farmers or shop owners who accept grain from farmers in small lots, and communicate with processors when economic loads have been accumulated, facilitating payment and transport of grain in exchange for a fee. In rural towns such as Mvurwi, agents receive cash from processors to be used in buying grain on their behalf. These aggregation agents create employment in the form of casual seasonal loading and unloading services, as well as providing security for the grain. Similar institutional arrangements have evolved in the cattle business in the Masvingo province. Abattoirs and cattle traders hire farmers in different smallholder areas to scout for cattle sellers, to negotiate prices, to communicate with abattoirs and traders when economic numbers of animals have been identified, to make arrangements for final exchange between buyers and sellers, and to ensure that animal movement control regulations have been complied with. These arrangements create new kinds of employment within the farming communities.

Transport

With the growing affluence of tobacco and horticulture farmers leading to investment in trucks, transport is becoming more of a local economic activity, generating local employment and economic multiplier effects. Before 2012, transport operators from outside the region used to come into the Msonedi farming areas to provide transport services, leading to leakage of money from the local economies. Now, some tobacco auction houses (e.g. PTF) offer farmers transport services as a strategy to attract them to sell through their auctions.

Horticulture produce and tobacco are high-value, low-bulk products, which are economically transported using small farmer-owned trucks. For low-value, high-bulk commodities like maize and cattle, large rigs operated by specialised transport operators in Masvingo and Mvurwi still provide transport services to farmers. In Mvurwi, these large truck operators are also involved in transporting maize from maize aggregators to processors in Harare. Thus, in both high-value and low-value commodities, local transport operators are now the main providers of services, helping to stem the outflow of money from the local economies.

Retailing/marketing

Local economic linkages in retail or marketing are strongest in the horticulture value chain and weakest in the tobacco value chain. Most tobacco marketing is centralised in Harare, where all the auction floors are and most contract buying takes place.The only exception is the Mashonaland Tobacco Company (MTC) decentralised contract buying initiative, which started in 2012. Currently, MTC buys contracted tobacco from Rusape, Karoi and Mvurwi, in addition to its main buying station in Harare. The Mvurwi buying station, established in 2014, has led to positive economic impacts in Mvurwi town. Largely as a result of the MTC initiative, a major bank has set up shop in the town, and contracted farmers receiving their cash in Mvurwi are expected to encourage the buying of inputs and household goods from local retailers and to generate significant local economic multiplier effects.

In the Masvingo beef value chain, the main buyers of cattle are abattoirs, some of which operate Masvingo-based plants, and Masvingo-based cattle traders, who buy to resell to abattoirs or to service slaughter at Masvingo abattoirs for onward sale to local butcheries. Abattoir operators, such as Montana and Carswell, rent farms around the Masvingo district, where they pen-feed cattle before slaughtering them at their Masvingo town abattoirs. The meat is then sold to supermarket chains, local small butchery shops, and their own butcheries in Masvingo town, or is shipped out to their butcheries in Harare and other towns countrywide. Thus, despite the owners of the abattoirs being located in Harare, the abattoirs support Masvingo-based retail outlets, helping to create downstream income and employment in the local economy. Some large-scale abattoir operators, such as Koala Park, however, do not have abattoirs in Masvingo town, but rent properties around Masvingo where they buy, hold and transfer live cattle to their Harare abattoir. On the whole, although these large abattoirs create inflows of new money from outside economies like Harare, which creates local multiplier effects around Masvingo town, surplus from such operations is quickly diverted from the area to Harare headquarters.

The horticulture value chain in Masvingo has the widest range of local economic linkages.The Masvingo province is a net importer of vegetables; consequently, horticulture production is an import substitution enterprise, all products of which are sold around Masvingo and neighbouring districts. Case farmers described in this study supply supermarket chain outlets in Masvingo, local grocery shops and a multitude of mainly female vendors in Masvingo town and the neighbouring districts of Zaka and Ndanga, generating local employment and livelihoods. While small grocery shops are mainly locally owned and operated, profits from supermarket chains flow out of the local economy as the chains are linked to South African retail corporations and are headquartered in Harare.

Processing

The case studies also show local employment creation in processing, especially in horticulture, maize and beef. In horticulture, there is value addition and community employment in the drying of excess vegetables.This involves hiring of mainly women from neighbouring farms in the Wondedzo resettlement area. In the Masvingo beef case studies, modest employment is generated by abattoirs' feedlot and slaughter operations.

Purchased maize and tobacco processing occurs largely outside the farming area. Most maize purchased from the Mvurwi farming areas is commercially processed in capital-intensive, mainly Zimbabwean-owned milling and stock feed production plants based in Harare. However, a significant proportion of the maize produced is retained on-farm either for own consumption or as an input in poultry production. Such maize is typically service milled at grinding mills located at homesteads or community shopping centres, generating local employment and incomes within the farming community. In the Mvurwi study area, there has been an increase in investments in Chinese diesel-powered grinding mills, financed with the proceeds of tobacco farming.

Tobacco processing is done in large-scale, labour-intensive processing plants based in Harare. ZLT, the largest contracting firm doing business in the Mvurwi study site, operates a processing plant with the capacity to process 36% of all tobacco grown in Zimbabwe. The plant employs in excess of 1000 workers during the processing season.The other major plant used by tobacco buyers on all auction floors is TPZ, which employs 1700 workers during the processing season. However, tobacco processing plants are majority-owned by international tobacco trading companies, leading to leakage of surplus from the local economy.

Investment and consumption linkages

Investment and consumption flowing from the studied valued chains have important ramifications for local economic development.The cases show great variation in types of investment. The degree to which the investments are transformative is important. An investment is transformative if it leads to diversification of on-farm production or if it creates new forms of non-farm livelihoods that boost and stabilise income flows.The location of investments and consumption also has an impact on local economic development, as it determines how much of the income generated is retained within the community.

Spatial spread of investment and consumption linkages

Figures 26–29 indicate that most investment and consumption linkages generated by the four value chains studied tend to be local. Although some investment expenditure is on 'imported' goods and services, the benefits or income streams generated by the investments are within the districts.

