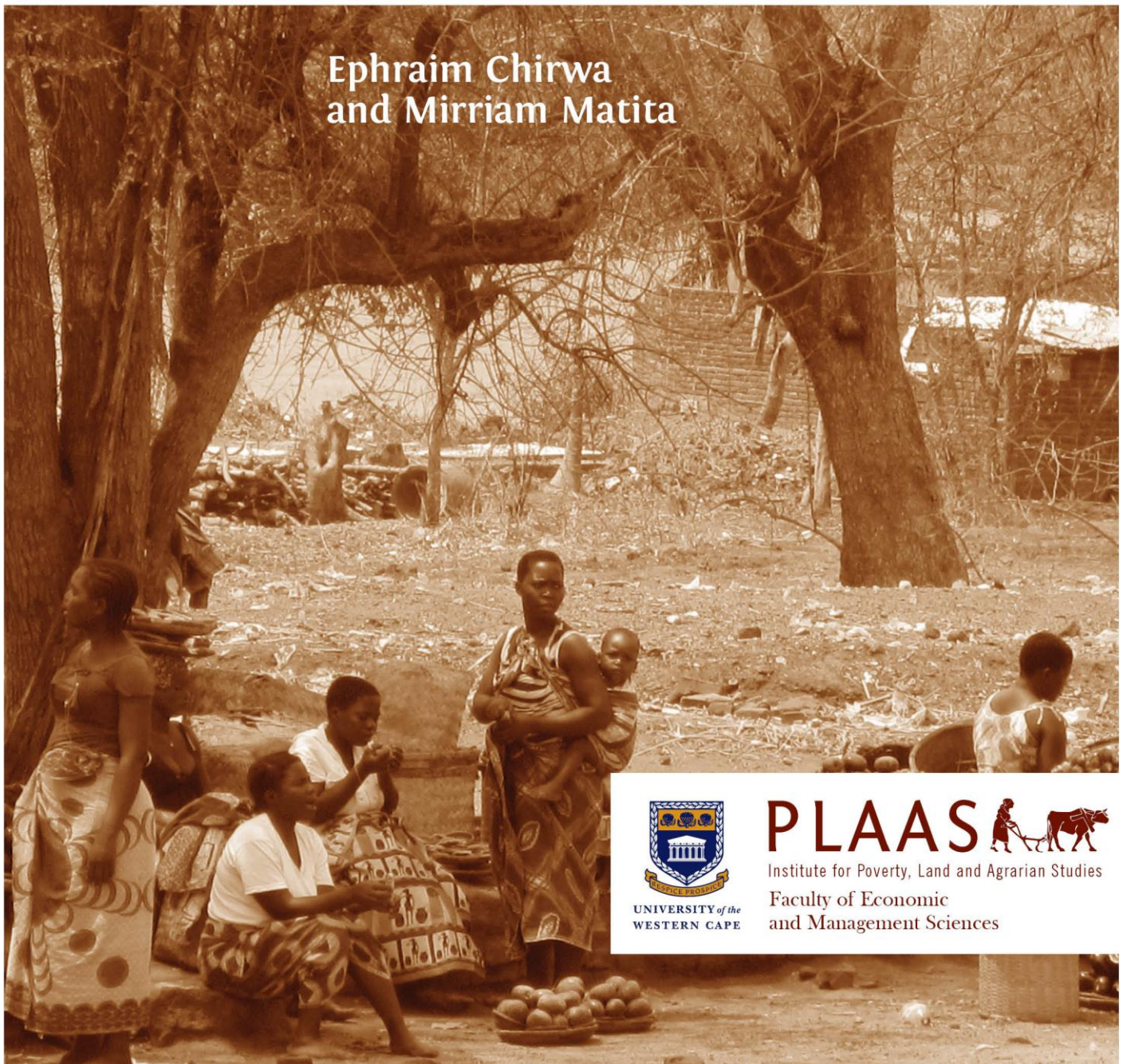


RESEARCH Report 45

Space, Markets and Employment in Agricultural Development: Malawi country report

Ephraim Chirwa
and Mirriam Matita



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Contents

List of tables	ii
List of figures	ii
1 Introduction	1
2 Overview of case study farming activities	8
3 Spatial patterns of farm and non-farm activities	15
4 Linkages between farm and non-farm employment	21
5 Patterns of accumulation and investment	32
6 Conclusion	35
References	37
Annex: Network maps	39

List of tables

Table 1: Main agricultural policy actions and agricultural growth, 1964–2013.....	6
Table 2: Farming characteristics of smallholder farmer case studies (2012/13 season)	10
Table 3: Estate case study characteristics (2012/13 season)	13
Table 4: Density of non-farm links for Tier 2–4.....	19
Table 5: Input suppliers to smallholder farmers.....	23
Table 6: Known consumption and asset expenditure linkages.....	25
Table 7: Linkages of agricultural production to output markets	27
Table 8: Levels of farm and non-farm wage employment.....	29

List of figures

Figure 1: Map of Malawi showing Mchinji District.....	3
Figure 2: Farm and non-farm linkages in the local economy.....	4
Figure 3: Schematic framework for exploring networks and linkages.....	5
Figure 4: Paved road network in Mchinji District	15
Figure 5: Spatial linkages for smallholder and estate case studies (all crops)	18
Figure 6: Spatial linkages for horticultural & non-horticultural smallholder crops	18

1 Introduction

There is a growing literature on the links between farm and non-farm employment activities in rural societies and the important roles played by rural non-farm employment in poverty reduction (Lanjouw, 2001; Davis et al., 2002; Deichmann et al., 2009; Haggblade et al., 2010). The links between agricultural growth and non-farm employment are not clearly understood. It has long been assumed that agricultural growth benefits non-farm employment by increasing local demand from farmers and farm workers for goods and services, but history shows that this is not always the case. The employment benefits of agricultural growth depend on many factors – including, crucially, the spatial organisation of production, processing and marketing, and the nature of the value chains that link farmers to local and distant markets, as consumers and as producers. If these forms of organisation bypass local markets, agricultural development can lead to links with distant markets being strengthened, while not contributing to the local economy. In the context of growing pressure on agricultural land, these questions are becoming increasingly important in many parts of the world. This is particularly so in Southern Africa where rural development is affected by a host of pressures, including competition for agricultural land, the political saliency of land reform and small farmer development, and the increasing power of supermarkets. A better understanding is needed of the spatial and institutional factors that support employment-intensive rural development.

The literature suggests two broad ways in which farm activities are linked with non-farm employment activities – either through 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 linkages, 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 incomes 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 expenditures are on capital and intermediate goods and services. Davis et al. (2002) argue that more dynamic agriculture, such as development of the horticulture sector, 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 increasing production and incomes of smallholder commercial farmers are the drivers of farm and non-farm rural linkages, particularly because their expenditure patterns tend to be directed to 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 rural non-farm economy on economic growth, employment and livelihood diversification.

Malawi is one of the countries in Southern Africa where agriculture plays an important role in the economy and livelihoods of rural people. It is estimated that in 2010 agriculture accounted for over 27% of gross domestic product, from 37% in 1994 (GOM, 2012). The agricultural sector also generates more than 80% of foreign exchange earnings and is the main source of livelihood for over 75% of rural households. The agricultural sector in Malawi is dualistic in nature comprising the estate sector and the smallholder sector. On the one hand, the estate sector specialises in cultivation of high value export crops such as tobacco, tea, sugarcane and coffee on leasehold land, and owns large parcels of land, holding more than 30ha per estate. On the other hand, smallholder agriculture remains an important source of livelihoods for the majority of the rural population, with approximately 84% of agriculture value-addition coming from 1.8 to 2 million smallholder farmers (who on average own only 1ha of land under customary tenure) (World Bank, 2003). Smallholder farmers focus mainly on rain-fed cultivation, producing maize largely to meet subsistence needs with limited participation in cash crops. Smallholder farmers cultivate small and fragmented land under customary land tenure with yields lower than those obtained on estates for similar crops (GOM, 2010). Traditionally, smallholder farmers participated in the

market economy through cultivation of cotton and groundnuts. However, since the early 1990s the liberalisation of tobacco production has enabled a number of smallholder farmers to participate in cash crops. However, more recently tobacco has become less profitable and riskier due to price fluctuations. This has led smallholder farmers to switch to new cash crops such as soya beans, groundnuts and horticultural products.

The dualistic nature of the agricultural system in Malawi offers opportunities to understand the links between agriculture and non-farm employment and how space and the interconnectedness of different players in the value chain shape the farm and non-farm employment nexus. Smallholder and estate agriculture can provide different articulations of farm and non-farm employment. The case studies in Malawi were conducted in Mchinji, one of the districts where estate agriculture co-exists with smallholder agriculture. Mchinji District is one of the districts which saw an influx of tobacco estates; however, with declining profitability of estate tobacco, most of the estates are used for production of other crops such as soya beans or basic maize seeds under contract with seed producers in Malawi.

The objective of the study was to investigate the spatial and institutional linkages between agricultural development and non-farm employment in the rural areas of Malawi. Specifically, first we explored the nature of spatial and institutional linkages that connect agriculture with non-farm employment, and the implications for employment, poverty, vulnerability and food security. Second, we developed an understanding of which kinds of agricultural development (with reference to scale, capital intensity, value chain governance and local political and administrative institutions) could support broad-based, employment-intensive rural development. The four main questions investigated in the study were:

- How are farm/non-farm linkages affected by spatial arrangements of production, processing, and market access, and by the organisation and governance of value chains?
- How are they affected by the social, institutional and political arrangements and relationships that shape these 'real market' relations and forms of economic coordination?
- How are they shaped by the scale and capital intensity of agricultural investment and development models? Do large-scale agri-investment and small farmer development have significantly different impacts on non-farm employment?
- What are the gendered poverty and employment impacts of different local spatial articulations of farm/non-farm employment?

This paper is organised as follows. *Section 2* describes the methodology used including selection of study sites and the framework for data analysis. *Section 3* provides the national policy context of agricultural development in Malawi and locates the study area within the parameters of agricultural systems in the country. We describe the main farming activities included in the case studies in the context of agricultural development in these areas. *Section 4* reviews agricultural policy reforms in Malawi. *Section 5* explores evidence on the spatial patterns of farm and non-farm activities in the study area, with particular emphasis on focal commodities in the context of the dualistic system of agriculture in Malawi. *Section 6* discusses the links that exist between the farm activities and non-farm activities in the case study areas. We also discuss the nature of these links in space and over time. In *Section 7*, we address the issue of patterns of accumulation and investments. *Section 8* provides concluding remarks.

Methodology

This study used a case study qualitative approach with a variant of snowballing network analysis to trace the linkages between farm and non-farm activities. The case study approach involved purposive selection of study area and farming household enterprises in the selected villages. The selection process involved three stages. In the first stage, Mchinji District in central Malawi was selected due to the existence of a number of large-scale agriculture estates among the many smallholder farming households. This was important for a comparative analysis of smallholder and estate agriculture non-farm employment outcomes.

Figure 1 shows the location of Mchinji District in Malawi. Mchinji is one of the districts in central Malawi bordering with Kasungu District, Lilongwe District, Zambia and Mozambique. The district headquarters (Boma) are located along the main road connecting Lilongwe (110km away) and the Zambian border (10km away). It has a population of close to half a million people who are predominantly of the Chewa and Ngoni tribes. Population growth in the area is attributed to high fertility rates and immigration into the district for livelihood purposes. The district also has estates where workers from other districts work as labourers or tenants. Owing to its closeness to Zambia, cross-border migration is common.

The second stage involved selection of areas that were largely dominated by smallholder and estate agriculture respectively. Using the pilot survey information on the relative concentration of smallholder and estate agriculture in Mchinji District, two Traditional Authorities (Mduwa and Mlonyeni) were selected for smallholder farmer case studies and two Traditional Authorities (Dambe and Mkanda) were selected for estate agriculture case studies. In the smallholder farmer study areas, two villages were selected for the study.