Figure 26: Beef spatial consumption and investment linkages

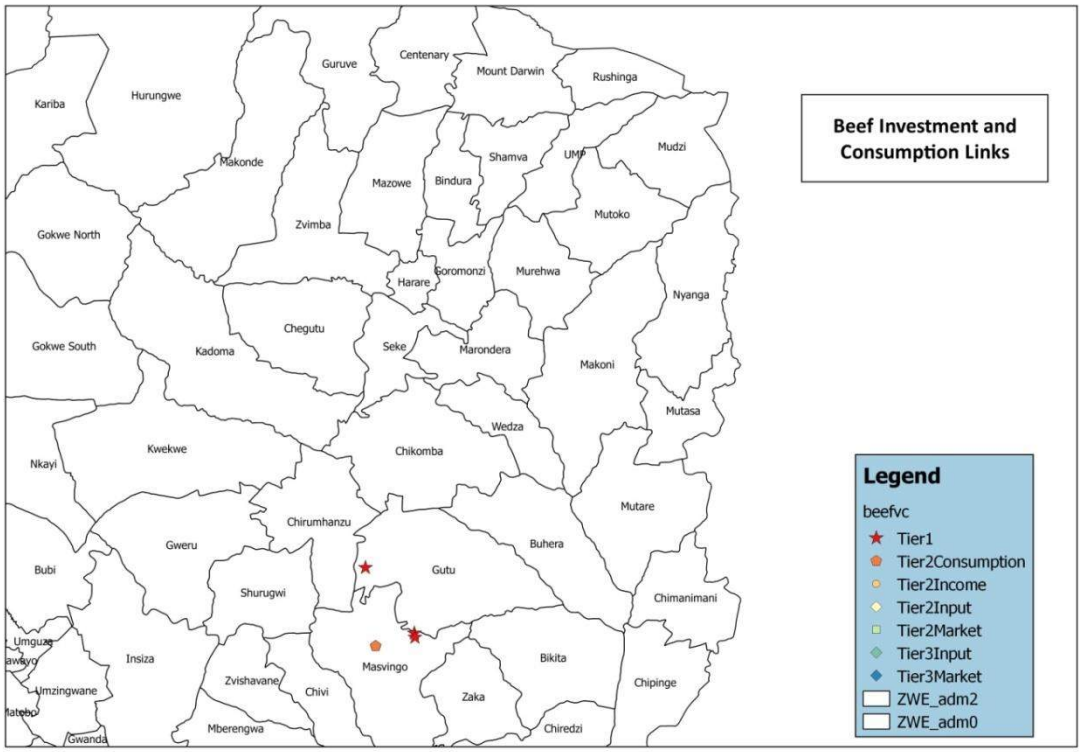


Figure 27: Horticulture spatial consumption and investment linkages

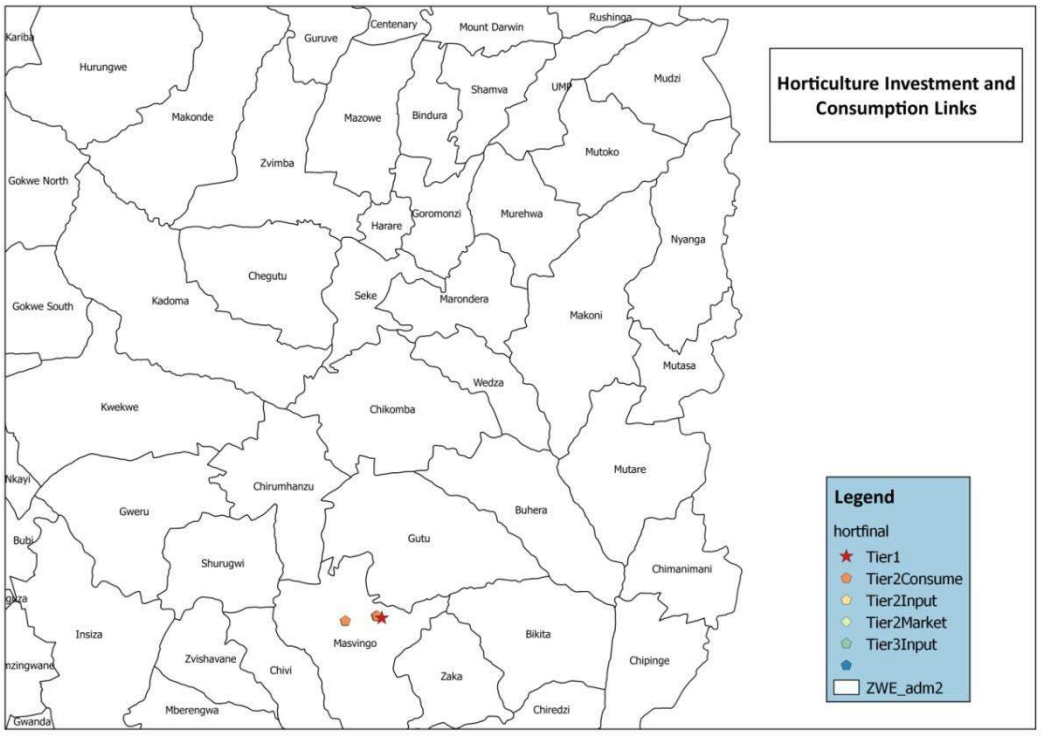


Figure 28: Tobacco spatial consumption and investment linkages

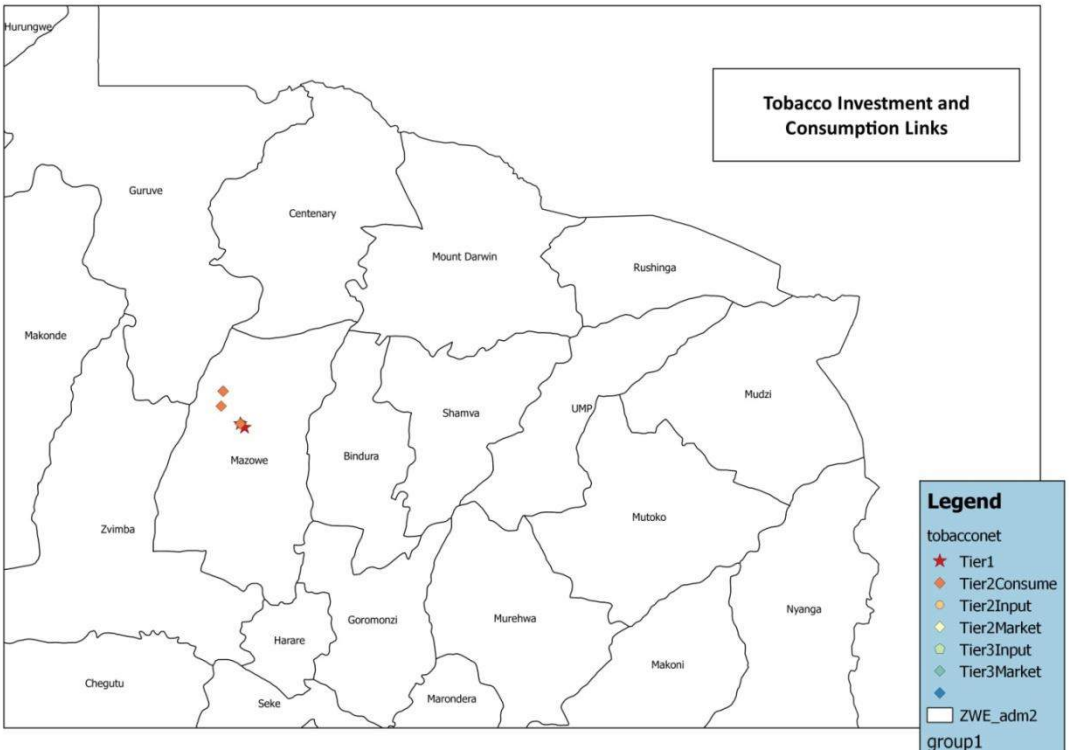
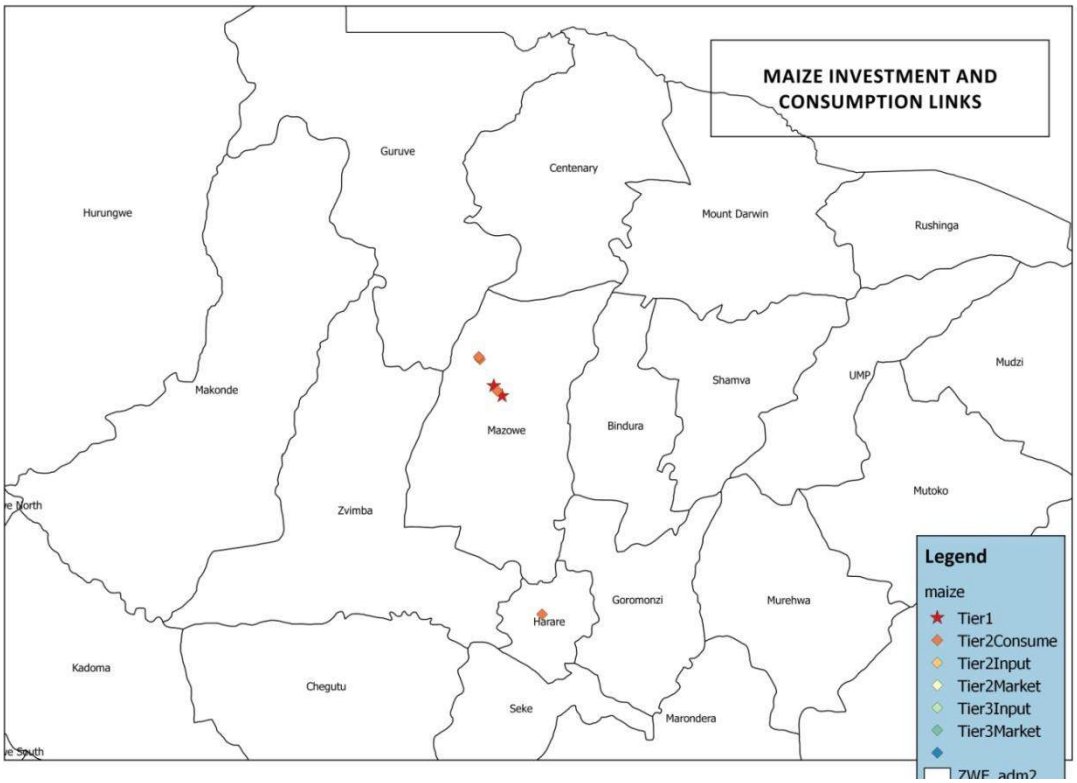


Figure 29: Maize spatial consumption and investment linkages



Nature and significance of investment linkages

Investment linkages and their intensity have been highly dependent on the profitability of the farming enterprise.The high returns from irrigated horticulture and flue-cured tobacco have led to significant investment in non-farm assets and activities, such as transport assets (e.g. cars and trucks), grinding mills, small retail shops, education and urban real estate, which generate extra income and facilitate

the mobility of household members out of agriculture, reducing the dependency on land as the sole source of livelihood (see Table 44). The high returns have also led to investment in agricultural intensification technologies, such as tobacco-curing facilities and tractors (as in the case of Mvurwi) and irrigation pumps (as in the case in Masvingo). In addition, there has been significant investment in welfare-enhancing assets, such as housing and solar panels for lighting.

Table 44: Investment patterns induced by different value chains

Value chain	Case	Types of investment
Beef	Chakabuda (A1)	Herd building from 5 to current 40 animals; building private college in Masvingo; building modern house at farm; purchasing two cars to provide hired transport in Wondedzo
	Alice Mutasa (A1)	Building farmhouse; de-stumping 12ha of arable land; purchasing farming equipment, including an ox-drawn cart
	Mugoni (A2)	Buying cattle, some bred on farm and some pen-fattened on farm;service slaughter and supplying own butchery in Masvingo; investing in a truck, which is used to ferry bought cattle to the farm and to Masvingo abattoirs
	Shuvai (A2)	Cattle purchasing;service slaughter and sale to small butcheries in Masvingo
Horticulture	Makore	Irrigation pipes and petrol water pump, bought in Harare;½-tonne truck bought in Masvingo for use on farm and hire;farmhouse improvements, with materials from Masvingo town and Wondedzo
Tobacco	Hukuru (A2)	Mvurwi town home mortgage; buying cattle
	Charumbira(A1)	4x4 car in 2009/10 season; broken down tractor in the 2011/12 season; rebuilding of tractor;buying building material to modernise farmhouse with the 2012/13 season tobacco income. All the investment spending was in Mvurwi town.
	Toro (A1)	None
	Nyamayaro (A1)	Purchasing used 120-HP Landini tractor, 2-tonne truck, a small family car and 13 cattle
Maize	Godzamuto (A1)	Most of the proceeds from the 2013 harvest (including tobacco)spent on purchasing a car and procuring inputs for the 2013/14 season from Harare
	Ruzhowe (A1)	29 cattle estimated at $10000; diesel-powered grinding mill located at the plot that provides custom maize milling services to neighbours;sewing machine for tailoring services to locals
	Ngongoni (A2)	Purchasing a tractor, a Toyota van, irrigation equipment

Other types of investment have served as a hedge against financial risks. The buying of cattle during the tobacco marketing season, which are to be sold during the peak crop input demand period is one such type of investment. Urban real estate offers the best real tenure security compared to other forms of investment in Zimbabwe. Currently, banks in Zimbabwe accept only urban real estate title as collateral in commercial loans. Thus, investment in urban plots and housing helps farmers to hedge against the risk of land dispossession, which unfortunately has happened in some resettlement schemes.

Although most assets are sourced outside of the purchasers' communities, the income-generating activities afforded by the investments have largely benefited local communities. Local transport activities have supplanted produce transport services sourced from outside the communities, helping to stem the outflow of money from the communities and helping boost local economic multipliers.

The case studies reveal that, in addition to farm to non-farm investment linkages, there have been non-farm to farm investment linkages. Most shops in the Mvurwi site were financed with resources accumulated prior to settlement, from either employment savings or entrepreneurial activities. A transport operator-farmer in Msonedi, Mr Ngongoni owned businesses in the nearby Chiweshe communal areas prior to resettlement. Non-farm income generated in these retail and service

providing activities are helping to finance farming enterprises on the settled farms.This is also the case with resource-poor farmworkers. Non-farming income from brick-making, petty trading and remittances is enabling former farmworkers to rent land and buy fertiliser, thereby gaining entrance into commercial farming, albeit on a very small scale due to land constraints.

Nature and Significance of Consumption Linkages

Consumption linkages are particularly important in the tobacco value chain, due largely to the large cash injection into the farming communities over the February–August tobacco-selling period (see Table 45). This has created significant demand for consumer goods, supporting increased small retail activity within the Mvurwi farming areas. This includes the sale of beer and groceries, and the provision of personal grooming services in the farming areas, as well as in nearby Mvurwi town. Small shop operators note that their business peaks are clearly linked to the tobacco-selling season, while Mvurwi town council officials have seen an increase in demand for retail shop spaces. In addition, the profitability of tobacco farming has led to an increase in demand for chicken and eggs within the Msonedi farming areas.This demand is being met by farmers diversifying into small-scale commercial poultry production, which is linked to new day-old-chick and feed outlets, often branches and/or agents of leading poultry and feed companies, such as Profeeds, National Foods and Irvine's, setting up shop in Mvurwi town. Most of the retail shops are run by members of the Msonedi farming community and, hence, profits from the businesses are retained in the local community.

Table 45: Consumption patterns induced by different agricultural value chains

Value chain	Case	Patterns of consumption	Location
Beef	Chakabuda (A1)	Groceries, inputs	Masvingo Town
	Alice Mutasa (A1)	Groceries , inputs	Wondedzo shop and Masvingo Town
	Mugoni (A2)	Groceries	Masvingo Town
	Shuvai Chikura (A2)	Groceries and school fees	Masvingo Town
Horticulture	Makore(A1)	Groceries and food, clothing and school fees,inputs	Masvingo town shops, grocery shops and school in Wondedzo
Tobacco	Charumbira(A1)	School fees and groceries	Msonedi and Mvurwi town
	Hukuru (A2)	Grocery and clothes	Mvurwi town
	Toro (A1)	College fees, and crop inputs for the 2013/14 season	Fees and inputs, Harare, the rest in Msonedi or Mvurwi town
Maize	Godzamuto (A1)	Clothes and groceries	Msonedi and Mvurwi town
	Ruzhowe (A1)	Clothes and groceries	Mvurwi town

Role of public and private sector institutions in value chain development

Loss in productivity due to FTLR has been a key area of debate among observers of Zimbabwe's land policy issues. Although there was an across-the-board decline in agricultural production over the 2000–2005 period, there has been differentiated recovery since then, led by a phenomenal increase in tobacco production. What factors have been behind the differentiated recovery trajectories? This question is similar to that asked by comparative development dynamics scholars like Moses Abramovitz on determinants of the pace of 'catching up' to developed nations by less developed countries. Abramovitz (1986) argues that the rate of catch-up is dependent on a country's 'social capabilities'. These are enabling institutions, managerial abilities and support structures. At a national

level, differences in social capabilities occur between value chains, leading to the varying pace of post-settlement recovery between subsectors dealt with below.

Public and private sector institutions in the tobacco sector

How do we explain the rapid transformation of the tobacco value chain from one based on large-scale production to the current smallholder-dominated production? We identify three key factors that differentiate the tobacco sector from the other sectors – strong public support institutions, strong private sector institutions and the existence of a skilled and experienced pool of workers.

Public institutions and organisations

The tobacco industry has a long history of strong public support institutions in the TIMB and TRB, whose work – by virtue of legislation that earmarks levies from the tobacco trade to support the two institutions – has escaped the resource constraints that have limited the effectiveness of other state institutions in Zimbabwe since 2000.

The TIMB traces its history back to 1936, with the promulgation of the Tobacco Marketing and Levies Act. The Act provided for the setting up of the Tobacco Marketing Board to regulate auction floors after farmers had complained about marketing troubles during the Great Depression. The TIMB promotes tobacco production and ensures the orderly purchase and sale of tobacco through both auction and contract marketing channels in Zimbabwe. Contract marketing of tobacco has to meet a set of standards set by the TIMB. In particular, pricing of tobacco is based on an agreed grade-price matrix using the TIMB tobacco classification system. To ensure that farmers receive a fair price under contract, when the agreed price is lower than the price paid for the same class of tobacco at the auction floors, the grower shall be paid the higher price prevailing at the auction floors at the time. The TIMB also keeps a register of all producers and contracted farmers, which acts as a deterrent to side-marketing (i.e. where contracted farmers decide to sell their crop to a third party after already having received the inputs in terms of the original contract). Private credit providers can also register loans to farmers under the TIMB stop-order system, which ensures that they are able to recover their loans via farmers' sales, regardless of which marketing channels they use.These TIMB functions have provided greater access to credit in the tobacco value chain than is the case in other sectors, despite production happening under a currently insecure land tenure regime.

The TIMB tobacco-grading system is modelled on that of the United States Department of Agriculture's, which is recognised in most international tobacco markets. This has helped to maintain confidence in the locally produced tobacco, which is vital in terms of international market access.

In response to the shift from large-scale to small-scale production, the TIMB has undertaken a number of marketing policy reforms. It has licensed two more auction floors in addition to those that existed prior to 2000; it has embarked on a decentralisation programme to set up offices in major producing regions, in order to bring sales booking services closer to farmers; and it is encouraging contractors to set up buying points in rural towns closer to producers, to reduce marketing costs.

In terms of research and development, the sector is underpinned by the TRB, established in 1950 under the Tobacco Research Act [Chapter 18:21], the purpose of which is to direct, control and carry out tobacco research in Zimbabwe. The TRB has exclusive rights to flue-cured tobacco research in Zimbabwe, and all varieties of tobacco sold in Zimbabwe were developed by, and are multiplied under the strict control of the TRB. The TRB works closely with international tobacco merchants to ensure

that all agrochemicals used in tobacco production comply with international norms. Prior to the introduction of new varieties, the TRB involves private sector tobacco dealers in assessing the smoking qualities of the new varieties, ensuring that these meet the requirements of international cigarette manufacturers. Adequate funding has made the TRB's Kutsaga Research Station, located on the outskirts of Harare, a world-renowned research facility. Thus, while other state research facilities have buckled under the weight of financial constraints, the TRB has maintained progress in locally suitable genetic resource development in support of the tobacco industry.

The thrust of TRB research has also been adjusted in response to the changed client needs since FTLR. It has taken the lead in adaptive research into the development of alternative, small-scale flue-cured tobacco facilities, borrowing and improving on the energy-efficient Rocket Barn technology first used in Malawi, and which is currently being promoted in the smallholder tobacco farming sector.

Private institutions

Significant existing private sector investment, both international and local, built up over many years, has complemented the strong public institutions in support of the rapid revival of tobacco since 2004. Due to the long history of tobacco production, most major international tobacco-trading companies, including BAT, Japan Tobacco, DIMON, Universal Corporation, TRIBAC and Casalee, have invested in in the tobacco buying and processing industries in Zimbabwe.The risk of losing these investments, as well as the excellent growing conditions in Zimbabwe, partly explain the continued investment by the private sector in the transformation of tobacco production from large-scale to small-scale farming witnessed over the past ten years.

International capital also had a pool of resources, in the form of experienced white commercial farmers who lost land during FTLR, to call upon in implementing the transformation from large- to small-scale production. Most of the white former tobacco farmers formed tobacco contracting firms or were employed by contracting firms, mostly in the agronomic capacity-building tasks.

Finally, the appearance of the Chinese on the tobacco-buying scene, with active encouragement from the Zimbabwean government under its 'Look East' policy, has been a key development in maintaining the momentum of the transformation project. Prior to 2004, when Tian Ze, a subsidiary of the Yunnan provincial arm of the China Tobacco Company, set up a buying and contracting company in Zimbabwe, the China Tobacco Company depended on Belgian-based tobacco merchants for its Zimbabwean flue-cured tobacco. This greatly inflated their procurement price for Zimbabwe products. Setting up shop in Zimbabwe, thus, represented a significant saving and increased control over the types of Zimbabwean tobacco procured. Although Tian Ze directly contracts only 250 farmers, it is active on the auction floors and buys tobacco from most contracting firms for both its mother company in Yunnan Province and on behalf of other provincial companies of the China Tobacco Corporation. In all, 40% of Zimbabwe's flue-cured tobacco is accounted for by the Chinese purchases. Through the savings from direct purchases in Zimbabwe, the Chinese have been able to bid higher for tobacco and, because of their huge market share, have acted effectively as the market price leaders.

Finance

Finance has been a problem for all farmers in Zimbabwe since 2000. The provision of bank loans tothe farming sector (including tobacco) has been low, due to various constraints (see MoFED 2013). Short-term deposits have dominated inflows into the banking sector. During the period January–

October 2013, demand deposits accounted for 53%, while 30-day deposits accounted for 33%. This limits banks' ability to offer medium- to long-term loans. The level of deposits has also been on a steep decline, limiting the resources for onward lending.

Lack of finance has impacted negatively on the operations of all agricultural value-chain participants – farmers, input dealers, traders and processors – in turn, disrupting the input and output marketing and productivity of farmers. Only contractors relying on offshore sources of funding from mother companies have had better access to finance. A report compiled by FinMark in 2012 quantifies the limited access to finance for agriculture in Zimbabwe (see FinMark Trust 2013). In 2010, banks lent US$123 million (only 19% of all commercial credit) to the agricultural sector. Of this amount, US$110 million were funds earmarked for contract farming (with banks working merely as administrators), with only US$13 million going to the financial sector for on-lending to the rest of the agricultural sector. Most of this finance is short-term and unsuitable for the agricultural sector and, at a 24%–40% rate of interest per annum, not economically viable.

There is significant demand from farmers for short-term finance for purchasing inputs, transporting produce to market and servicing farm implements, yet the facility is largely limited to contract farming companies, often through their overseas parent companies at an interest rate of 10%–15% per annum. This has benefited mainly tobacco farmers. Contracting firms provided full input and agronomic support for 67% of all flue-cured tobacco produced during 2013 (TIMB Statistics)[21]. In addition, certain service providers, such as insurance companies, transporters and packaging suppliers, have been willing to provide services on loan, to be repaid on the sale of the farmer's tobacco. These credit schemes have been facilitated by the stop-order system administered by the TIMB.

The FinMark report estimated that in 2010 unmet farmer demand amounted to a $223million (40%) shortfall. This is felt most acutely in the smallholder sector. Banks, due to lack of experience in dealing with the sector, are generally reluctant to offer financial products to smallholders. Consequently, smallholders have largely self-financed their farming operations, with some help from family members in the diaspora, a little public funding and limited donor support.

The unsettled issue of tenure security has also limited access by farmers to bank credit. Ownership of land under the resettlement programme is not transferable, prohibiting its use as collateral for accessing bank credit.Those accessing farming loans from banks have been using urban real estate as collateral, leading to the exclusion of most farmers, apart from the wealthy.

Farming skills

The case studies in this report highlight the importance of the existing pool of farmworkers skilled in the art of tobacco farming who still live in farm compounds after FTLR.These workers have helped to bridge the skills gap for new A1 tobacco farmers, especially those without access to agronomic assistance from contracting firms. These human resources are particularly important, as contracting firms prefer engaging under contract those farmers who have already experimented with tobacco farming using their own resources and have demonstrated ability through a record of sales.

Farm compounds within A1 schemes seem to be better preserved than those on A2 farms, which explains the inflow to A1 areas of former workers from the A2 compounds. They have been allocated

[21] Tobacco statistics provided by TIMB management

their own land and have more freedom than A2 area compound residents. For example, of the 100 former farmworkers surveyed in our study's A1 schemes, 38% came from other farms.

Public institutions and organisations in maize

Until 1991, Zimbabwe was a surplus producer of maize. The roots of the high maize production go way back to the 1930s, when white farmers – whose interests were well represented in the legislature – successfully lobbied the colonial administration to design and implement controlled marketing systems to protect them from the competition of black indigenous farmers (Jayne et al. 1995). The desired measures came in the form of the Maize Control Act of 1930, which:

> *(1) created state crop-buying stations in European farming areas without parallel investments in African farming areas; (2) enforced a two-tiered pricing scheme with higher prices for settler farmers than for native Africans; and (3) established restrictions on grain movement from African areas to towns, mines and other demand centres. (Smale & Jayne 2003)*

The establishment of a centralised maize marketing board, coupled with a prohibition on the movement of maize out of black farming areas, led to the growth of few large-scale milling companies with '*de facto* monopoly on maize meal sales to cities and grain-deficit rural areas once local supplies were exhausted' (Jayne et al. 1995).

The controlled marketing system led to growth in commercial maize production, which stimulated greater demand for research. Investment by the colonial government and settlers themselves in the maize industry started in 1932, with a maize breeding programme under the stewardship of HC Arnold. The breeding programme became the first research conducted outside of the United States of America to develop a commercially marketable hybrid maize seed, leading to the release of the Southern Rhodesia-1 (SR-1) variety in 1949 and the SR 52 in 1960. The foundation for the seed multiplication system began with the establishment of the Maize Breeders Association by white commercial farmers in 1919 (Rusike 1998). The combination of superior hybrid seed, protected marketing and availability of fertilisers further accelerated maize production in the commercial farming areas.