In the third stage, a listing of households was conducted to guide identification of the primary (tier 1) Enterprise Household Unit (EHU) involved in commercial agricultural production, using the village head as a key informant in each village selected. All smallholder farmers involved in smallholder commercial agriculture were identified. The criterion for identification was some involvement in agricultural production for the market. The smallholder commercial farmers identified were approached for interviews as first-level EHUs. The pilot survey revealed potential links in horticultural products and the selection of smallholder farmers aimed at a balance between the horticulture sector and non-horticultural crops. In Malawi, non-horticultural crops are crops typically grown by smallholder and estate farmers, often as export crops. Some of the non-horticultural crops cultivated by smallholder farmers in the study areas included maize, groundnuts, soya beans and tobacco. This process led to the identification of seven primary EHUs of varying scale involved in cultivation of cash crops including cabbages (three), Irish potatoes (one), tomatoes (one), soya beans (one) and groundnuts (one), which were the focal crops in the study. These crops were categorised into: (a) horticultural produce mainly consumed in the local economy (cabbages, Irish potatoes and tomatoes); and (b) non-horticultural exportable cash crops (soya beans

Figure 1: Map of Malawi showing Mchinji

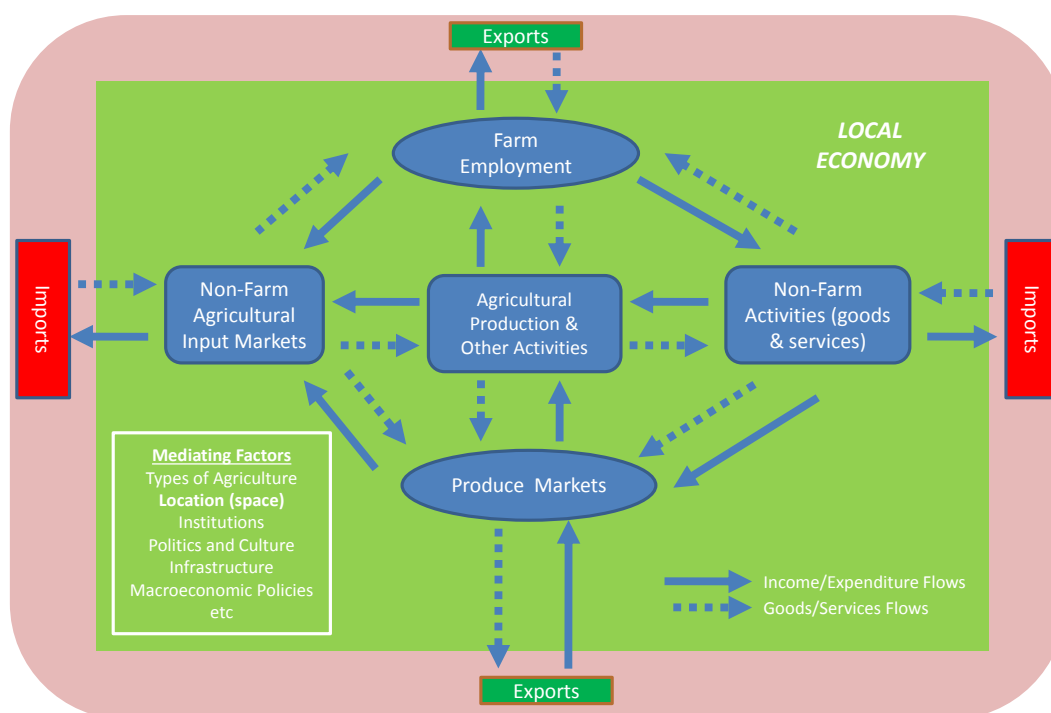


Source: Google Maps

and groundnuts). As noted below, most smallholder farmers in Malawi grow maize, which is used mainly for subsistence consumption with marketing of limited surpluses. While the smallholder farmers that engage in commercial agriculture may not be representative of all smallholder farmers, they were drawn from a group that are typically commercialising. Similarly, in estate areas the estates were approached for interviews and the selection considered coverage of the different focal commodities in the study. Four estates were selected – two specialise in flue-cured tobacco, one in soya beans and another in sunflower production.

Figure 2 represents the framework for exploring farm and non-farm links and their impacts on the local economy. There are two flows into and out of the local economy. On the one hand, if goods and services flow into the local economy, these represent import activities that promote employment outside the local economy and income outflows from the local economy. On the other hand, the flow of goods and services out of the local economy represent exports, bringing income into the local economy. Farming activities can create farm employment and the production activities can link to input markets and output (produce markets). Consumption and investment expenditures within the local economy are critical in creating non-farm employment activities within and outside the local economy.

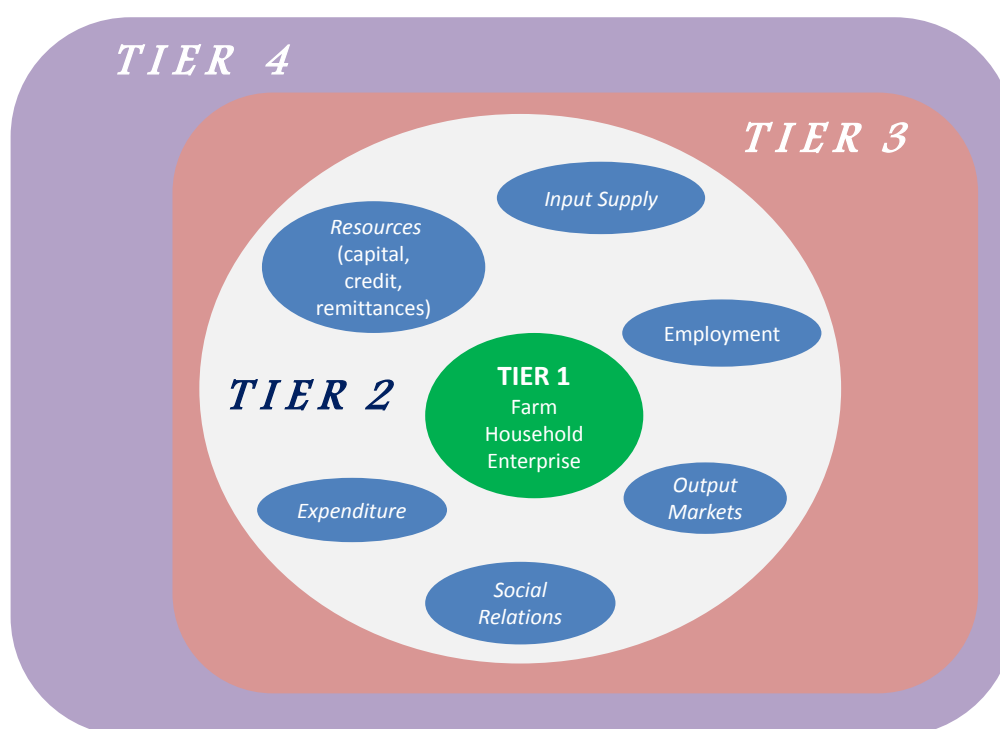
Figure 2: Farm and non-farm linkages in the local economy



The dynamism in the link between farm and non-farm activities is mediated by many factors – the kinds of agriculture (scale and intensity), location of economic activities including agglomeration economies, institutions, politics and culture, infrastructure and macroeconomic policies. For instance, in terms of scale of agriculture, Dorosh and Mellor (2013) argue in the case of Ethiopia that focusing on medium-sized farms may be critical in driving productivity and increasing farm incomes that are vital for the dynamism of the rural non-farm economy. Haggblade et al. (2010) also note that with limited transport and infrastructure in rural areas, commerce and trade remain marginal thereby constraining the size and the structure of the rural non-farm economy. Institutions such as land tenure systems that limit land markets may also impose limits to agricultural development.

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. *Figure 3* shows the classification of EHUs. The Tier 1 EHU was a commercial farm activity. Tier 1 activities were traced to Tier 2 activities with particular 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. The rule of thumb was to follow links that accounted for at least 20% of the income flows of the EHU. This resulted in a total of 90 interviews and 31 interviews with farmers and other players in the market and social chains in the smallholder sector and estate sector respectively.

Figure 3: Schematic framework for exploring networks and linkages



Overview of agricultural development in Malawi¹

Agricultural development in Malawi since independence has been based on a dual strategy: promotion of estate and smallholder agriculture. On the one hand, the estate sub-sector specialises in the cultivation of high-value export crops such as tobacco, tea, sugarcane and coffee. These estates are on leasehold land and own large parcels of land, holding more than 30ha of land per estate. Lele (1989) argues that the rapid expansion of estate agriculture, particularly for the production of tobacco, has resulted in a more unequal distribution of land in rural Malawi. Most estates grow high-value cash crops, and thus it is not surprising that estate-led agricultural development has been the main economic strategy in Malawi. On the other hand, the smallholder agricultural sub-sector remains an important source of livelihoods for a majority of the rural population and approximately 84% of agriculture value-addition comes from 1.8 to 2 million smallholder farmers (who on average own only 1ha of land under customary tenure) (World Bank, 2003). Under customary land, rights to cultivate and transfer land are conferred by traditional chiefs. In 1997/1998 it was estimated that one-third of smallholder households cultivated between 0.5ha and 1ha of land (GOM, 2001). The smallholder sector accounted for about 60% of agricultural gross domestic product. The Malawi Government subdivides the smallholder sector into three groups

¹ This section draws on Matita and Chirwa (2011).

in terms of landholding: net food buyers, intermediate farmers and net food sellers. Net food buyers have land of less than 0.7ha, intermediate farmers have land of between 0.7 and 1.5ha, and net food sellers have land of more than 1.5ha (Chirwa, 1998).

Several policies and policy changes have been introduced to support the dual agricultural strategy. Agricultural policies in Malawi can be divided into three main policy regimes: the pre-reform, reform and post-reform periods. The policies pursued during these periods have largely shaped the performance of the agricultural sector.

Table 1 presents the main policy actions introduced in each regime to promote economic growth in different sectors of the economy and the agricultural sector in particular. Most of the domestic policies in the pre-reform period (1964–1979) were geared towards provision of public support services and direct interventions in the agricultural sector through coordination of various policies. For example, the coordination of the state marketing agency, the Agricultural Development and Marketing Corporation (ADMARC), in the marketing of agricultural produce and guaranteed prices was highly linked to inputs and finance access by smallholder farmers. This period was also associated with macroeconomic stability in terms of low and stable inflation and interest rates. There was also high investment in public services including agricultural research and extension services. Some of these policies contributed to a growth in agricultural output, which grew in per capita terms by 1.9% per annum.

The reform period (1981–1994) was the period of structural adjustment programmes, with most policies aimed at reducing direct intervention by government in economic activities. Most of the reforms occurred between 1984 and 1994 with the liberalisation of agricultural marketing activities which allowed private sector participation in marketing of agricultural produce. The period also saw removal of subsidies on fertilisers and a series of devaluations of the Malawian Kwacha (MK). However, throughout this period the average annual growth rates in agricultural output per capita were negative: -2.7% in 1981–84, -1.8% in 1985–89 and -1.2% in 1990–94.

The post-reform period was characterised by a return to more direct government intervention in economic activities, particularly in the agricultural sector. The major policy intervention in the agricultural sector was implementation of the agricultural input subsidy programme. More recently, the government re-introduced minimum producer prices for agricultural crops grown by smallholder farmers, a return to policies that were popular in the 1970s. However, due to the involvement of the private sector in agricultural marketing activities and weak institutional capacity, it has been difficult for Government to enforce these minimum prices. The agricultural sector has performed well over this period, with agricultural output per capita increasing at 11.5% between 1996 and 1999, 0.3% between 2000 and 2005, and 8.4% between 2006 and 2010. The agricultural input subsidy has been the main policy in the agricultural sector since the 2005/06 season. The Malawi Government implemented an agricultural input subsidy programme providing targeted fertilisers and improved seeds to smallholder farmers as one way to improve agricultural productivity, increase growth and fight poverty (Chirwa and Dorward, 2013).

Chirwa (2014) notes that despite many policy reforms and the policy space occupied by the agricultural sector the structures of agriculture and the economy have not changed significantly. Agricultural productivity in Malawi remains low and the gap between productivity in Malawi and the rest of Africa remains high. The reasons for the ineffectiveness of agricultural policies include: policy incoherence and inconsistencies; incomplete implementation of development strategies; less focus on labour and land productivity; entrenched rent-seeking activities by institutions and smallholder farmers; and the 'one-size fits-all' policy framework for agricultural development in Malawi.

Table 1: Main agricultural policy actions and agricultural growth, 1964–2013

Period	Years	Main agricultural policy actions	Average annual agricultural growth per capita
		<ul style="list-style-type: none"> Active government involvement in economic activities – 	

Pre-Reform Period	1964–1980	<p>Malawi Development Corporation (MDC) and ADMARC investments.</p> <ul style="list-style-type: none"> • Overvalued exchange rate system – fixed peg. • Provision of extension services and active research in agricultural technologies, maize seeds and other crops. • Macroeconomic stability – low and stable inflation, low and stable interest rates. • Preferential lending to agricultural sector. 	1970–79: 1.9%
Reform Period	1981–1986	<ul style="list-style-type: none"> • Periodic increases in interest rates and agricultural prices. • Restructuring of state-owned enterprises. • Liberalisation of industrial output prices. • Periodic devaluation of the Malawi Kwacha. 	1980–84: -2.7%
	1987–1994	<ul style="list-style-type: none"> • Liberalisation of the financial sector and interest rates between 1987 and 1989. • Removal of preferential lending to agricultural sector in 1990. • Liberalisation of agricultural marketing services (output in 1987 and inputs in 1990). • Liberalisation of some agricultural produce prices in 1988. • Removal of fertiliser subsidies by 1991. • Privatisation of state-owned enterprises. • Liberalisation of entry into manufacturing in 1991. • Periodic devaluation of the Malawi Kwacha and eventual flotation in February 1994. 	<p>1985–89: -1.87%</p> <p>1990–94: -1.19%</p>
Post-Reform Period	1995–2013	<ul style="list-style-type: none"> • Removal of restrictions that prevented smallholder farmers from producing and marketing high value crops in 1995. • Export levy on tobacco and sugar in 1995 and eventual removal in 1999. • Reduction in base surtax to 20% in 1996. • Liberalisation of prices for all crops except maize and introduction of a maize price band in 1996. • Privatisation of state-owned enterprises since 1996. • Devaluation of the Malawi Kwacha in 1998. • Elimination of the maize price band in 2000. • Agricultural input support programmes for smallholder farmers such as Starter Pack and Targeted Input Programme. • Introduction of a national agricultural input subsidy programme since 2005/06 season. • Government setting of minimum producer prices. 	<p>1995–99: 11.5%</p> <p>2000–05: 0.36%</p> <p>2006-10: 8.14%</p>

Source: Matita and Chirwa (2011)

2 Overview of case study farming activities

Smallholder agriculture value chains

Seven EHUs engaged in commercial farming were identified at Tier 1. As shown in *Table 2*, their landholding sizes ranged from 1.42ha to 12.9ha and half of the households rented land for farming activities. Land in smallholder agriculture is under customary tenure. Diverse types of crops were grown for both food consumption and commercial purposes. In the 2012/13 farming season, households allocated between 0.2ha and 0.4ha of *dimba* land for cultivation of horticultural crops (such as tomatoes and cabbages) and about 1ha for groundnuts and soya beans. All households were reportedly net food sellers. In the following section, the selected case studies are presented in detail.