However, these advantages were not enjoyed by the majority of black farmers, who were cut off from access to superior genetics, fertilisers and urban markets. At independence in 1980, the new government, using these inherited public institutions of controlled marketing and expanding fertiliser access, embarked on programmes to reverse the neglect suffered by smallholder farmers during the colonial period (Jayne et al. 1999).These efforts included extending to black smallholder producers the input delivery, credit and marketing programmes that had previously served only large-scale producers. In the period 1980–1988, this led to a tripling in smallholder maize production.The phenomenal growth is attributed to:

> [the end of] *the independence war in 1979; the increase in the use of hybrid maize seeds from about 40% in 1979 to 98% by 1985; an increase in state crop buying stations serving smallholder areas, from five in 1980 to 148 in 1985, thus reducing the costs and risks associated with producing maize for the market; an eight-fold rise in in-kind credit allocated to smallholders between 1979 and 1986, which stimulated fertilizer use and maize yields; and*

an associated response by private input suppliers to the increased demand for farm inputs (Smale & Jayne 2003).

However, the distribution of the benefits from the smallholder maize revolution of the 1980s was highly skewed. Jayne and Rukuni (1993), citing research by Rorbach, report that during the period 1986–1991, 10% of farms accounted for 92% of GMB maize purchases; 1600 large-scale commercial and 9000 smallholders accounted for 70% of GMB purchases. Countrywide, 40% of the rural population were net maize buyers, with the proportion rising to 70% in the drier areas.

Towards the end of the 1980s, the expansion of the colonially inherited system was proving unsustainable. Whereas the colonial system was self-sustaining, as the costs of subsidising white farmers could be passed onto urban consumers and consumers in deficit areas through higher prices, the post-independence subsidies had to borne by the government. This led the government to incur high budget deficits, which contributed to a fiscal crisis and, ultimately, liberalisation of maize markets at the behest of the World Bank and IMF in the early 1990s (Eicher & Kupfuma 1997).The structural adjustment policies also forced the government to reduce public funding of the research and extension programmes that were fundamental to the success of white colonial maize farming.

Following the large-scale land reforms that started in 2000, the government has attempted to reverse the policies of the 1990s, setting weakly enforced price floors and, during the period 2000–2007, providing some subsidised inputs to boost production. With a weak economy under severe international sanctions, these subsidies were funded by increasing money supply, which led to record high inflation. The subsidies were also subject to elite capture. Following the formation of a Government of National Unity and abandonment of the Zimbabwe dollar in favour of the US dollar, there was some recovery in maize production, helped by donor-funded subsidies, but return to self-sufficiency has been elusive.

How does the above help to chart a way towards maize self-sufficiency? The past showed the enormous benefits of a strong research and development set-up. Producer price incentives benefit only a few farmers and hurt most farmers in the poor, dry areas of the country. More inclusive benefits can be found in strategies that lower the cost of inputs, especially fertilisers. Adaptive research into ways of increasing fertiliser efficiency, such as the International Fertiliser Corporation's deep urea placement technologies, have been proven to reduce fertiliser use while increasing yields in Bangladesh and some West African countries. Joint fertiliser procurement mechanisms, which encourage neighbouring countries to bulk-order fertilisers, are yet to be tried in the region but, in principle, they have the potential to lower procurement costs, especially in times of high petroleum prices.

6.2.3 Public and private institutions in horticulture

6.2.3.1 Public institutions and organisations

Historically, public policy impacting on the horticulture sector has focused largely on irrigation development. Since 1935, when ED Alvord, the chief officer in charge of native reserve development, visited Native American reserves in the US, irrigation development in Zimbabwe, in the smallholder sector at least, has been dominated by a dirigiste approach to management – highly subsidised schemes requiring farmers to follow particular cropping patterns on standard plot sizes under the direction of an irrigation officer. In some settlement schemes, no off-farm work was allowed. In the

1980s, economic analyses showed that 100% of capital costs and 89% of recurrent costs were covered by the government. This provided little incentive for local control and management.

However, extensive studies by the University of Zimbabwe and colleagues at Wageningen University in the Netherlands through the 1990s, which looked at the experience of irrigation schemes in Zimbabwe, proved the ineffectiveness of such development efforts. A key theme through all of these studies was that a standardised one-size-fits-all approach does not work, and more flexibility and adaptability are required. Despite the abundant evidence, this 'development' philosophy has guided the government's approach to irrigation in the post-independence period, during which there have been numerous attempts at reviving irrigation in the smallholder sector. An ambitious irrigation fund was established in the 1980s but it went unused; the Food and Agriculture Organisation (FAO) and the German Technical Co-operation Agency (GTZ) invested in new policy frameworks; small-scale schemes were supported by the European Union, and so on. The impact of all of this has been desultory in both policy and practice. Study after study has found that formal schemes (with some exceptions) have not worked well, and very often it is the small-scale informal individually controlled and managed set-ups that work best. The successful horticulture case studies reviewed in this report are examples of such small-scale individually controlled projects. They have managed to progress commercially due to the availability of inexpensive imported pumps and polypropylene pipes, which enter the country with few supportive public policy incentives (such as zero duties).

In addition to irrigation development, some land and water policy issues significantly retard irrigated horticulture development, as seen in the Masvingo case studies. Multiplicities of organisations potentially prevent access to land and water for horticulture in the A1 farming areas. These include scheme committees, councillors, Ministry of Lands and Rural Resettlement officers, the Veterinary Department, District Administrator, Environmental Management Agency, Forestry Commission and the Zimbabwe National Water Authority (ZINWA), as the experience of the most successful horticulture farmer in Wondedzo, Masvingo shows (see Box 1).

The authorities have not considered how to regulate such water access, as the Water Act offers only large-scale catchment management solutions geared towards large-scale irrigation. In addition, there has not been clear policy on the management of common lands, land-based resources and existing farm infrastructure, especially in the A1 schemes, leading to conflict, as highlighted in Box 1. Policy innovation in this area is important to ensure that people have equitable access to water, and that the resource is not permanently depleted.

Box 1: Struggles for water and land for horticulture in Masvingo

'In 2010, I bought a 5HP diesel water pump for US$220. Members of the community who were irrigating using buckets started complaining, saying I was finishing the water in the small dam. I was irrigating just 0.4ha, but they still evicted me in 2010. I approached the councillor, also from my same church, who gave me part of his land (0.3ha) close to Mutirikwe river to do my horticulture, pumping water from the river at the start of 2011. The area proved too small to satisfy increasing demand for my produce. I approached the councillor again, who allowed me to use part of state land allocated to the cattle dip. My total irrigable area was now 1.5ha. All along, I was renting irrigation pipes from Mr Madzokere, a plot-holder, for USD$17 per month. In 2011, I bought 46 irrigation pipes from Mbare/Magaba in Harare at USD$46 per pipe. I was now irrigating full-time and making good money, which made people jealous. The struggle to evict me started again. I was accused of invading the dip area. First, I was reported to Vet Department. They came and were impressed by my irrigation and allowed me to continue because I was using only a small part of the dip area. I was reported again to Zimbabwe National Water Authority (ZINWA) for abstracting water without a

permit. They came and again were impressed and advised me to get a permit which I did. ZINWA gave me a permit for domestic use, which means I was not using amounts that warranted payment for water use. I was then reported to the Environmental Management Authority (EMA). The allegation was that I was cutting trees during land clearing which caused deforestation. They came and made assessments and concluded there was no environmental threat in what I was doing. I was then reported to the Ministry of Lands for using state land without a permit. The District Administrator, chief, councillor, Committee of Seven and other players became involved. They came to the conclusion that I was actually doing the community a service because I am the one who pumps water into the cattle dip tank using my engine. The people who wanted me evicted had failed and as a last resort they physically confronted me at the irrigation plot. I stood my ground and they left humiliated up to now.'

Research and development is an area that influences the ability of a sector to compete effectively in the global arena. Unlike in tobacco and maize, there has not been any focused public sector horticultural research and development institution in Zimbabwe. Genetic improvement has largely come largely in the form of imported vegetable seed, mainly from Israel and South Africa. Given the harsh conditions in these source countries, these genetic resources have thrived under local conditions.

Finally, public marketing institution issues are important to horticultural development. Most horticultural produce is sold in the informal sector through vendors at designated sites in urban and rural service centres controlled by local authorities. The role of these councils is, thus, very important. Vendors are required to register for a fee to trade at these sites, and failure to register or trading in non-designated sites attracts heavy penalties for the mainly women traders. As the cases reviewed in this study show, there have been incidents of running battles with council and municipal police, as well as claims of traders being asked to pay bribes.

Private institutions

Private sector institutions have a history of involvement in smallholder horticulture development in Zimbabwe, but their influence has declined since the early 2000s. The Horticultural Promotion Council (HPC), formed in the early 1990s, was a key institution in the growth of large-scale export horticulture. Horticultural projects – with their expensive infrastructure – were the main targets for acquisition by the political elite during the FTLRP. The contribution of the horticultural sector to agricultural export earnings declined from an estimated 20% in 2003 to 3% in 2009 (Mpande & Madziwa 2011). Just prior to FTLR, the HPC – with the help of development partners including the EU and USAID – was moving to link large-scale export horticulture with small-scale producers, mainly in Mashonaland East and Manicaland. However, with the start of FTLR, which closed down most large-scale enterprises, and the accompanying withdrawal of donor funding, both the HPC and their inclusive growth initiatives effectively ground to a halt.

Finance

Self-financing is the major form of financing for irrigated horticulture, although there are a few contract arrangements for specialised vegetables in areas with secure water sources. In the Masvingo study site, there are no such secure water sources, and the case study farmers are wholly dependent on self-financing to grow their enterprises, as the most successful of these case farmers revealed:

> *We started irrigating with buckets from a small dam near the homestead from 2006 to 2007, selling vegetables locally and a bit to Masvingo town. The funds allowed me to buy a water foot pump. In 2010 I bought a 5HP diesel water pump for US$220.*

Farming skills

Experience from established irrigation schemes and imitation are the key capabilities underpinning the current surge of interest in horticulture production. As a pioneer at the Wondedzo site stated:

> *I used to survive using my hands as a tinsmith based at Bhuka Irrigation scheme some 20 km south of Masvingo town. While there, I was impressed by the fact that people were prospering through irrigation. I am the elder son. My father passed on in 2004 and left behind a large family of 20 on this 28 hectare plot that had to be taken care of. I had no option but to inherit the plot and the responsibility over family. In 2006 I decided to practice what I had seen at Bhuka Irrigation scheme in order to make money and cater for family needs.*

The success of the above farmer has been imitated by a number of neighbouring farmers who are expanding horticulture enterprises from the typical nutrition garden into surplus production using the motorised pump technologies he pioneered in Wondedzo.

Institutions and organisations in beef

The beef industry was once the pride and joy of the commercial farming sector. As Scoones and Wolmer (2007) show in a paper on the history of the Zimbabwe livestock industry and veterinary control, white ranchers enjoyed extraordinary levels of support from colonial and post-colonial governments. The industry also profited from generous import agreements with the EU, supported by the aid budget. The result was that beef exports became an important foreign exchange earner for the country through the 1980s and 1990s.

This export trade, however, depended upon compliance with stringent EU disease-control regulations, particularly around foot-and-mouth disease (FMD). Huge amounts of money were invested by the EU to create a series of disease-control zones to facilitate export. The beef export industry migrated northwards, away from the traditional cattle ranching country of the lowveld towards the highveld, far from the FMD infected zones. FMD is a natural disease in Africa and is found in wildlife, particularly buffalo. A beef export strategy and wildlife do not mix, even with FMD-free buffalo herds maintaining disease freedom. Compliance with EU regulations became an expensive challenge.

Then everything changed. With the land invasions of 2000, there was a massive movement of livestock and a breakdown in veterinary controls. FMD outbreaks occurred, and the export trade was lost. The beef industry as it had been known collapsed. The massive infrastructure built up around the Cold Storage Company (CSC) became a white elephant, and the investment in disease control by the EU became largely an irrelevance.

Today, the livestock industry is based on multiple small herds, owned mostly by small-scale farmers. FMD is under control again, and movement controls are in place, but the prospect of regaining the export market looks remote. This is seen by some as another example of the tragedy of Zimbabwe's land reform. Has this transition in the structure and focus of the livestock industry been all bad, though?

The subsidised investments in the old white ranching sector which continued for 20 years after independence through the beneficence of the government and donors meant that beef ranching was rarely economic. The subsidised parastatals like the CSC were a huge drain on public resources. The

meat supplied was not geared for domestic demand ('*nyama*') but for export ('fillet steak' for Europeans). The ranches that were required for this industry were vast, amounting to thousands of hectares, and, increasingly, to be found in areas of the country with higher agricultural potential. Was this really the optimal use of this land? In addition, the fences, market bans, slaughter and quarantine controls that were imposed on everyone for the benefit of a few exporters resulted in cost and inconvenience for many.

Today, Masvingo's real markets for meat are based on a diverse group of producers, and are linked to a distributed network of traders, sellers, brokers and suppliers, spreading the economic gains further. The unit value is lower, but the overall benefits for the economy and development may be greater. In another paper on options for disease control in the southern African beef industry Scoones et al (2010 b) made the case that the 'disease freedom' approach adopted before 2000, and required by the EU and the World Organisation for Animal Health, does not make sense in areas where FMD is endemic. Other more appropriate ways to control and manage the problem make better sense. Enclaves of high-value production could still exist through 'compartmentalisation', but would have to be factored into private business plans. For others, a commodity-based trade system with a focus on different domestic and regional markets makes more sense.

As Zimbabwe's herds are rebuilt, but under very different ownership patterns, important policy decisions will be required. Will there be a vain attempt to recreate the past glories of the commercial beef export system, or will a more sensible focus be on different markets, production systems and disease-control measures?

Local entrepreneurial activities and social embeddedness

Social relations are important in rural business development. In the literature, the concept of social embeddedness has been coined to describe the nature of social relations and how these impact on the success or otherwise of rural business enterprises.Two characteristics are deemed important in social embeddedness – locality and externality. Locality describes the strength of links between local entrepreneurs and the rural producer base. This is deemed important because rural business is highly dependent on trust. Externality, on the other hand, describes the strength of links a rural entrepreneur has to external sources of information, as well as networks of financial resources, input providers and/or customers. Strong external information linkages are important in ensuring a constant supply of business innovations, while good links to external finance, inputs and markets enable a business to have cost-effective access to resources and extra outlets for products. There must be a balance between locality and externality to ensure success. Balanced social embeddedness is achieved when a rural business has strong economic or social relations with the rural base, while also strongly linked to external resource and market networks. Are such socially embedded rural businesses emerging in the resettlement areas? What factors are encouraging or hindering the development of balanced socially embedded enterprises? Below we briefly describe observations from the study areas.

Mvurwi examples

The localisation of transport businesses within tobacco-growing areas that has happened since 2009 provides an example of the benefits of social embeddedness. Prior to widespread ownership of small trucks by tobacco farmers in the Mvurwi study sites, farmers were dependent on 'outside' transport operators, which created many problems for farmers. Outside operators made it difficult to co-ordinate booking at auction centres, leading to congestion at floors, with farmers spending several nights sleeping in queues. Due to lack of trust, farmers had to travel with their tobacco on open

trucks. There was also the risk of tobacco being rained on in transit, as most urban-based truck operators did not make contingency plansfor changes in the weather. These problems have largely disappeared with the shift to local transporters who are neighbours and also fellow tobacco farmers. Farmers can afford to travel in comfort, separated from their tobacco, and there is better co-ordination of bookings at the floors.

Most retail outlets within the Msonedi farming areas are owned by local farmers, some with external links that aid the success of their businesses. A good example is the small bar at Msonedi, which is run by a lady whose husband is employed at Delta Beverages in Mvurwi, a connection that ensures reliable beer supplies. There are also examples of FTLR beneficiaries like Mr Ngongoni who brought with them extensive experience in running retail businesses from their original home areas.

Masvingo examples

There are similar socially embedded business experiences at the Masvingo site. Mr Mahove, the now successful horticulture marketer, generates significant cash on a regular basis compared to his non-vegetable growing neighbours. He has been lending small amounts of money to his neighbours in Wondedzo without collateral as a store of cash and to secure future labour supply. In the beef value chain, farmer-traders have been using their original home area links as agents to source cattle for their businesses. Large abattoirs, such as Montana, with the help of NGOs, are also transforming their business models to create locality connectivity through the setting up of community feedlot schemes. These lower their procurement costs and allow them to capture a large share of cattle trade from competitors.

As is the case in Mvurwi, there are retailers in Masvingo who are FTLR beneficiaries, but have strong links to outside input chains. A case in point is the owner of Wondedzo Wares who is also an employee of N Richards, a wholesale and hardware chain with a branch in Masvingo town.

7 Study implications

At the beginning of this report we posed key questions. How significant for income and employment have emerging structures of agricultural production been in newly resettled areas? How can the economic potential unleashed from small-scale agriculture be amplified through off-farm linkage effects in the local rural economy? Can a territorial approach to local economic development help capture the benefits of land reform? Below, we summarise the key findings from the study and offer some suggestions on policy recommendations.

Summary of findings

The observations from the study include the following:

a. Land reform resulted in a major spatial reconfiguration of land use, in both study sites, from large-scale farms or ranches to multiple smaller farms of an array of sizes, notionally in two administrative categories – A1 (small) and A2 (medium) – but, in practice, with much blurring and variation.

b. Certain commodities dominate the 'new' value chains – tobacco in Mvurwi and horticulture/beef in Masvingo are taken as core cases. However, all farmers combine these with other crops. Maize is ever-present, but there are also other crops such as beans and groundnuts. Livestock are part of the mixed farm system, and often used for draft power.

c. There are several evident pathways to commercialisation. The most common among A1 farmers is incremental building of the enterprise, with profits sunk back into the farm, and extending business opportunities (e.g. through the purchase of transport, tractors, etc.). Others are helped along by contracting arrangements with companies (which is, of course, central to tobacco). This allows for the security of finance and marketing, although farmers complain about the constraints. Still others use their own finance from off-farm jobs (as civil servants, consultants, NGO workers and so on), although this is usually insufficient. Credit from banks, despite offers of collateral, seems very limited. Vertical chain integration is rare, but some farmers are able to link farm with shop with restaurant, particularly for beef.

d. There is a very fluid, rather ambiguous identification as farmer, worker, urban, rural, on- and off-farm. Old categories do not work well with this new group of commercial farmers. Urban links are important – as a source of marketing, but also of investment (buying up plots/stands seems to be a route for expenditure of rural income, beyond the vast numbers of cars, trucks, taxis, tractors and so on that are being bought). Off-farm employment for A2 farmers is very common, and often the only source of farm finance. Most A1 farmers, by contrast, are resident on the farm, without formal jobs in town, although many have off-farm income-earning activities, frequently generated by farm-based investment (notably transport, tractor hire, etc.) and linked to ongoing farming activities.

e. Tobacco has the commodity chain most linked to formal markets, as there are limited tobacco floors to sell on, and a fixed set of grades. Contractors are Zimbabwean, but also are linked to USA, UK and Chinese companies. Beef marketing is more informal, but some meat traders (Koala, Montana, Carswell) shift beef to Harare outlets. The majority is fed into local rural and urban markets via a variety of retailers. Horticultural marketing is the most informal, and taps into a female-dominated network of market traders with impressive links to a range of very small market outlets. Only tobacco is exported. None of the other products reaches anywhere near international standards. Horticulture products and beef are accepted by internationally owned supermarkets (e.g. Pick 'n Pay), but sold locally, and, even then, with standards and grades applied. Beef is generally of low quality, supplying a local market for cheap meat.

f. Both permanent and temporary labour is employed by all farmers engaged in such commercial chains. This is largely task-dependent and very seasonal. Conditions and pay are poor, and recruitment is largely local. In Mvurwi, access to former farm 'labour compounds' is possible, with long-term resident farmworkers employed on the new tobacco farms. They bring skills and knowledge. In Masvingo, labour is recruited from nearby resettlement farms and communal areas. It is a mix of female and male labour depending on task and season. Permanent labour is often from 'home' areas, and may include relatives. Many workers also farm, either on small plots near compounds or at their home villages

g. Intermediaries (traders, aggregators, transporters and so on) are very important in all value chains. They all gain livelihoods from engaging with the value chain. These tend to be very

small operations – a single person with a 1-tonne truck, a group of women horticulture traders, someone who buys, holds and sells on cattle, and so on. Informal networks and connections, facilitated by universal ownership of cell phones, make this all possible and efficient. Many intermediaries for horticulture and beef chains are women. Tobacco seems more male dominated, particularly because much is concentrated on transport, and ownership of large capital equipment.

h. Unlike output markets, which are quite diverse in terms of scale and location, input markets are much narrower. They tend to be associated with a limited group of retailers (Farm and City, Farm Supplies, Agricura, MashCo, N Richards, etc.) that have been around for decades. They are usually white-owned (although now often run as joint 'indigenised' ventures), and have adapted quickly to the new demand base. They supply standard inputs, such as seeds, fertilisers, herbicides and chemicals that are manufactured by large companies, often with international connections. For example, maize seeds may be from Seed Co-op (a large Zimbabwean company with pan-African business operations) or from the multinational giant, Pioneer. A new category of 'input' is various forms of 'intermediate' technology, especially for irrigation. Pumps and pipes are essential equipment these days, and are now remarkably cheap, thanks to importation from China (often via South Africa).

i. Inputs include those derived from: 'traditional' sources, increasingly concentrated South African or international businesses, with research and development, and marketing back-up; 'new' suppliers, such as those linked to Chinese technology (e.g. pumps, but also tractors); and local innovation, including new/adapted equipment produced by local welders and manufacturers.

j. There has been growth in service-oriented businesses in the study sites, including grocery stores, beer halls and butcheries (the standard set of rural businesses), but also others geared more to agriculture, including vehicle and machinery repair. Some niche businesses have emerged, including chain-saw operators in the tobacco areas who supply woodfuel for curing. Building services have been in high demand for new homes, but also for curing houses and so on. These businesses may be run by locals or outsiders. Some farmers have started such businesses.

k. Social relations and local institutions (churches, farm committees, etc.) are key to production in the A1 areas, but A2 farms are more individualised. Production, marketing, and so on are all highly gendered. Overall, though, farming is characterised more by individual endeavour than by group organisation.