Irish potato smallholder farmer (DP)

This farming enterprise has seven household members with two economically active members providing family labour. The 43 year-old head of the enterprise has only completed eight years of education. The household owns a radio and a bicycle, but does not live in a house with a smoothed cement floor. The EHU grew a diversity of crops in addition to Irish potatoes, including cabbages, sunflowers, maize and cassava. The enterprise is located 8km from a local shopping area, Kamwendo Trading Centre. Irish potatoes were grown twice a year, using recycled seedlings, with the major purchased inputs being fertilisers and labour. The enterprise earned a gross income of MWK119 900 (\$357.25) from Irish potato production during the two seasons in 2012. This represented 71% of total sales and a 239% return on investment. EHU1 earned a profit of \$3.25 per 20kg pail of Irish potatoes. With a household size of seven people, the gross earnings from Irish potatoes were equivalent to a contribution of \$0.14 per capita per day. This EHU had five downstream links comprising two input (seeds, fertilisers and chemicals) supply links, two employment links and one capital resource link. Spatially, all these links occurred within a radius of 36km. There were also four main upstream links in the form of buyers of Irish potatoes and two consumption expenditure links. The kind of employment generated in Irish potato production was casual labour, where workers receive wages as soon as they have completed the agreed tasks. The EHU head saved some of his profits at a commercial bank. Most of the Irish potatoes from this EHU were sold to unidentified buyers and food vendors at Kamwendo Trading Centre. It was reported that MWK95 000 (\$283) from the Irish potato earnings in 2012 was placed in a savings account at a commercial bank in the district centre. There was no indication that Irish potato farming was supported by a line of credit from any financial institution.

Once the household had harvested the Irish potatoes, they were marketed to various buyers within Malawi and neighbouring Mozambique. The biggest buyer was from Mozambique (15km away). Information on the availability of the Irish potatoes was obtained through telephonic contact. Other buyers were two potato chip vendors from the nearest (12km away) trading centre of Gambatula, and one from Kamwendo Trading Centre (18km away). To market the crop, DP approached vendors selling chips at trading centres. Alternatively, mobile buyers approached him after learning that the product was available from other villagers.

This EHU spent most of his income from Irish potato farming on household and personal items within the local economy. The shop where he bought groceries is within a radius of 18km from the enterprise, and he spent money on clothes at a market located 8km from his dwelling. Most of his consumption expenditure from Irish potato income supported non-farm activities within the local economy.

Tomato smallholder farmer (GZM)

This medium-sized farming household enterprise unit delivered livelihoods from a diversity of farming activities. GZM began tomato farming after obtaining seeds from a friend but later he bought commercial seeds. The EHU lies within 18km of a main trading centre in the area, Kamwendo Trading Centre. Tomatoes were cultivated twice a year and the main inputs, in addition to seeds, were organic manure and *ganyu* labour, especially for land preparation. The main labour inputs were provided by the family, estimated at 141 person-days compared

to 59 person-days of hired labour. In 2012, this EHU realised a gross profit from tomato production estimated at MWK123 980 (\$369.41). The net income was 69% of the sales revenue and represented a 221% return on investment. Tomatoes were sold per pail of 20kg. This EHU sold 56 pails of tomatoes and realised a gross profit of \$6.60 per pail. The major inputs in terms of costs were labour, followed by chemicals and fertilisers. All of these inputs were sourced within the local economy (in a radius of 36km). Most of the income was spent on immediate consumption purchases within the local community.

Tomato production requires fertiliser (obtained from Farmers' World, Export Trading) and chemicals to deal with pests and disease (from Agriculture Trading Company 36km away and agro-dealer shops at Kamwendo Trading Centre 17km away). The transactions were on a cash basis and spot trading. Land preparation was done by *ganyu* labourers and family relations. *Ganyu* opportunities were generally advertised by word of mouth among the villagers with employment offered on a 'first come, first served' basis. There was, however, a process of bargaining over wages with potential employees negotiating with the employer based on the tasks. This EHU employed two people for land tilling and five to help with pitting sticks to support the tomato trees when they are bearing fruit. Planting (of about 4 000–5 000 trees) was done using mainly the family labour of the farmer and his wife.

Since Mchinji District is on the border with other countries, tomatoes were marketed to Malawians, Zambians and Mozambicans. These vendors were within a radius of 18 to 20km of the EHU, with the farthest being 42km away. Telephonic communication was used to inform customers of the availability of the product, and there was no organised marketing of tomatoes. Some farmers who did not rely on the sale of tomatoes as their chief source of income tended to sell at give-away prices. This caused losses for other farmers as tomatoes are perishable and cannot be stored for a long period. The instability in tomato prices and vulnerability to pest (red spider) attacks on tomato trees pose a challenge to this livelihood.

Two significant consumption expenditure links were identified: general expenses for groceries and daily needs, and education. The EHU used some of the income obtained from tomato sales to purchase household assets, such as bicycles and kitchen utensils, and to buy groceries at a nearby village shop located within 1km. The EHU invested some income in children's education, with a significant proportion of income spent on school fees. The household also invested some income in a 0.4ha piece of farm land bought within the village.

Soya bean smallholder farmer (MD)

MD is a medium-sized commercial farmer who grows a diversity of crops on different plots. In the 2012/13 agricultural season, MD had a total of 2.4ha of land – and cultivated soya beans on 0.8ha, maize on 1ha and groundnuts on 0.6ha. About 1.6ha of the land owned by MD was inherited from his parents, while the rest of the land used for cultivating crops was rented from within the village. Soya beans were selected as the focal commodity as they were ranked the most important cash crop for the EHU. The EHU has been growing soya beans since 2010/11, switching from tobacco production due to low returns and high fertiliser costs. MD decided to venture into soya bean farming because it did not require application of fertiliser. Initial seeds for soya bean production were purchased from another farmer within the village for the 2010/11 season, with recycled seeds used in the following season.

The production of soya beans was described as simple and less demanding in terms of the inputs required. In 2012/13, MD used 0.8ha for cultivation of soya beans and harvested 15 50kg bags of soya beans. In 2012/13, he obtained 12kg of seeds from the National Association of Smallholder Farmers in Malawi (NASFAM)² on loan, and

² The National Association of Smallholder Farmers of Malawi (NASFAM) promotes commercialisation of smallholder farmers by emphasising the objective of 'farming as a business' (Chirwa and Matita, 2012). The services provided include input and output market access, farmer training and extension services. In the context of the network of the farmers in this study, NASFAM provided soya bean seeds on credit to smallholder farmers including EHU3. It has an office at Kamwendo Trading Centre, opened in 2000, with nineteen permanent employees and twelve seasonal employees to transport inputs to farmers and offer extension services. NASFAM offers various services to farmers including a) extension services through clubs supported by NASFAM field assistants; b) transportation of farmers' (members and non-members) tobacco to auction floors – NASFAM contracts transporters and agrees on the price, transfers the cost to farmers at a price that becomes a benefit; c) links farmers to institutions offering inputs (seeds, fertiliser) on credit – NASFAM agrees on the price with institutions and the cost to farmers, charges a commission as benefit; d) output market by buying crops like soya beans and groundnuts from farmers. These crops are then sold to companies for further processing. Farmers are organised into clubs of 10–15 people to acquire soya seeds on loan, and membership costs MWK3 000. The soy bean credit programme is a three-year programme which started

returned 24kg of soya beans at the end of the season. NASFAM is within 18km of this EHU and MD is a member of a local NASFAM club. The major cost factor in soya bean farming is hired labour, followed by land rental. No fertilisers and chemicals were used in the cultivation of soya beans in the 2012/13 season. MD earned a gross profit of MWK40 200 (\$119.78) from soya bean farming. The net profit margin was 62% of sales and represented a 162% return on investment. The labour content in the production of soya beans was 40 person-days comprising 25 person-days of family labour and 15 person-days of hired labour. Hired labour was used for ploughing and weeding while family labour was used in land clearing, weeding and harvesting. Hired labour was in the form of *ganyu* workers from the same village. Such job opportunities are advertised by word of mouth to other village members.

Table 2: Farming characteristics of smallholder farmer case studies (2012/13 season)

Focal commodity (number of cases)	Total land size (hectares)	Land under focal crop (hectares)	Other crops cultivated	Household Size	Farmer group
Irish potatoes (1)	5.75	1.0	Cabbages, sunflowers, maize, cassava	7	Net food seller
Tomatoes (1)	12.9	0.001	Maize, Irish potatoes, sweet potatoes, groundnuts, onion, soya beans and beans	5	Net food seller
Cabbages (3)	1.42	0.4 (rented)	Groundnuts, onions, tomatoes and maize	6	Net food seller
	1.42	0.202	Maize, groundnuts, tomatoes, rape, turnips	2	Net food seller
	1.62	0.202	Groundnuts, maize	11	Net food seller
Soya beans (1)	1.62	0.81 (rented)	Maize, groundnuts, cassava	5	Net food seller
Groundnuts (1)	6.07	0.81 (rented)	Tobacco, soya beans, maize, tomatoes, turnips	5	Net food seller

Source: Case studies

MD described the marketing of soya beans as disappointing because farmers are price takers in the value chain and are usually offered low prices by vendors and companies like Bonga Investments and Mulli Brothers. These companies send out mobile buyers and during harvesting season can be found by the roadside in the villages and at trading centres with purchasing points. Prices are displayed publicly and sellers can compare the prices (though usually they are uniform). In 2012/13, the household sold soya beans to mobile traders in their village and MD could not identify them. It was noted that although NASFAM had promised to buy the output as part of a credit arrangement, this had not materialised and the farmer sold soya beans at lower prices (MWK100 per kg later in the season compared to the expected price of MWK200 per kg).

The income from sales of 2012/13 soya bean output was spent mainly on farm input purchases (fertiliser) from Kamwendo Trading Centre (18km away) in preparation for the 2013/14 farming season. Other purchases at the trading centre included iron sheets and kitchen utensils at Farmers' World (within a radius of 18km). Other funds were used for maize milling and family groceries bought from within the village (1km).

MD had fewer links to follow due to the use of recycled seeds and the sale of produce to mobile traders that could not be identified. The *ganyu* worker engaged in farming had moved out of the area during the study and one input supplier refused to be interviewed because he was busy. There were eight Tier 2 links identified and only three were interviewed, including NASFAM and Farmers' World at Kamwendo Trading Centre, a grocery owner within the village and the chairperson of the Village Savings and Loan group.

in 2012/13. Members must have land to cultivate the crop. Each member gets 12kgs of soya bean seeds and repays twice the amount (24kgs) after harvest. NASFAM further bought farmers' soya beans produce in the 2012/13 season at an average price of MWK190 per kg.

Cabbage smallholder farmer (CBK)

CBK is a smallholder commercial farmer with 2.4 ha of land. He is originally from a neighbouring district of Kasungu, but relocated to Mchinji in 2009 to start cash crop production, especially *dimba* (wetland) farming of cabbages. CBK began growing cabbages in 2010 using crop management skills he learned from his brother-in-law. CBK grew other crops including groundnuts, onions, tomatoes and maize for both food consumption and cash income. He rented 0.4ha of land every year for *dimba* farming.

The main inputs in the production were fertilisers, chemicals, seeds, labour and land. Fertilisers accounted for 57% of the production costs, followed by labour costs accounting for 15%. CBK grew cabbage twice a year. He estimated he would make a gross profit of MWK140 400 (\$418.33) for the first season cabbage heads, which had not yet been sold. CBK expected to earn 136% back on his investment, and his gross earnings on cabbages comprised 70% of total sales. The marketing costs were for transport of goods to the market. Assuming that the cost structure remained the same for both production cycles, CBK would earn about \$836.66 per year from cabbage farming, equivalent to \$0.46 per capita per day.

The non-labour inputs in the cultivation of cabbages included land, chemicals, seeds and fertilisers, purchased at Kamwendo Trading Centre (mainly from agro-dealer shops, sometimes from Farmers' World). These input supply sources were within 31km of the EHU. Seeds were purchased from the agro-dealer at Mchinji Boma within a radius of 31km, while chemicals and fertilisers were purchased from two agro-dealers based at Kamwendo Trading Centre. Apart from inorganic fertilisers, CBK also used organic manure and hired an ox-cart to transport this from his home to the field.

CBK used family labour mostly for his cabbage farming. However, in the 2012/13 agricultural season two *ganyu* workers from the same village were employed for land preparation (clearing and ploughing). The labourers set their price and the buyer negotiated. The *ganyu* workers were paid in cash after completing agreed tasks. A total of 2 person-days of hired labour and 31.5 person-days of family labour were used for cultivation of cabbages, with an additional 7.5 person-days of family labour used for marketing.

There was high competition in the area because most households grow cabbage as a cash crop. There were different channels through which CBK marketed his cabbages. Firstly, buyers came to the village and the price was set for the area. Once the price was agreed, the harvesting was done by the buyers. CBK was introduced to the buyers by friends who were producing cabbages. Secondly, CBK took cabbages to various markets in the local area (within 35km), using his bicycle as transport. In cases where he had more to sell, CBK hired two bicycle taxis in the village. He claimed that his buyers were usually intermediary customers who sell on to final consumers. CBK usually set the price and allowed for negotiation from the buyer.

The proceeds realised from cabbage sales were used to buy fertiliser, seeds and chemicals in preparation for next season, groceries, remittances and payment of land rentals. In terms of consumption expenditure, there were two main shops where CBK spent a higher proportion of money for household groceries, one within 1km of the EHU and another within 13km. The other expenditure was in the form of remittances to relatives in Lilongwe and Kasungu and to two relatives within the village. One of the recipients was his divorced daughter-in-law, for whom he bought a bag of fertiliser and seeds plus cash.

At Tier 2, there were two links of employment on CBK's cabbage farm in the form of *ganyu* workers and over ten links to non-farm activities. CBK had five capital resource links including credit (one), savings (one) and remittances (three), all of which were within 1km of the EHU. CBK also used bike taxis and hired an ox-cart to transport produce to the market, and these were obtained within the local economy (2km away).

Groundnut smallholder farmer (PE)

PE is a medium-sized smallholder commercial farmer who owns 6ha of land, inherited from his parents, and rented an additional 1.6ha for growing tobacco and groundnuts; PE used 1.2ha for tobacco, 0.8ha for groundnuts, 1.2ha for soya beans and 2–4ha for maize grown for food and cash sales. He started farming in 2002 but migrated to cash crop farming in 2011. PE also grew vegetables twice a year, primarily for household consumption, and kept livestock at the household level. To supplement household income, he hired out his ox-

cart. Groundnuts were the third most important crop for the household, after tobacco and maize, and were chosen as a focal crop because they are a non-horticultural cash crop.

PE did not use fertilisers in groundnut production and also used recycled seeds from the previous season. He bought the initial seeds from a friend some seasons previously. The only inputs that required cash were land rental of 0.8ha, on which he cultivated groundnuts, and hired labour. It seemed that groundnuts were highly cross-subsidised with other produce sales. He only earned a gross profit of MWK14 700 (\$43.80), representing a 35% gross margin and 56% return on investment. Groundnut farming only brought in the equivalent of \$0.02 income per capita per day to the household.

This EHU grew the CG7 type of groundnuts and therefore did not spend much on fertiliser. The EHU used a total of 85.4 person-days of labour for groundnut production. Most of this was hired labour in the form of *ganyu* workers (53.4 person-days) for ploughing, weeding and harvesting. Of the hired labour, 31.5 person-days (employing six people) were used in harvesting of groundnuts. PE faced no challenge in finding *ganyu* workers and sometimes he used relatives (a sister and a brother) who offered their labour in exchange for money and social protection. Some wages were paid in cash while others were paid in-kind, depending on the agreement reached.

The EHU sold groundnuts mainly to vendors who came from all over Mchinji such as Mikundi and Kapiri trading centres. These were mobile vendors and PE was unable to identify them for subsequent follow-up. Some of the income from groundnut sales was made within the local area. He obtained groceries from shops within the village and trading centre shops for farm inputs, food items and remittances to relatives.

The EHU also provided unsecured loans, known as *katapila*, to fellow farmers or local people who run small businesses to supplement household income and diversify their investment portfolio. *Katapila* loans usually attract high interest rates (as high as 1.200% or 100% per month). PE also owned livestock (cattle and pigs) for both household consumption and business purposes. The farming business was linked to a bank where he deposited his savings – NBS Bank at Mchinji Boma, which is within 36km of the household. In terms of downstream and upstream links, at Tier 2 there were five capital resource links related to savings, land rentals, informal credit and two remittances and four consumption links. No buyer of groundnuts was identified by the farmer as his groundnuts were all sold to mobile traders not known to him.

Estate agriculture value chains

With regard to estate level farming, four estates were identified with an average of 323.5ha of land, some of which was left fallow in a growing season. The estate sector produced for organised markets such as the auction floors for tobacco and seed companies for maize such as Monsanto and Seed Co. The number of skilled workers employed on a permanent basis tended to be lower, while estates periodically engaged an average close to 261 casual labourers for various farming activities, as depicted in *Table 3*. Like smallholder farmers, estates cultivated a diversity of crops, mainly cash crops.

Sunflower estate (EE)

EE is a company that owns four estates in Mchinji District, and estates in other districts of Malawi, with its head office in Lilongwe. The estate covers 250ha of arable land and an additional 12ha which is under forest cover. The land is held under a lease agreement with Press Agriculture for a period of 30 years commencing in 2012. In 2012/13, five types of crops were grown – soya beans (38ha), groundnuts (115ha), sunflower (54ha), maize (11ha) and sun hemp (10ha). Soya beans, groundnuts and maize were grown for seeds on behalf of seed companies (Pannar Seed Co, NASFAM and FUNWE) in Malawi.

Like other estates, most of the financial decisions were made at head offices situated outside Mchinji District, our local economy for purposes of this study. The input markets and output markets were only known at head offices. The estate office had figures on production and human resources and thus only links to employment were explored. Apart from the inputs and output markets, links followed up with employees of the estate occurred within the local areas and involved mainly the spending of wages and income on groceries and farm inputs obtained within the local economy.

The estate had fourteen permanent workers that initially joined as casual labourers on sister estates of the company, and these workers were provided with free accommodation on the estate. Casual labourers were also employed depending on how much work was needed. In the 2012/13 season, about 240 casual labourers were engaged but some worked for only a few days. The casual labourers operated from their homes and a large proportion of these workers came from the villages surrounding the estate. The work is manual so no academic qualification was required as long as the worker looked healthy. Estate *ganyu* workers were paid MWK400 per day and were expected to work six days a week. All payments were made to the labourer at the end of the month depending on the number of days worked and whether they had completed their tasks. The rate of MWK400 per day was decided by estate owners in consultation with the managers; workers had no say in how much they received. Permanent workers were paid a salary and the amounts varied depending on experience and skills.

As part of its corporate social responsibility, the estate reached out to the surrounding communities through extension services and education support. The estate had an extension worker who offered advisory services to surrounding villages on food and cash crop production to ensure that communities were food secure and financially stable. There was also a free Community Based Child Centre where all estate workers could enrol children aged below five years. The estate also provided soft loans to permanent employees in the form of farm input loans up to two bags of fertiliser. In addition, employees were entitled to a loan of a 50kg bag of maize.

Table 3: Estate case study characteristics (2012/13 season)

Sub-sector & focal commodity (number of cases)	Total land size (hectares)	Land under focal crop (hectares)	Other crops cultivated	Number of permanent employees	Number of casual employees (all crops)
Tobacco (2)	300	40	Maize, soya beans	17 (skilled)	340
	300	80	-	12 (skilled)	200
Sunflower (1)	262	54	Soya bean, groundnuts, maize, sun hemp	14 (skilled)	240
Soya beans (1)	432	143	Maize, groundnuts, sunflower, barley tobacco	52 (skilled)	265 (100 tenants)

Source: Case studies

Flue-cured tobacco estate (LE)

LE has been run by a multi-national tobacco company since 2004. The head office is located in Lilongwe, over 100km away from the estate, and controlled all operations. The estate had 300ha of land. The main crop cultivated was flue-cured tobacco, which was allocated 40ha of land. The estate practiced rotational farming, alternating between tobacco and maize. The land on which the tobacco was grown in one season was then allocated for estate workers to grow their own maize.

Both the input sources (seeds and fertilisers) and output markets were known by the head office in Lilongwe. The only input with local economy interactions was the labour market. All second tier activities linked to the estate were estate workers and these in turn linked mainly to local grocery shops and farm input suppliers operating within the local economy. Tobacco was sold at the auction in Lilongwe.

The estate employed seventeen permanent workers in positions such as managers, clerks, supervisors, track operators, mechanics and watchmen. The estate also engaged casual workers, depending on the stage of tobacco production, and the numbers could range from 40 to 300 casual workers. On the one hand, all skilled positions were advertised and successful candidates were offered jobs after being interviewed. On the other hand, labourers walked in to ask for work and were employed if there was work available. The workers came from districts across Malawi, including villages surrounding the estate, with estate workers from other districts housed on the estate. For labourers the wage was MWK420 per day. Other employee benefits included credit facilities to purchase farm inputs and to purchase maize.

Soya bean estate (KE)

KE is one of the estates owned by a sole proprietor based in Lilongwe. The estate has 432ha of land, of which 69% is arable. Several crops were grown at the estate including burley tobacco (78ha), commercial maize (22ha), seed maize (70ha), soya beans (143ha), groundnuts (17ha) and sunflower (17ha). Maize seed was cultivated on contract with one of the seed companies in Malawi. Soya bean production started in 1996 and was identified as a focal crop for the estate.

Like the case studies of other estates, input and output markets were managed by the head office, located outside the local economy defined for the purpose of the study. The only Tier 2 links to the estates identified were employees of the company, who through spending of their wages and incomes link to local grocery shops and input supply, especially workers who also engaged in farming activities. Marketing of soya beans was handled at head office, and two large companies outside the local economy were identified as the main buyers.

The estate had three kinds of labour modalities: tenancy, casual labourers and skilled workers. First, with respect to tenancy, share cropping was used whereby a tenant was allocated 2.4ha of land, 50% of which was used for household production. Large households were usually allocated more land. The tenants had to meet minimum production targets of 1 000kg per 0.4ha to continue as tenants. In the 2012/13 season, the estates had 100 tenants involved in tobacco and soya bean production. Second, the estate engaged 160 casual workers during the 2012/13 season, about 40% of whom were women. These workers earned MWK440 per day, a rate that was not negotiable and was paid at the end of the month. The other benefits for the group of non-casual workers included housing on the estate, leave days, funeral expenses, free lunch on working days, and access to loans of maize flour or grain. Third, there were 52 skilled workers (commonly referred to as staff members) on the estate, who were engaged in office work rather than farming, with four on a fixed salary while the rest were paid daily like labourers. This category included clerks, mechanics, and the head supervisor. The estate workers were drawn from within Mchinji and other districts such as Kasungu, Lilongwe, Dedza, Mangochi, Machinga and Zomba. It was estimated that about 30% of the 100 tenants were from within Mchinji District and villages surrounding the estate.

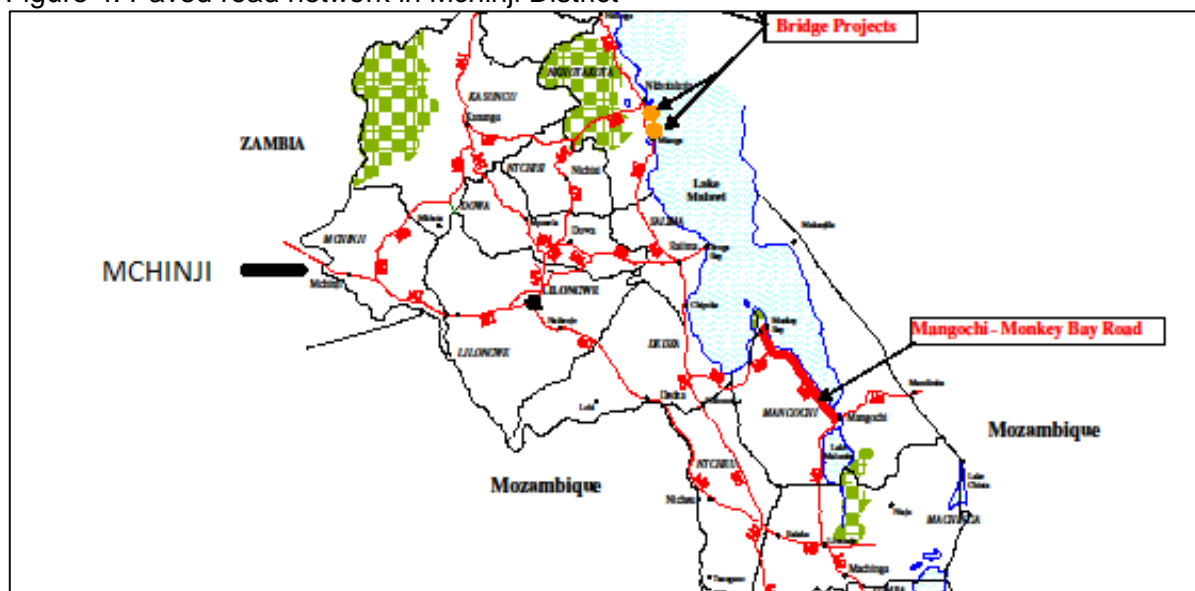
3 Spatial patterns of farm and non-farm activities

Infrastructure and public services

Mchinji is one of the districts in central Malawi bordering with Kasungu District, Lilongwe District, Zambia and Mozambique. The district headquarters (Boma) is located along the main road connecting Lilongwe (110km away) and the Zambian border (10km away). It has a population of close to half a million people who are predominantly of the Chewa and Ngoni tribes. Population growth in the area was attributed to high fertility rates and immigration into the district for livelihood purposes, particularly immigrants from southern Malawi where land pressure is high. The district also has estates where workers from other districts work as labourers or tenants.