Policy implications

The above summary highlights a dynamic emerging scene in both Masvingo and Mvurwi. Many local economic activities are evident, and linked particularly to entrepreneurial farmers in the A1 resettlement areas. These farmers are selling into new value chains, created since the land reforms. They are more local, supplying markets in nearby towns and business centres with beef or horticulture produce, but also export markets with tobacco. Employment is being generated along the value chains, and benefits are far more widely shared. This suggests a focus on local economic development, capitalising on and amplifying the linkages already created by entrepreneurial farmers who have benefited from land reform. This will require a major rethink on rural development policy and planning, but the benefits could be significant if the cases highlighted in this study are anything to go by.

However, a number of constraints may limit the success of these entrepreneurial activities. These include:

- low productivity due to the high cost of fertilisers and inadequate skills;
- unfinished land policy issues, including land tenure and land for business development, that discourage investment in the resettlement areas;
- water and resource policies that discourage resource investment and conservation;
- poor business operating environments created by local authority bylaws;
- limited access to finance;
- unnecessary government intervention in marketing; and
- under-investment in public support institutions.

In the following, we make a number of suggestions on needed policy changes.

Lowering costs and improving the efficiency of fertiliser

Low productivity, especially for a 'wage good' such as maize, is a key constraint to overall economic development in Zimbabwe, as undue dependency on imports has driven up the cost of living and put pressure on wages, making the country non-competitive in all other sectors. Two fertiliser-related issues need to be tackled to improve productivity – lowering the cost of fertiliser and improving efficiency in the use of fertiliser. Achieving these two objectives will foster more inclusive growth in all sectors of crop production. Although the high petroleum prices of recent years have contributed significantly to high fertiliser costs, in small landlocked markets, such as Zimbabwe, Malawi and Zambia, buying fertiliser in small quantities has had a huge impact on the cost thereof. The AU-AfDB joint fertiliser purchasing initiative, which encourages neighbouring countries to bulk-order fertilisers, and which, in principle, has the potential to reduce procurement costs, has yet to be tried in the region. The International Fertiliser Corporation contends that more than two-thirds of nitrogenous fertilisers applied are not taken up by plants and are lost through volisation and leaching. Deep urea placement technologies, in which urea is pressed into bridgets and placed deep into root zones,have been proved to reduce fertiliser use while increasing yields in Bangladesh and some West African countries. Adaptive research like this into ways of increasing fertiliser efficiency needs to be high on the agenda of national research and development institutions.

Low management skills and new forms of extension

During the post-FTLR period, new forms of skills transfer have taken root in response to the inadequate public extension services. In commodities such as tobacco, sugar, horticulture produce and cotton, some contracting firms have been coupling credit with provision of extension services. The most concentrated of such efforts in the tobacco sector has been Northern Tobacco, which has managed to raise the productivity of its smallholder flue-cured tobacco from less than 1 000kg to more than 2 000kg per hectare in under five years. How can these initiatives be scaled up and broadened to cover more crops? The private provision of extension services needs to be incentivised. One option would be to re-evaluate the interpretation of the indigenisation empowerment laws from the current equity-based standard to a broader empowerment definition. If the contracting of previously disadvantaged groups, combined with skills transfer, is used to substitute for equity

sharing in the definition, we might see growth in such linkages helping to solve the twin problems of finance and skills development.

The tobacco story also gives us another lesson. As the study reveals, the recent phenomenal growth in smallholder tobacco farming is helped partly by the employment of skilled former farmworkers. The policy issue here is how to preserve this reservoir of skills within the resettlement areas. Currently, these citizens have rather insecure tenure in the resettlement areas, their continued stay there depending on the goodwill of scheme leadership. Carving out enclaves within the resettlement areas, where former farmworkers would have secure tenure, would help to preserve their skills within local communities to the benefit of the land reform beneficiaries.

Finance

Lack of finance has been highlighted as a key constraint to farming. Although banks cite lack of tenure security as the main impediment that needs resolving, generally low economic growth, poor relations with international finance institutions, and perceived political risks have all contrived to limit the flow of money into the Zimbabwean economy, contributing to the current liquidity crunch. Restoring international markets' confidence in the Zimbabwean economy is, thus, a priority for the government, as is resolving land tenure uncertainties.

On the positive side, recent developments in mobile money transfer, aided by virtually universal cellular network coverage, have facilitated transactions for all actors in agricultural value chains. They have helped in the transfer of pensions, remittances, input purchases and commodity payments across far-flung locations. Contract farming companies and auction floors are also increasingly utilising mobile technology for input credit and crop payments. Some technology companies are piloting services that offer savings. The high cost of services, however, remains a concern with these products. Institutional arrangements that reduce the cost of such services would be welcome.

Water issues

There has been a marked reduction in area under irrigation since implementation of the FTLRP. The estimated irrigable area in Zimbabwe is 550 000ha, of which 200 000ha were developed prior to FTLR. In 2006, an estimated 120000ha were believed to be operational (Nhundu & Mushunje 2010). The decrease in irrigated area was due to vandalised irrigation equipment (water pumps, pipes, etc.) and conflicts in the sharing of irrigation infrastructure designed for former large-scale farms.The land demarcation did not go hand in hand with clear policies on parcelling and management of water infrastructure in the resettlement areas. The Water Act offers only large-scale catchment management solutions geared to large-scale irrigation.

Thus, the country is nowhere near developing its potential irrigable area, and the current policies, which seem to penalise farmers' investment in water harvesting (via boreholes, weirs and small dams) with punitive levies, are not helpful. Farmers who develop weirs and small dams or drill boreholes need to be incentivised, as they are moving the country towards its potential.

Another lesson from the study is that small, individually developed and run irrigation set-ups have great potential to succeed, but they need support through a reduction in restrictions on the importation of small-scale water delivery technologies such as drip pipes, polypropylene pipes and pumps.

Resource issues

Sustainability of the tobacco revival hinges significantly on the availability of curing fuel.There are signs of unsustainable timber harvesting due to lack of policy on the management of forests on

commonland. Brazil, a major flue-cured tobacco country, has faced similar challenges. A promising solution is one currently being implemented by tobacco companies in Brazil. Under the programme, tobacco companies, the producers' associations and related industries undertook a large-scale awareness campaign to plant idle areas with native and eucalyptus tree species, reaching around 140 000 growers in the south. Tobacco companies also established nurseries, finance and technical assistance for reforestation. To encourage compliance with the programme, industry committed itself to not purchasing tobacco cured using wood from irregular sources, while industry regulators will not register growers who do not commit to reforesting part of their property. Zimbabwe's tobacco industry has started a similar programme – the Sustainable Afforestation Initiative – but it lacks the enforcement measures, such as barring farmers who do not participate in forestation from registration, which were keys to the success of the Brazilian initiative.

Land tenure

Several factors related to land policy also affect land utilisation and productivity growth.These include agricultural land tenure and land for business development purposes. The conditions under which land is occupied and how the access to natural resources and their exploitation are regulated are of crucial importance in determining how land is used, and whether it is used in a way that maintains its capacity to produce sustainably into the future. Of particular importance is the ability of land occupiers to use land as a disposable asset. There can be greater willingness to invest in maintenance or improvement of the productive capacity of land if the benefits are realisable sometime in the future through sale of the land. There are two aspects here: one is the right to sell or otherwise dispose of the land; the other is the existence of a market for the purchase of the land. Greater certainty in this regard would encourage farmers to invest more in their farms, influence financiers to offer credit and encourage better natural resource stewardship.

The other land issue is land for business development. There has been no urgency to demarcate land for businesses in resettlement schemes andin rural centres in response to the need generated by the land reform programme. As a result, most retail businesses in the resettlement areas are informal, with poorly developed buildings. Secure land tenure is required for businesses, in order to encourage growth of the retail sector in resettlement communities.

Business operating environment

Development of rural businesses is further constrained by non-conducive operating environments. Local economic development initiatives worldwide focus on encouraging inward flows of investment capital. To the contrary, local authorities in the study areas have discouraging inward flows of capital by charging excessive operating licence fees. For example, encouraging the spread of contract buying stations in all tobacco-growing areas, akin to what MTC did in Mvurwi, Karoi and Rusape, rather than levying punitive rates that discourage inward investment, has been shown to attract other businesses, which contribute to the local authority's growing revenue.

Most horticultural produce is sold in the informal sector by vendors at designated sites in urban and rural business centres controlled by local authorities. The role of these authorities is, thus, very important. Vendors are required to register for a fee to trade at these sites, and failure to register or trading in non-designated sites attracts heavy penalties for the mainly women traders.

In beef marketing, Rural District Councils have been charging 11% of the value of an animal as a marketing levy. Transporting agricultural produce is a nightmare because of the multitude of roadblocks, which cause undue delays and frequently involve having to pay bribes, leading to increased transactions costs.

The government setting prices at levels way above import parity has disrupted smooth marketing of maize.These producer price 'incentives' benefit only a few farmers and hurt most in the poor, dry areas of the country. The GMB is also struggling to pay farmers these unsustainable prices, leading to farmers dumping maize growing for other uncontrolled crops such as tobacco.