Most of the road infrastructure in the district was in the form of unpaved roads. There were two main paved roads: one connected Lilongwe to the Zambian border town of Chipata, passing through Mchinji District headquarters, and another connected Mchinji District with Kamwendo Trading Centre on the Lilongwe-Mchinji road, some 30km from Mchinji District headquarters. *Figure 4* shows that, as with many other districts in Malawi, most of the district was not accessible through paved roads. Most of the rural areas in Mchinji were accessible through secondary and tertiary roads, which become impassable during the rainy season. Public transport, in the form of buses and minibuses, was widely available on these routes. All cases for smallholder farmers and estates were in remote locations with poor road networks. The most common forms of transport for movement of goods and produce by smallholder farmers were bicycles, bicycle taxis and ox-carts. However, for estates most of the goods were transported by vehicles organised by estate owners at the head offices outside the local economy.

Figure 4: Paved road network in Mchinji District



The poor road infrastructure has implications for the availability of other services and industries in the district, with a greater proportion of existing enterprises at a small-scale level. Business classification included industries (carpentry, bakery and confectionery, construction etc), trading (hawkers, retailers, wholesalers and bottle stores), and services (rest houses, restaurants, garage, and transport). Agriculture remained the second largest employer in Mchinji District in terms of wage employment: of the population aged 15 years and above and in wage employment (6.2%), 30% work in agriculture, 4% in manufacturing, 7% in construction, 15% in retail and

wholesale, 5.5% in transport and communications and 37.9% in community and social welfare services (NSO, 2012).

There are some banks within the locality offering limited services like the National Bank of Malawi, Opportunity Bank, that offer mobile services to trading centres, New Building Society, and Malawi Savings Bank. Credit facilities were also available from a few lending institutions, village savings banks or fellow farmers, with the main providers of credit being the Malawi Rural Finance Company (MRFC), Foundation for International Credit Assistance (FINCA) and Malawi Rural Development Fund (MARDEF). However, the spread and reach of formal lending institutions was limited with only 8.1% of households in Mchinji District estimated as having obtained a loan in 2010/2011 (NSO, 2012).

Crop produce markets were both formal and informal. Formal markets were regulated and recognised by the government. The District Socio-Economic Profile identified nine formal markets – Agricultural Development and Marketing Cooperation, National Smallholder Farmers Association, Farmers' World, Nyiombo Investments, Kulima Gold, Smallholder Fertilizer Revolving Fund of Malawi, Agriculture Trading Company, Export Trading and Chipiku Stores. Most of these were branches of local supermarkets and large retailers who source products from their head offices located in Lilongwe and Blantyre. Apart from buying farm produce these firms also make farm inputs available to farmers either on credit, government subsidy or by commercial sale. The major mode of transporting farm produce and other heavy luggage remained ox/donkey carts, with bicycles used commonly for small quantities. Informal trade happened among farmers – some farmers buy and resell farm produce – and mobile vendors from surrounding places or during market days.

The public services available for smallholder agriculture, particularly extension services for smallholder farmers, are somewhat limited. Following structural reforms, government introduced demand-driven and pluralistic agricultural extension service delivery in 2000 that allowed other agencies to provide extension services to smallholder farmers (Masangano and Mthinda, 2012). In spite of this development, extension services remain wanting in the agricultural sector. Studies show that only about 13–14% of smallholder farmers were reached by the extension system (NSO, 2005; Chirwa and Dorward, 2013). Many studies have identified capacity constraints in the delivery of extension services in Malawi; for instance, Chinsinga and Cabral (2008) reported extension worker–farmer ratios in the region of 1:1000 in Dedza and 1:3000 in Thyolo. This compares unfavourably with the planned extension worker–to–farmer ratio in the range of 1:750 to 1:850 in the block extension system (Masangano and Mthinda, 2012). Masangano and Mthinda also noted that the government extension system was over-stretched, operating with a 40% vacancy rate, and that such resource constraints were also evident in non-governmental agencies offering extension services to smallholder farmers. Following structural adjustment programmes, Government reduced extension staff through a policy of non-replacement of vacant positions and reduced funding to extension training institutions (MoAFS, 2010).

Patterns of settlement and socio-economic characteristics

The spatial patterns of settlement in rural Malawi are defined by variations in soil types and typology. Typically, smallholder farmers live close to their farm land with no specific patterns of settlement. Mchinji has two terrains – the hilly western part consisting of Mchinji mountain ranges and plains of arable land, *dambos* and waterways. Over 90% of the population relies on agriculture as its main source of livelihood, income and employment. Although the agricultural system in Malawi is dualistic – smallholder and estate sectors – the agricultural activities in the survey areas are dominated by smallholder farmers growing food and cash crops. Smallholder farmers have small land holdings of not more than 3ha, which are usually fragmented into several plots under the customary land tenure system that accounts for 53% of the land. On the other hand, the leasehold tenure system (mainly estates and business premises) accounts for 16% of the land. Main crops cultivated include maize, groundnuts, tobacco, Irish potatoes, sweet potatoes and various bean types including soya beans. In the past households used to inherit land from relatives; however, the current practice is that households must buy or rent in land to practice their farming if they do not have enough land. Apart from the district headquarters, there are small towns in the district that act as market centres with a sizeable concentration of population and a number of business enterprises.

It was estimated in 2012 that 65.1% of the population aged 15 years and above spent most of their time on household agricultural activities; only 7.1% were involved in non-farm activities; 10% were in casual (*ganyu*)

labour; and only 6.2% were in wage/salary employment (NSO, 2012). Household surveys also showed that about 20% of households in Malawi and 17% of rural households operated non-farm enterprises. For Mchinji District, 19.9% of households operated non-agricultural enterprises, with the bulk of this being in retail and wholesale, accounting for 58.3% of non-agricultural enterprises, followed by 30.2% in manufacturing activities (NSO, 2012). Most of these non-farm enterprises were started with own savings as a source of business capital, with only about 5% of the enterprises being financed through credit. This was also the case with most business enterprises in the case studies. It was also estimated that 84.2% of the products of non-farm enterprises were sold to final consumers, 9.3% to traders and 6% to other small business enterprises.

Most of the non-farm enterprises in Mchinji were sole proprietorships with 82.4% having one household member engaged in the non-farm enterprise and 15% engaging two family members. About 90% of the non-farm enterprises in Mchinji did not employ other members to operate these enterprises, and of the 10% that provided paid employment, a majority of these non-farm enterprises (7.8%) employed one person.

In 2012, the proportion of people in Malawi living in poverty was 50.7%, with 24.5% classified as ultra-poor.³ Poverty was also widespread in the rural areas with 56.6% living below the poverty line and 28.1% being classified as ultra-poor. The poverty statistics for Mchinji District showed that 55.5% of the population was living below the poverty line, with 31.9% being ultra-poor. The average consumption per person per year was estimated at MWK45 708 (\$304) for Mchinji District compared to a national average of MWK54 568 (\$363) and MWK43 055 (\$286) for rural Malawi (NSO, 2012). In terms of ownership of assets, household surveys showed that in Mchinji District, 39.9% of households owned a radio, 48.8% owned a bicycle and 30.5% had access to a mobile phone.

Spatial extensiveness

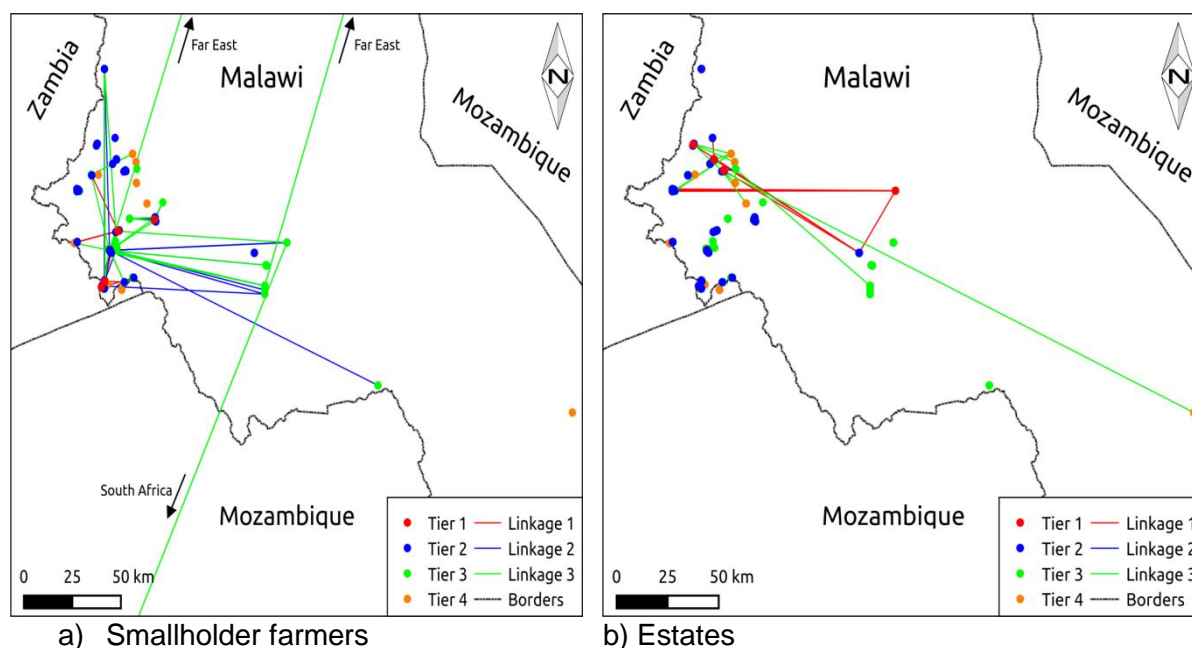
The mapping of linkages for smallholder and estate case studies is provided in *Figure 5*, with panel (a) representing all smallholder case studies and panel (b) representing all estate case studies (detailed maps are annexed to this report). All the smallholder case studies showed that the links are short and quite dense. With the exception of the outlets of the major input distributors, whose inputs come from the head office of input suppliers owned by chain stores, most of the linkages in the smallholder subsector occurred within Mchinji District. Nonetheless, there was also a high incidence of spot trading in the smallholder sector (farmers rarely knew the customers who bought their produce). The network analysis revealed that most of the links in the smallholder sector for horticultural crops did not extend more than 50km from the first tier enterprise (smallholder farmer) to the third tier enterprise. The case studies in horticultural produce revealed high circulation of income flows within the local economy.

The case studies showed that smallholder agricultural development has potential to create more multipliers in the local economy through farm employment and linkages to local input suppliers and local small-scale businesses that keep rural economies buoyant. There was high circulation of money in the local economy from smallholder agricultural production, particularly in agricultural produce with a local market. There were both downward and upward linkages within the local economy in the smallholder sector.

The smallholder sector contrasted sharply with the estate sector. In the estate sector, there were few linkages due to the fact that most of the input and output market decisions occurred outside of the local economy. All estates in the study had their head offices in Lilongwe, farm inputs were directly procured by the head office and farm produce was sent to head offices for sale. The main linkage that occurred within the local economy was employment of estate workers; all skilled workers were recruited from the head office and only casual workers were drawn from the local economy. The main linkages with the local economy in the estate sector were employment and consumption expenditure. However, since most of the skilled workers were drawn from outside the district, some of the wages were spent outside the local economy through spot buying in Lilongwe or through remittances to the workers' original homes.

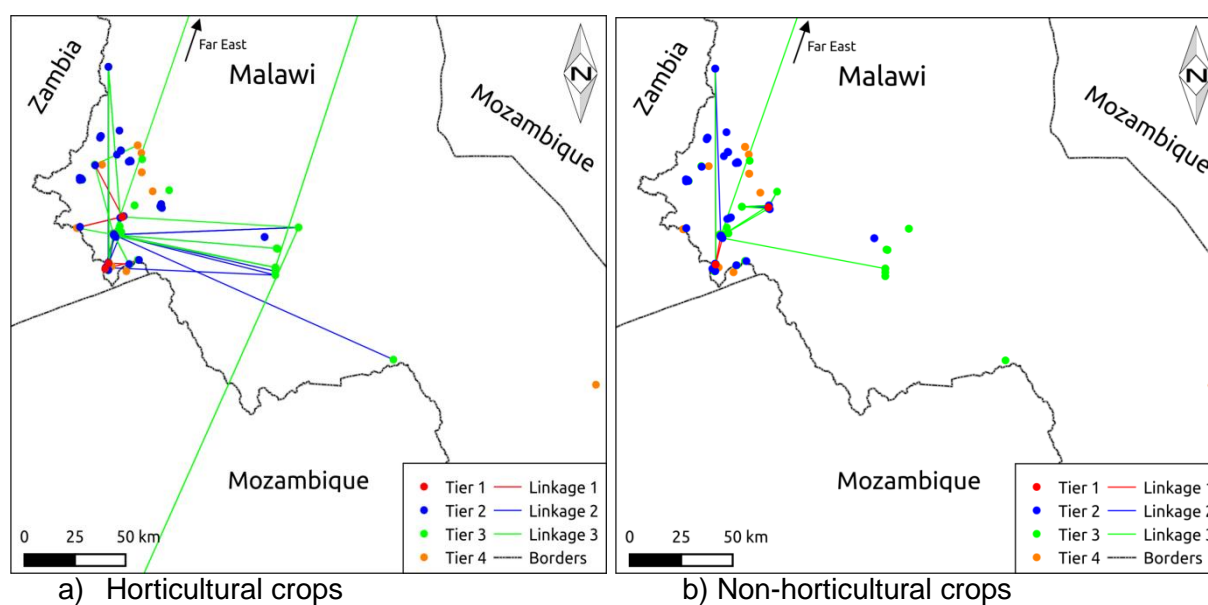
³ The 'ultra-poor' are households whose consumption per capita on food and non-food items is lower than the minimum food consumption (NSO, 2012).