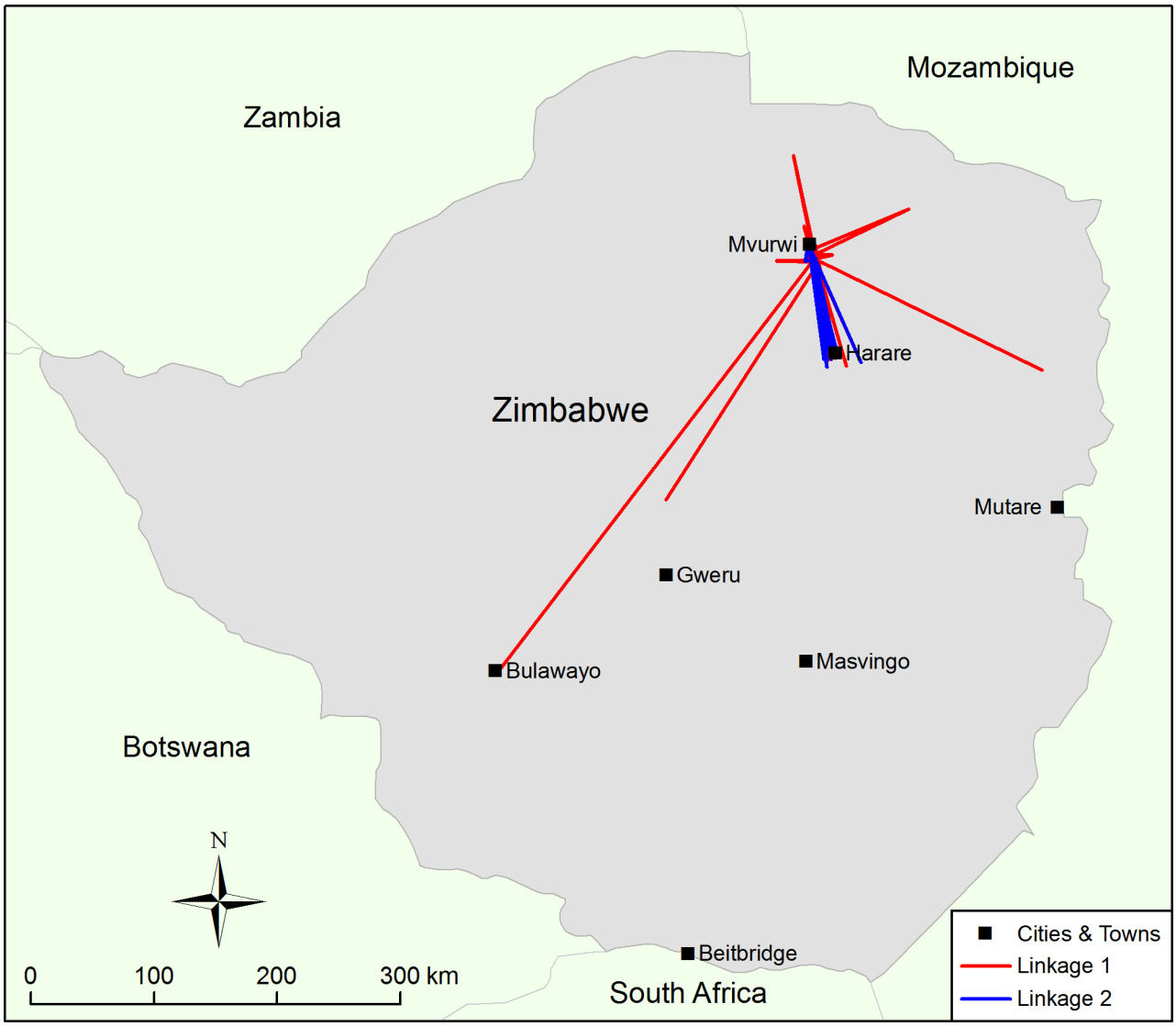
Public sector investment

Finally, there is a need for greater investment in public infrastructure. In the resettlement areas, improved roads and communication, in particular, are required in order to improve marketing. As the case of the tobacco industry shows, a strong public research and development infrastructure that is linked to the private sector and farmers is important to maintain sector growth. If the government reduces its investment in loss-making marketing parastatals, it can free up resources to provide the key public goods and services so much needed by all agricultural value chains.

Appendix

Map 1: Linkage 1 for all Mvurwifarmers

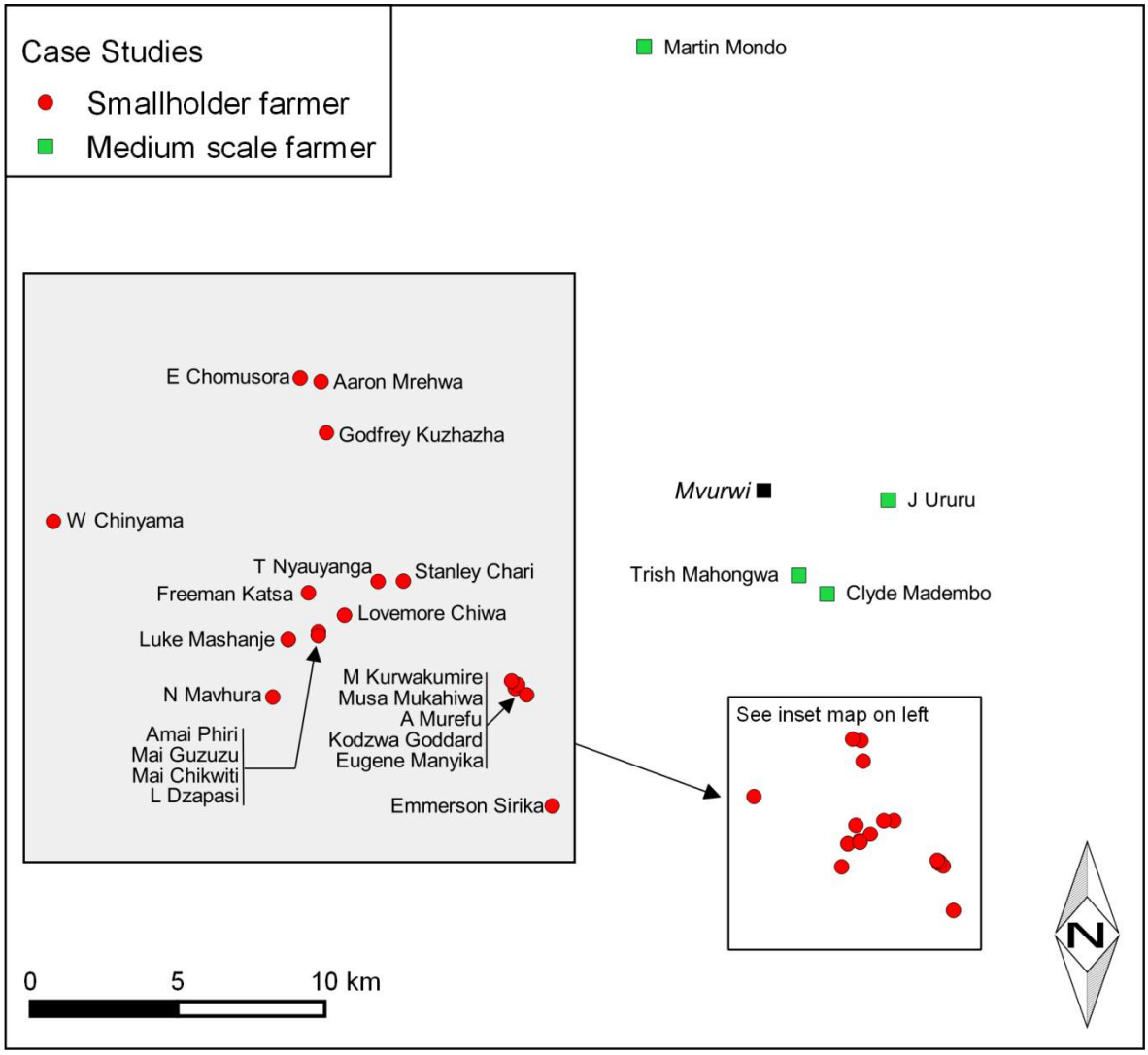
Map 2: Linkages 1 and 2 for all Mvurwi farmers