Figure 5: Spatial linkages for smallholder and estate case studies (all crops)



There was also a difference in the smallholder sector between case studies of those engaged in cultivation of horticultural crops (Irish potatoes, cabbages, tomatoes) and those producing non-horticultural crops (such as soya beans and groundnuts). *Figure 6* illustrates these differences (Annexes 5a–6c show detailed maps). The horticultural crops were usually consumed more within the local economy while non-horticultural crops were also consumed outside the local economy. However, the extent of these linkages in the smallholder sector tended to be limited for smallholder crops where consumption was mainly outside of the local economy. It was also evident from the maps that the density of links was much higher in horticultural crops compared to non-horticultural crops.

Figure 6: Spatial linkages for horticultural and non-horticultural smallholder crops



Vertical integration

Agriculture in Malawi is not vertically integrated, and this was reflected in the case studies in Mchinji District. The case studies showed limited evidence of vertical integration in farming and other economic activities in the network. None of the smallholder farmers in the case studies were vertically integrated with the buyers of their commodities either through contract arrangements or ownership. In contrast, in the estate case studies, there was some evidence that some of the estates were producing crops on a contract basis, such as the cultivation of maize and legume seeds for seed companies in Malawi.

Density

We defined the density of the network as the number of significant links identified within the local economy. There were variations in the density of known networks with regard to the type of agriculture and kind of crops being cultivated. The case studies revealed that there was a relatively higher density of tiers and networks to agricultural activity in horticultural produce compared to non-horticultural cash crops in the smallholder sector, and a low density of tiers and networks in the estate agriculture sector mainly cultivating non-horticultural perennial crops. *Table 4* shows the number of identified tiers and networks in the smallholder agriculture case studies. On average, based on the identified links through interviews, horticultural crops had 44 links per EHU compared to 18 links in non-horticultural crops. For the smallholder sector, particularly the horticultural crops, the majority of these links occurred in the local economy, within a radius of less than 50km from the smallholder producer. For non-horticultural crops such as soya beans and groundnuts, all output market links were spot markets and farmers were not able to identify specific buyers of their agricultural produce.

Table 4: Density of non-farm links for Tier 2–4

Nature of link	Horticultural Cash Crops					Non-horticultural cash crops	
	Irish potatoes	Tomatoes	Cabbage 1	Cabbage 2	Cabbage 3	Soya beans	Groundnuts
Input supply	13	7	9	9	7	3	4
Wage Employment	3	1	6	9	3	-	2
Capital	1	6	13	11	4	-	6
Output market	20	4	1	5	3	Spot	Spot
Transport	-	-	2	1	1	-	-
Consumption	2	19	19	33	10	1	16
Total	39	37	50	68	28	8	28

Note: Some of these links were not interviewed but were identified by the respondents in a network mapping. The numbers present a count of links mentioned by respondents under each crop.

Source: Computed by authors from case studies

In the case studies on estate agriculture links with the non-farm sector occurred through consumption and investment spending of estate workers. Most of the employees on the estates spent their wages on consumption at shops located on the estate owned by estate employees or at spot markets, in which case they were not able to identify specific shop owners. Some of the employees that engaged in farming for their own consumption also invested their wages in the purchase of farm inputs within the local economy. In the four estates covered in the study, workers of different categories (permanent staff, casual workers and tenants) were interviewed to understand their spending patterns and other income-generating activities in addition to working at the estates. Most of the estate workers engaged in multiple and diverse livelihoods, combining their paid employment with self-employment activities such as farming for cash sales and operating retail businesses. One of the permanent workers at the estate owned a grocery shop operated by his wife on the estate premises, which turned out to be a convenience shop for other estate workers. At another estate, two of the five workers interviewed invested their wages in retail of dry fish.

Most of the income that the estate workers received was spent on immediate consumption needs such as food and other basic necessities at grocery shops located on the estates or trading centres surrounding the estates.

There was also a very high incidence of non-relationship purchases with most of the purchases for household needs carried out in spot markets.

In addition, some of the workers invested salaries and wages in subsistence and cash crop farming, which link to farm input sellers in the local economy. Hence, most estate workers used their wages to purchase farm inputs either through loans from estates or direct purchases at trading centres. Estate workers also engaged *ganyu* workers on their own farms using wages and salaries obtained from their employment on the estates.

Some of the estate workers were migrant workers coming from other districts in Malawi, and some of those workers who were interviewed indicated that they sent remittances back to relatives in their original districts, some as far away as Mangochi and Mulanje Districts.

Social embeddedness

The case studies found limited social embeddedness of market transactions. As a result, economic activities were highly individualised. However, there were instances where group systems existed. For example, a group of cabbage growers met and discussed issues relating to production including agreeing on a minimum price for selling their cabbages. A number of other cases mentioned the existence of village savings and loan associations. In addition, there was a high incidence of relationship dealings in the provision of *ganyu* labour. There was no evidence in the smallholder case studies to suggest the existence of contract farming, but estates tended to have contract farming arrangements, particularly with regard to seed production for improved seed suppliers in Malawi.

4 Linkages between farm and non-farm employment

Nature of non-farm activities

There was limited diversity identified in the kinds of non-farm employment activities taking place in the local economy of the case studies. The type of non-farm employment identified included retail and wholesaling of general merchandise, local grocery shops, agro-dealer input shops, large agro-input suppliers and chain stores, retail vending of vegetables, small scale food processing, transport services, financial services and remittances. Most of the linkages in rural Malawi tend to be consumption expenditure linkages both in smallholder and estate areas. In smallholder farmer areas there were also significant backward linkages with farm input suppliers, particularly local input supply shops that sell seeds, chemicals and fertilisers. The incomes from agriculture were re-invested in agricultural activities with the surplus supporting consumption expenditures in retail shops within the local economy, and very little spending outside the local economy. Similarly, the wages and incomes of estate workers – in addition to being spent on immediate consumption – were partly invested in farming activities with important links to local input supply shops. Most of these centres of consumption goods and agro-inputs were within the local economy. This finding suggests that the main vehicle through which agriculture results in development in rural settings is through consumption of goods and services, as illustrated in both the smallholder and estate case studies. However, all of the goods found in the shops were imported into the local economy or manufactured goods imported into Malawi. Similarly, most of the goods sold in input market shops were imported into Malawi, with a few exceptions of seeds.

There was also evidence that most of the shop owners in the rural areas procured their goods (including imported goods) from within the local economy; grocery retail shops procured from large retail or wholesale shops, which helped to keep jobs in the retail and wholesale sector. More significant was the high incidence of profits from retailing and wholesaling business activities being reinvested in agriculture particularly for shops that were owned by local residents (as illustrated in the cases of shop owners provided below). This, however, was not the case for input supply shops, and retail and wholesale shops belonging to large private trading companies whose surplus was utilised outside the local economy.

Input markets

One of the non-farm sectors supported by agricultural development is the input market. Local input suppliers were particularly linked to smallholder farmers while estate farmers were supplied with inputs directly from their head offices located outside the local economy. In the case studies, this sector played an important role in the local economy particularly for smallholder farmers. The most common farm inputs supplied to smallholder farmers were fertilisers, seeds and chemicals. The farm input sector can be categorised into importer distribution outlets, independent agro-dealers, cooperative managed outlets, supermarket chains, distribution outlets managed by government enterprises and local wholesale and retail shops (SOAS et al., 2008; Kelly et al., 2010).

For the smallholder farmer case studies, the main sources of farm inputs were importer distribution outlets (mainly for fertilisers), supermarket chains (mainly for seeds), independent agro-dealers and local wholesale and retail shops. *Table 5* shows the types of farm input suppliers that were identified as a source of agricultural inputs in the network of case studies. There were also cases in which smallholder farmers provided seeds or seedlings to other smallholder farmers. The main distributor outlets in the study areas included Farmers' World, Export Trading Company and Nyiombo Investment Limited. These are limited companies and major importers of fertilisers into Malawi with head offices in Lilongwe. Farmers' World is owned by Malawians while Export Trading Company and Nyiombo Investment Limited are international companies. They have outlets in most parts of the country including several outlets in Mchinji. The outlets sell a range of commodities in addition to farm inputs including general groceries and hardware (particularly Farmers' World and Export Trading). These outlets also act as wholesalers for groceries for local grocery shop owners in the districts. A number of local grocery shop owners in the case studies indicated that they also procured stocks from these major importer distribution outlets. Farmers' World and Export Trading Company are also engaged in the purchase of agricultural produce

(maize, soya bean, cow peas, beans and groundnuts) from smallholder farmers. These outlets employ on average one to seven permanent employees with the highest position being a shop manager. Most of the permanent employees were recruited centrally by the head offices. However, in addition these large input retailers offered casual employment to people within the local economy (*ganyu* workers), particularly for the loading of goods, who were paid on the spot. The case studies below illustrate the role of these large retail shops.

Case 1: Farmers' World is a private limited company, owned by Malawians and based in Lilongwe and Blantyre, specialising in the import of inorganic fertilisers with its head office in Lilongwe and a number of sales outlets in central and northern Malawi. Farmers' World started operating in Mchinji in 1998, selling various farm inputs such as seeds, fertiliser, salt, agro-chemicals, pesticides, cooking oil, iron sheets, groceries, plastic sheets for covering tobacco and thatching houses. These are either produced in Malawi or imported. The firm employs both permanent and seasonal/informal employees. Farmers' World customers are mainly from the surrounding areas. The shop faces competition from other agro-dealer shops such as Chipiku, Kulima Gold, Export Trading and Takondwa, which operate within the same area. The shop's sales turn-over reaches as much as MWK2 million during peak periods and the funds are remitted to the head office. The shop has seven permanent employees with a total monthly wage bill of MWK200 000. Seasonal employees are recruited by the head office; the shop has one such employee whose salary is MWK20 000 per month, plus a commission at the end of contract depending on the quantity and quality of seeds purchased.

Case 2: Export Trading Company (ETC) is an international company with its head office in Kenya that started operating in Malawi in 2004. ETC operates in more than 30 African countries and is active in North America, India, China and South East Asia. It has six branches within Mchinji and the one at Kamwendo trading opened in 2008. Most farmers purchase various inputs from Export Trading Company but also sell their farm outputs like maize, soya beans, cow peas, beans and groundnuts to the company. The company processes the products and sells them back to farmers as seed. Kamwendo shop has seven permanent employees recruited by the head office in Blantyre. Farmers are allowed to trade their farm produce with fertilisers instead of paying cash at the shop. Management of proceeds from the shop is done at the head office therefore no further information was provided. Apart from selling fertilisers, the shop also stocks cooking oil and iron sheets. At the time of interviewing the shop was also purchasing farm produce.

Case 3: Chipiku Wholesale & Stores (CWS) is a departmental store that supplies various commodities throughout Malawi. It is one of the established departmental stores in Malawi with its headquarters in Blantyre, some 450km from Kamwendo Trading Centre. Their range of products includes groceries, iron sheets, fertiliser, seeds, bicycles and plastic kitchen utensils. The shop has five permanent employees and occasionally employs 'ganyu' labourers to offload stock from trucks. All revenues realised are remitted to the head office, which is also responsible for procurement for the company's various shops. The sales turnover is above MWK1 million per month and most sales are made between May and August. The shop competes with other agro-dealer shops such as Agoloso Executive Shopping, Dalitso Shop, Takondwa Commodities, Kulima Gold, Export Trading and Farmers' World that are within Kamwendo Trading Centre.

Table 5: Input suppliers to smallholder farmers

Type of farm input supplier	Type of inputs	Number of suppliers	Other goods sold by suppliers
Importer distribution outlets	Fertilisers, seeds, chemicals	3	Grocery merchandise
Independent agro-dealers	Fertilisers, seeds, chemicals	3	Groceries
Supermarket chains	Seeds, chemicals	1	Consumer goods
Cooperative managed outlets	Seeds	1	-
Other smallholder farmers	Seeds (Irish potatoes, tomatoes, groundnuts)	3	General grocery merchandise

Source: Compiled by authors from case studies

Case 4: Nyiombo Investments Limited (NIL) is an international company with its headquarters in Zambia. It has been operating in Malawi since 1996 and sells mainly fertilisers and seeds. It has sales outlets in many parts of central Malawi. The shop at Kamwendo Trading Centre employs one person to manage the sales and about four 'ganyu' workers to load and offload trucks. The 'ganyu' workers are paid on the spot (MWK1 000 each). Although operational costs and sales were not disclosed due to company policy, it was revealed that their sales are seasonal and peak during the months of September to January.

Three independent agro-dealers were identified as sources of inputs by enterprise household units. There are two groups of independent agro-dealers: those that operate throughout the year and mobile operators of seasonal businesses (Chinsinga, 2011). The independent agro-dealers are local business elites and operate several shops throughout the year in Mchinji: DGD, SAC and MSAD. DGD illustrates diversification from agriculture; the agro-input business was created with surpluses from tobacco farming. DGD has six agro-input shops in Mchinji, some in its own buildings constructed with profits from the business. The main shop has four permanent employees and regularly uses *ganyu* workers to offload or load goods. In addition to selling inputs, DGD also buys farm produce (groundnuts, soya beans) from smallholder farmers, and in turn sells to large companies such as Kulima Gold, Farmers' World and Export Trading Company. SAC is owned by a retired teacher who has three similar shops in Mchinji. The shops are managed by relatives of the shop owner. In addition the owner has other business interests in the district including a transport service and maize mills, and is engaged in commercial farming (maize, tobacco and vegetables). SAC obtains stocks for his agro-input shops within the local economy, with seeds procured from seed producers under dealership arrangements. MSAD is also a locally owned agro-dealer shop specialising mainly in seeds and agro-chemicals. The agro-dealer business started as a grocery shop but expanded into agro-inputs. Most of the stocks, groceries and agro-chemicals are procured from Lilongwe.

In terms of cooperative-managed shops, the National Association of Smallholder Farmers of Malawi (NASFAM) was a source of soya bean seeds on credit to one of the smallholder farmers. In the 2012/13 season, NASFAM bought farmers' soya beans produce at an average price of MWK190 per kg. NASFAM targets smallholder farmers that are willing to venture into farming as a business, producing food crops for food security and cash crops for sale.

Three smallholder farmers were identified as suppliers of seeds to three of the seven Tier 1 smallholder farmers. Firstly, farmer KJ is a male smallholder commercial farmer who provided Irish potato seed to another farmer. Farmer KJ grows a diversified portfolio of crops including Irish potatoes, tomatoes, maize, soya beans, groundnuts and beans. Farmer KJ grows Irish potatoes as a commercial crop and only sells seedlings upon request from customers. Farmer KJ is one of the well-to-do farmers in the area and owns a car. In his commercial farming activities, he uses fertilisers, seeds and chemicals which are procured within the local economy at Kamwendo Trading Centre and Mchinji District headquarters. Farmer KJ hires about ten *ganyu* workers per year to assist him in his Irish potato farming. Secondly, farmer JK is a male farmer who supplied tomato seeds to one of the Tier 1 smallholder tomato farmers as a gift as they are friends and usually share food. Farmer JK cultivates many crops including beans, hybrid maize, Irish potatoes, groundnuts and tomatoes,

but the main cash crops for the household are tomatoes and Irish potatoes. Seeds and agro-chemicals used in farming are purchased within the local economy at Kamwendo Trading Centre, about 17km away, and Mchinji District headquarters, about 35km away. Farmer JK sells some of his tomatoes to Mozambican traders who tend to offer better prices than local traders. Thirdly, farmer EP is a male farmer who sold groundnut seeds to one of the Tier 1 case study smallholder farmers. EP owns 6.2ha of land. His main sources of income are tobacco and groundnut farming, and he sells groundnut seeds to other smallholder farmers in the area. EP occasionally employs *ganyu* workers in which case wage payment is cash or in-kind.

These sources of farm inputs were located at the trading centres within 35km of the smallholder farmers in the study. These input markets were not only relevant to the case study smallholder farmers (Tier 1 EHUs) but also other non-farm linked activities where owners or workers were involved in farming for own production or the market. Cash transactions dominated the input markets. Credit arrangements were only noted in one case of all the links to the input suppliers – in which a member of a farmer organisation obtained soya bean seeds on credit.

Transport services

As noted above, the road infrastructure in Mchinji District is not dense. The case studies of smallholder farmers did not reveal many links to transport services. Farm inputs were usually purchased within the local economy and in small quantities so there was little use of transport services. The most common forms of transporting goods were ox-carts and bicycles, owned by smallholder farmers as part of their diversified livelihood portfolio. Among the seven Tier 1 smallholder farmers, only two farmers indicated that they had ever hired a bicycle or ox-cart to transport inputs or outputs to the market. The transporters determine the prices, but also indicated that customers negotiate about prices. The following are profiles of the transporters who were actively engaged in food and cash crop farming:

Case 1: Mr RK owns an ox-cart that he hired out to transport goods. He also provided transport services to one of the Tier 1 cabbage smallholder farmer from the village to various markets. His main source of household income is farming, particularly cabbage production (three times a year). His cabbage farming provides an annual turnover of about MWK240 000. He sells the cabbages at Santhe and Kamwendo Trading Centres. The household owns 1.6ha of customary land and occasionally grows tobacco and groundnuts. Mr RK offers his ox-cart to transport other farmers' goods. Family labour is used to operate the ox-cart to markets, about 13km away from the village. The prices tend to vary; for instance, carrying maize from field to homes – MWK300; carrying cabbages to Kamwendo Trading Centre (13km away) – MWK1 500; carrying manure from homes to fields – MWK200. Mr RK set the prices but customers sometimes negotiate. In 2012, he made approximately MWK60 000 from the transportation business and used this income to pay school fees for his younger brother at a community Secondary School, remit to relatives, buy groceries at Chipiku Wholesalers at Kamwendo Trading Centre, for maize milling and to maintain the ox-cart. The business challenge is low returns because people like to negotiate prices and those that he supports with credit rarely make their payments.

Case 2: Mr SL also owns an ox-cart and was hired by another Tier 1 cabbage farmer to transport cabbages to Kamwendo market. Mr SL also owns 2ha of land used to cultivate burley tobacco, maize, cabbages, sugarcane, groundnuts and beans. The transportation business is seasonal and peaks during harvest time from April to May, and from September to October when farmers transport manure to gardens. His customers are from within the village and surrounding areas. Mr SL determines the price for the services and allows for discount negotiations. However, the demand for the ox-cart services in the village is very

low unlike at a trading centre where such transport is hired often. Over the past twelve months Mr SL is estimated to have made MWK46 000 from ox-cart transport services, with most of this income used to buy groceries at Kamwendo Trading Centre, a bicycle tyre at Mchinji Boma and groceries from Nsula Village. He also owns cattle that provide organic manure used in some of the farming activities. Mr SL also owns a plough and uses oxen in his farming activities.

Wholesaling and retailing

Wholesaling and retailing were the most common forms of rural non-farm economic activities that have linkages with the agricultural sector, through the dominance of the expenditure linkages. A large proportion of smallholder farmers' incomes and wages of permanent and *ganyu* workers was spent on consumption goods. It is therefore not surprising that most of the farm and non-farm employment linkages in rural Malawi occurred through expenditures on investments and final consumer goods. In the estate sector, wholesaling and retailing was the main channel through which farm activities (particularly farm employment) were supporting non-farm economic activities. Table 6 shows the number of consumption centres linked to the case studies. The main centres of consumption were the trading centres in Mchinji District, which are on average within 35km of the consumers. Trading centres tended to be centres of concentration of commercial activities, with better access in terms of roads and other rural infrastructure. They also provided opportunity for consumer spending in spot markets – markets where buyers cannot personally identify with the sellers. Although there were small markets at the trading centres, the major activities occurred on specific days of the week, known as market days, largely patronised by mobile traders. Thus, most of the buyers of agricultural produce were traders not resident in the local economy. Nonetheless, all the spot markets mentioned as centres of major consumption expenditures occurred within the local economy. Apart from general groceries, some of the households invested in household assets and livestock. For example, the Tier 1 soya bean smallholder farmer invested in iron sheets and kitchen utensils, the Tier 1 tomato smallholder farmer purchased household assets and a bicycle, while Tier 1 cabbage farmers also invested in livestock.

Table 6: Known consumption and asset expenditure linkages

Farmer type and Tier	Wholesale/ retail at local trading centres in Mchinji	Local village grocery shops	Retail shops outside Mchinji	Spot markets
Smallholder: Tier 2	6	3	0	Yes
Smallholder: Tier 3	6	1	1	Yes
Estates: Tier 3	3	3	1	Yes

Source: Compiled by authors from case studies

Most of the local shop owners linked to the smallholder case studies were medium-scale commercial farmers that had made surpluses in agriculture and diversified into non-farm business activities. One shop owner accumulated capital from farming to invest in a grocery shop after disappointment at falling tobacco prices. Another shop owner made his capital for the grocery shop from sales of firewood while the other shop was financed by formal sector wages (it was owned by a primary school teacher). At least five local shops received start-up capital from farming activities – tobacco, cabbage and groundnut production. The shops were operated as part of a diversified portfolio of rural households, with most local shop owners also being highly engaged in cash crop farming and farm produce marketing.

Three of the six shops identified at Tier 3 in the estate sub-sector were located on estate premises and were operated by spouses of estate workers, an estate manager, a gang leader (*kapitawo*) and labourers. In one case, an employee had also invested in a wholesale and retail shop at a surrounding trading centre. In another case, the grocery shop was run by the wife of the estate manager with the main source of capital in the retail business being sales from tobacco farming. She reported that sales per month averaged at MWK60 000 and that the retail business had enabled the shop owner to diversify into maize milling. One shop was started with capital from tobacco sales after the owner realised that estate workers were travelling far to buy groceries. Some of the goods were sold to estate workers on credit. Similarly, the owner of another grocery shop operating on estate premises used savings from wages earned by his wife who works as an estate labourer as start-up capital, but

additional capital to expand the business came from the sale of agricultural produce. Another employee of the estate, a gang leader, also runs a grocery shop located in the staff quarters with capital from his salary. The grocery shop was operated by his wife and reportedly generated an average of MWK30 000 per month in sales. There is no doubt that the estate workers provide the market for these retail shops that are owned by managers or ordinary estate labourers. All the shop owners interviewed in the study indicated that they typically sell goods on credit to estate workers. Most of the goods stocked at the shops on the estates were purchased from relatively larger shops in trading centres around the estates.

Rural financial markets

Rural financial markets also offer opportunities for rural non-farm employment in Malawi. The financial market in Malawi is segmented into formal, semi-formal and informal markets (Chipeta and Mkandawire, 1992). However, in the rural sector the informal market dominates. Chirwa and Mvula (2014) found that 10.2%, 5.9% and 51.6% of the adult population in rural areas held financial products in the formal, semi-formal and informal financial markets in Malawi, respectively. There were a number of linkages to the financial markets in the case studies. First, the Irish potato farmer maintained a savings account at a commercial bank, but there was no indication that his farming activity benefited from credit from any financial institution. Secondly, the soya bean smallholder farmer participated in the informal financial sector through the Village Saving and Loan Group in which he serves as secretary. Similarly, his farming activity had not benefited from formal credit, but he had obtained credit from the group to finance current consumption. Thirdly, one of the cabbage farmers belonged to a Village Bank but also obtained a loan from a semi-formal financial institution. In contrast to the above cases, the cabbage farmer used the loan to finance the purchase of fertilisers and chemicals and the payment of *ganyu* wages. Fourthly, the smallholder groundnut farmer participated in both formal and informal financial markets. The farmer maintained a savings account at a commercial bank (within 36km) and was a money lender to other farmers or small-scale enterprises. One of the borrowers was a small-scale farm produce trader who borrowed to finance his business at an interest rate of 50% payable within 30 days. He bought maize from the local economy but sold it at three times the purchase price to a company outside Mchinji District.

Remittances

The case studies did not reveal a strong prevalence of remittances, particularly in smallholder agriculture. Only two of the seven Tier 1 smallholder farmers (cabbage and groundnut farmer) in the study remitted some money to relatives living in the local economy and Kasungu and Lilongwe Districts. However, this did not constitute a significant proportion of household incomes. The cabbage farmer remitted some of the profits from cabbage production to his divorced step-daughter and the daughter regularly received remittances. The Tier 1 groundnut farmer remitted the profits to a sister who regularly helped her brother in farming although her household is also engaged in growing soya beans. Most of the remittances were reported by recipients as being spent on food and groceries. In the estate sector, there seemed to be a higher incidence of remittances compared to the smallholder system. Some of the workers on estates were migrant workers coming from other districts in Malawi, with some employees remitting funds as far as Mangochi and Mulanje Districts. There was no evidence that the remittances identified in the case studies promoted or supported non-farm employment activities.

Output markets

There were marked differences in output markets among smallholder farmers when compared to estate agriculture. There were also differences in the smallholder sector due to the nature of crops. The agricultural output markets in the smallholder sector were mainly informal, non-contractual and typically spot exchange based on cash transactions. *Table 7* shows the differences in market arrangements and the spatial location of such markets.

Table 7: Linkages of agricultural production to output markets

Sector and crops	Number of enterprises	Types of markets	Number of known buyers	Location of buyers
Smallholder: horticultural crops	5	Key individual buyers Spot final consumers Spot vegetable vendors	10	Local economy within 40 km
Smallholder: non-horticultural crops	2	Spot small-scale to large scale traders or vendors	0	Predominantly outside the local economy
Estate: non-horticultural crops	4	Specific buyers	Not applicable	Outside the local economy

Source: Compiled by authors from case studies

In the smallholder sector, there was a high incidence of spot trading in agricultural produce among rural people. There were, however, differences between horticultural produce and exportable agricultural produce. In horticultural produce, in addition to selling to final consumers in spot markets, smallholder farmers tended to establish relationships with major buyers, particularly in terms of sharing information about the maturity and availability of produce. In exportable agricultural produce, such as soya beans and groundnuts, the market was dominated by small- to large-scale mobile traders who came to buy produce using bicycles and large vehicles as transport and took the produce out of the local economy. None of the farmers interviewed identified such buyers. There were more relationship output markets based on repeated trade in horticultural produce (with known buyers) than in 'exportable' agricultural crops (with unknown buyers). However, there was no evidence of pre-financing arrangements or contract arrangements in smallholder farming in the case studies.