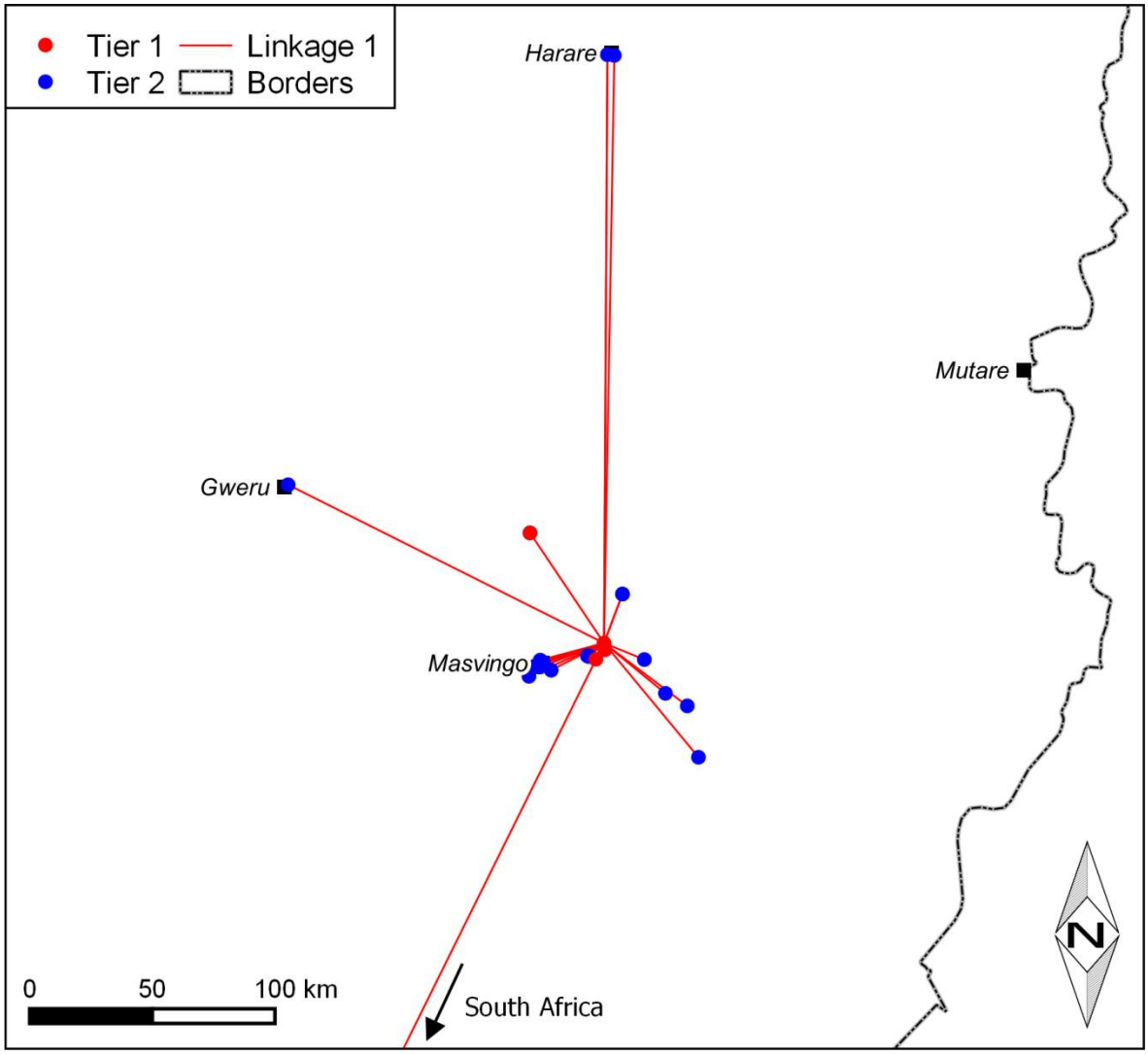
Map 3: Masvingo and Mvurwi case studies

Map 4: Masvingo case study

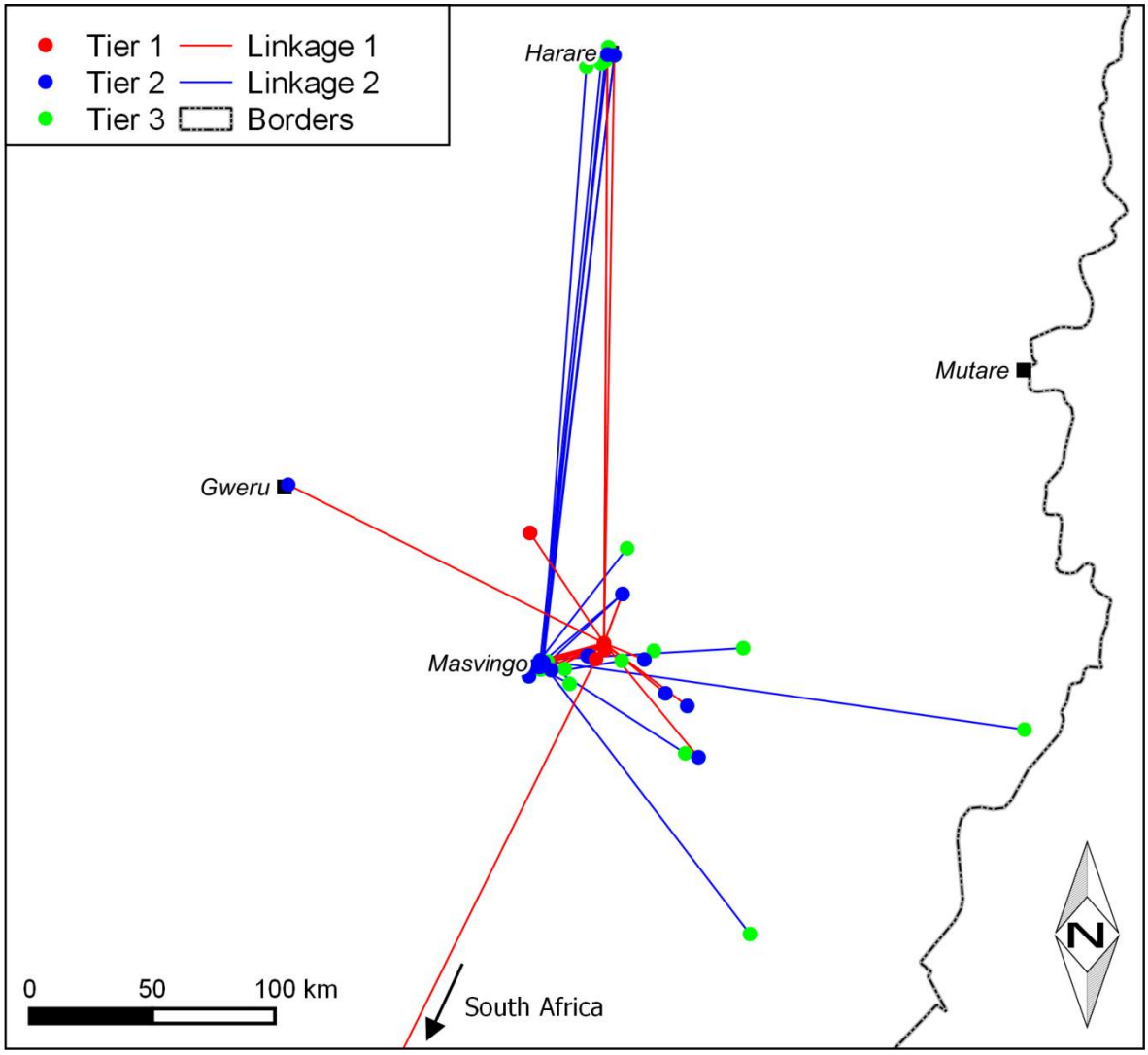
Map 5: Mvurwi case study



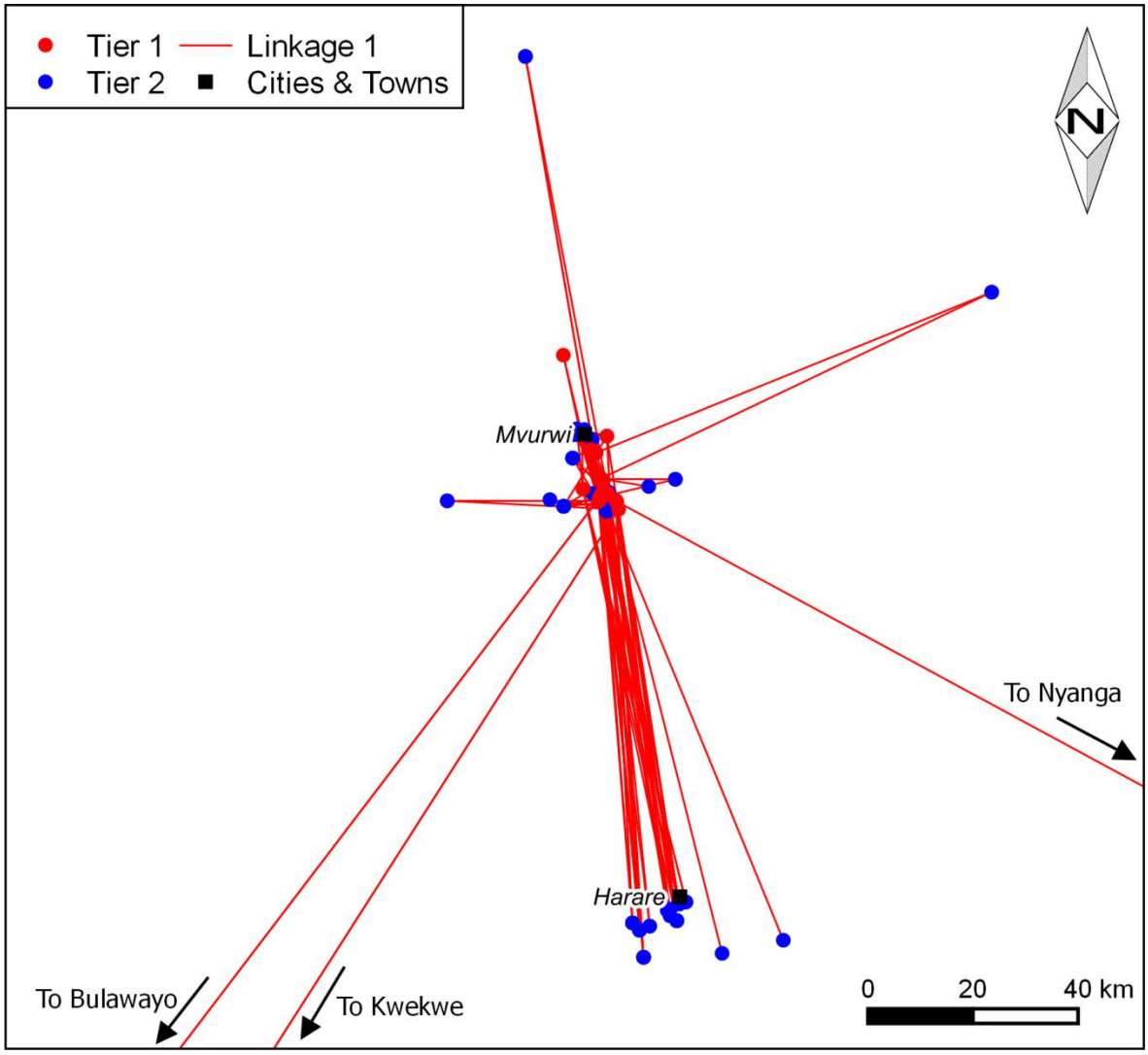
Map 6a: Linkage 1 for all Masvingo farmers



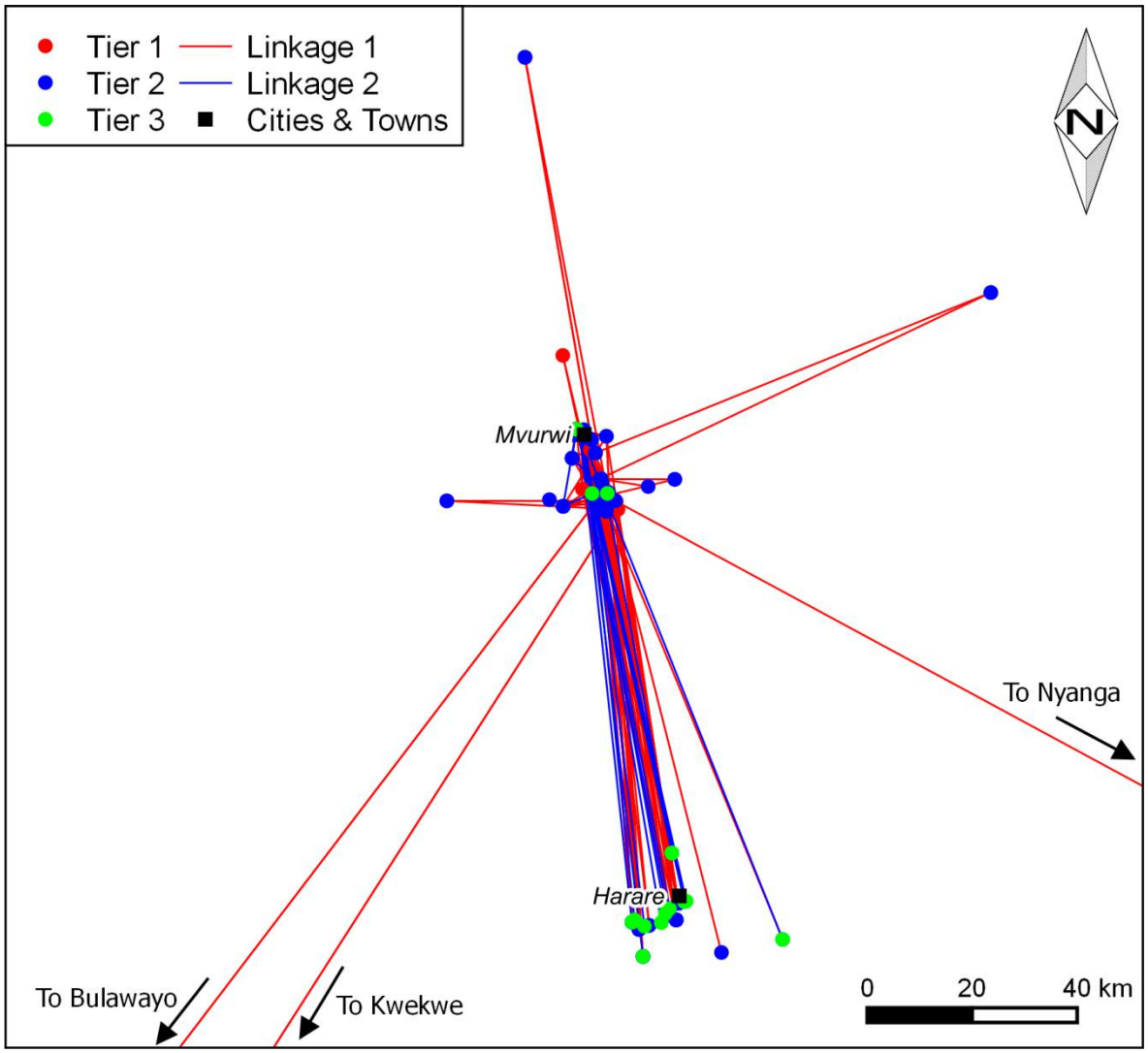
Map 6b: Linkages 1 and 2 for all Masvingo farmers



Map 7a: Linkage 1 for all Mvurwi farmers



Map 7b: Linkages 1 and 2 for all Mvurwi farmers



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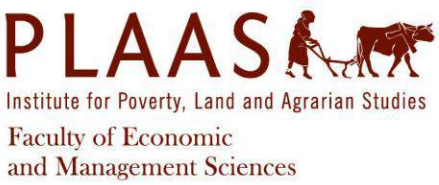


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