In the context of maize, Jayne et al. (2010) found that for remote areas farmers relied on mobile traders or large company agents while farmers located close to trading centres tended to have more market options, including large-scale buyers and representatives of manufacturers. Some of the small-scale traders bought produce on behalf of processors and large-scale buyers. As has been noted above, some of the farm input traders (including Farmers' World and Export Trading) also engaged in buying non-horticultural exportable agricultural produce. In some cases, the large-scale traders (such as owners of local retail and wholesale shops) also played an aggregation role and in turn sold their farm produce to the large-scale input traders that were also buyers of agricultural produce. Private market operators tended to dominate agricultural output market trade (Jayne et al., 2010). This is in contrast to the period of prior liberalisation of agricultural markets where the Agricultural Development and Marketing Corporation (ADMARC), a state marketing agency, had a monopoly over the purchase of smallholder agriculture produce (Chirwa, 1998; Mvula et al., 2002; Chirwa et al., 2005).

Smallholder farmers have more power over prices, determine prices for horticultural produce and are price takers in the markets for exportable agricultural produce. Although buyers of horticultural produce tended to negotiate prices, the smallholder farmers did not seem to sell their produce out of stress, as all the case study farmers interviewed indicated that they sold their produce at satisfactory prices. Although the sales turnover for these focal crops was not high, as noted above, the gross return on their investment ranged from 108% (in the case of cabbage) to as high as 239% (in the case of Irish potatoes). There were short value chains, with horticulture products sold to final consumers or small-scale agricultural produce traders who in turn sold to final consumers within the local economy. There was also evidence from the gross returns that smallholder farmers extracted most of the value from horticultural produce compared to the value extracted by intermediate retailers of the commodities. In contrast to exportable cash crops such as soya beans and groundnuts where market outlets were small-scale traders, the returns from these crops were much lower compared with returns from horticultural produce. Chirwa et al. (2005) and Jayne et al. (2010) found that, with respect to crops such as maize, groundnuts and soya beans, smallholder farmers were at risk of unfair trade practices and monopsonistic behaviour by small-scale private traders that tend to cheat on weighing measures and downgrade the quality of smallholder produce in order to drive down the price of produce.

Although there were branches of supermarkets in the study area, none of the case studies were linked to their supply chains. This reflects a lack of engagement by supermarkets with the smallholder sector in Malawi. Hence, even in the urban areas where there are supermarkets, none of the horticultural produce found its way onto

their shelves. In urban areas, very few supermarkets stocked fresh vegetables, possibly due to intense competition from vegetable sellers in local markets or mobile vegetable vendors.

No input and output markets were identified in the estate sector as most decisions about marketing and production were made at head offices outside the local economy. Apart from wages for workers, the surpluses from production on estates were used outside the local economy.

Seasonality

The dominance of a rain-fed agricultural system in Malawi makes most non-farm activities prone to seasonality. As noted above, consumption expenditure was the strongest channel linking farm activities to non-farm activities in rural economies, with higher demand for most goods and services reported in the marketing season. However, the horticulture sub-sector offered opportunities for smallholder farmers to smooth incomes by exploiting the available wetlands or *dimba* and cultivate crops up to three times a year. Ngwira (1994) demonstrated that farmers who adopt an income safety first strategy gained from intensive *dimba* cultivation or irrigation of horticultural crops as stable income sources. The non-horticultural cash crops in the smallholder sector and estate crops in the case studies depend on rain-fed cultivation and this also leads to seasonal employment in several sectors of rural economy. The cultivation of horticultural crops potentially deals with seasonality of incomes as there are several cycles of cultivation compared to rain-fed traditional crop cultivation. There was one cabbage smallholder farmer who grew cabbages three times a year in addition to rain-fed cultivation of non-horticultural cash crops.

Wage employment and remuneration

The case studies revealed that most of the employment opportunities linked to agricultural activities were low return jobs, casual and short term, popularly known as *ganyu* in Malawi. However, there were also informal and formal sector monthly paid job opportunities and tenancy contracts, especially in the estate sector. *Ganyu* is a form of casual employment defined by short term labour relations and associated with the agricultural sector, highly seasonal and widely available during the farming season (ridging and weeding) on smallholder farms and estates. Kerr (2005) characterised *ganyu* as both 'a livelihood strategy and a measure of vulnerability', and others have argued that *ganyu* is the most important coping and survival strategy for most poor households in Malawi (Whiteside, 2000; Bryceson, 2006). Dimowa et al. (2010) also showed that *ganyu* supply increases with poverty while *ganyu* demand increases with increasing household wealth. Chirwa and Dorward (2013) suggest that in periods of food security under the farm input subsidy programme, real *ganyu* wages have increased over time. This is consistent with Bryceson's (2006) argument that *ganyu* becomes the most sustainable way of obtaining food when households run out of food supplies. Dimowa et al. (2010) estimated that 44% of households in Malawi supplied *ganyu*, only 16% demanded *ganyu* and 9% of households both supplied and demanded *ganyu*, but at the same time over 93% of households were involved in own farm production. This has generated many debates about the trade-off between *ganyu* and own farming activities during the peak agricultural season. *Ganyu* work is low paying and in some cases it has been described as having demeaning conditions of work (Bryceson, 2006).

Table 8 shows the farm and off-farm employment levels in the case study linked activities. The case studies showed that *ganyu* work cuts across several sectors of the rural economy, and is usually offered by relatively poor households in both smallholder farms and estates. There is demand for *ganyu*, however, not only in the agricultural sector but in other sectors, particularly the informal and formal sectors of wholesaling and retailing. *Ganyu* on farm was prevalent among Tier 1 farm household enterprises and among Tier 2 and Tier 3 EHUs that were also involved in farming activities.

Table 8: Levels of farm and non-farm wage employment

Sub-sector & focal commodity (number of cases)	Total land size (hectares)	Tier 1 farm Employment in focal commodity (person-days)	Tier 1 Average <i>ganyu</i> wages (MWK)	Tier 2 Non-farm employment (job equivalents per year)	Tier 3 Non-farm employment (job equivalents per year)
a) Smallholder					
Irish Potatoes (1)	5.75	42.6	316	8.3	17.7
Tomatoes (1)	12.9	59.1	338	7.5	19.4
Cabbages (3)	4.46	69.0	493	34.3	24.0
Soya beans (1)	2.4	15.0	933	33.0	0
Groundnuts (1)	8.0	53.4	750	0.3	0
b) Estates					
Tobacco (2)	600	51,820	420	-	-
Sunflowers (1)	262	20,628	400	-	-
Soya Beans (1)	432	35,080	440	-	-

Note: Job equivalents per year are computed as number of persons that can be employed for a whole year on eight hours per day and five days per week.

Source: Authors, based on case studies

All the smallholder farmers relied on household labour in farming activities. However, there was also a high incidence of the use of *ganyu* labour in the production of focal commodities. In fact, all wage employment in Tier 1 farm EHUs was in the form of *ganyu* labour. Typically, *ganyu* labourers were used mainly in labour-intensive tasks using traditional methods of farming like the hoe. Family and kin labour was used for other light farming tasks such as planting, fertiliser application, harvesting and daily management of the crops. Most of the *ganyu* wages were cash and on smallholder farms wages ranged from MWK316–MWK933 per person-day. There was, however, a lot of variability in *ganyu* wages depending on the nature of tasks. Wage rates on smallholder farms were typically set by the *ganyu* workers but they were open to negotiation with the employers. *Ganyu* workers came from within the local economy, and tended to move around the village seeking employment opportunities or in some cases, the offers were based on previous working relationships.

Below are some profiles of on-farm *ganyu* workers who were also engaged in smallholder farming, producing both food and cash crops.

Case 1: Mr SJK was employed by the Tier 1 Irish potato farmer. He lives within 1km of the employer with his wife and two children. He has three years of schooling and ganyu is his main form of economic activity around the year apart from small-scale farming. He owns 1.4ha of land which he inherited from his parents. In 2012 he produced Irish potatoes and other vegetables including tomatoes on his 0.4 hectares of dimba land for the first time. Other crops that were grown on a small scale included tobacco, maize and beans. The types of ganyu activities vary according to season and included making beds in dimba fields, harvesting groundnuts and digging toilets. For 2013, he prepared three dimba beds which took four to five hours of work per bed in a single day, for which he was paid MWK4 500. He reported that ganyu prices have risen over time and there were more opportunities in 2012 than in previous years. He decided on the price and this was usually negotiable. Sometimes he did the work with his wife but the payment was the same. The main challenge with ganyu work was that employers do not usually pay on time. In terms of expenditure, Mr SJK's earnings from ganyu were used to purchase food, groceries, fertilisers in small packs, seeds, clothes, for maize milling and remittances to relatives. Purchases were made at local traders and surrounding trading centres during market days.

Case 2: Mr SM was engaged as a ganyu worker by the Tier 1 tomato smallholder farmer. He is a 20 year-old male with seven years of schooling. He relies on ganyu to supplement income from farm produce sales and to support his mother and siblings. He owns 0.2ha of land on which he grows rape vegetables for sale at Tembwe trading centre and for household consumption. He was employed to make tomato beds at a fee of MWK2 500, which took him two to three hours daily for five days. The funds realised from ganyu financed the start-up of a fritters (mandasi) business for his mother. He also gave his MWK1 000 for upkeep each time he received his ganyu wages. Mr SM also purchased clothes, a radio, chairs, and a table from a local carpenter. The main challenge with ganyu work is that wages are very low and payments are sometimes delayed.

Case 3: Mr HS was employed as a ganyu worker by a Tier 1 smallholder cabbage farmer. He is 26 years old, married with one child. His highest level of education is Standard 4. His main economic activity is farming, but he also engages in seasonal employment. Mr HS owns a garden dimba where 0.4ha is used to cultivate maize and 0.4ha is used to cultivate rape. He began engaging in ganyu in 2007. He was employed by EHU4 because he is related to the farmer's wife. He did ganyu work for many large smallholder farmers in the area and in the 2012/13 season he earned as much as MWK31 000 from this work. He spent most of his money in the local community on groceries from a shop in a neighbouring village. Other uses of the money earned from ganyu included payment of bride price, construction of a house and purchase of seeds.

Case 4: Mr LL was employed as a ganyu worker by another Tier 1 smallholder cabbage farmer. He is 18 years old and dropped out of school in Standard 3. He lives with his father and three other siblings who all dropped out of school and engage in ganyu work as well as supporting their father in farming. The household owns 1.8ha of inherited land and grows maize, beans, tomatoes, soya beans and pepper. Mr LL worked for different people throughout the year – transporting goods to markets on market days by bicycle or ox-cart and farm work. He worked for a Tier 1 farmer preparing land for cabbage production, working about four hours on six days and earning MWK2 500. The money was used to buy clothes and sugar at a local trading centre. He earned about MWK10 000 from piece work in the 2012/2013 season.

Case 5: Ms NJ was employed as a ganyu worker by a Tier 1 smallholder groundnut farmer. She is in her 40s, divorced with five children, and has completed only one year of schooling. She took up ganyu work at the Tier 1 farmer who determined the price and did not negotiate the wages. Ms NJ and the tier 1 farmer are cousins. In the 2012/13 season, Ms NJ did a number of tasks for the farmer including ridge making at MWK3 675 for seven days, harvesting groundnuts (for which she asked to be paid in kind – a pail/tin of maize), land tilling at MWK1 000 for three days and planting for three days at MWK500. The money earned was used to buy groceries at a local shop. She also did ganyu work for other people to meet their household needs.

In the estate sector, there were three categories of employment: permanent workers, casual labourers and tenancy. Firstly, permanent workers take on established positions at the estate with particular skills such as estate manager, supervisors, drivers, carpenters, plumbers and clerks. These positions are filled through a competitive process of interviews at head offices located outside the local economy. In the four estate farm case studies, there were 96 employees in skilled jobs. Secondly, the bulk of the employees in the estate sector were casual labourers paid on a task basis with a daily wage ranging from MWK400 – MWK440. The wages were determined by the estate owners and employees do not have the opportunity to negotiate about wages, in contrast to the smallholder sector where *ganyu* workers negotiate wages. Casual labourers on the estate were

sourced locally and usually prospective employees approached the estates looking for work. In addition to wages, estates also provided credit facilities for employees to purchase farm inputs and maize. On some of the estates, workers were provided with land to grow maize, particularly land on which the estates were not cultivating crops as a crop rotation strategy. Thirdly, tenancy labour contracts were observed in one soya bean estate in the form of a sharecropping contract. A tenant was allocated 2.4ha of land, 50% of which was used for household production with large households usually allocated more land. The tenants had to meet a minimum production target of 1 000kg per 0.4ha in order to continue as tenants. In the 2012/13 season, the estates had 100 tenants. The tenant workers were drawn from within Mchinji and other districts such as Kasungu, Lilongwe, Dedza, Mangochi, Machinga and Zomba. In the case of the estate that has tenancy labour, it was estimated that about 30% of the 100 tenants were from within Mchinji District and villages surrounding the estate.

Low-return short-term jobs were also dominant in Tiers 2 and 3 paid employment opportunities. As noted above, most of the non-farm activities in Tiers 2 and 3 were retail and wholesale shops specialising in farm inputs or/and consumer goods. There were very few skilled workers and high return job opportunities, and these were found only in the outlets of large companies located in trading centres. Similar to estates, skilled workers were recruited by the head offices and most of the workers were not locals. There were exceptions – employment opportunities created by locally owned retail and wholesale shops whose owners tended to recruit relatives or local skilled workers to manage the shops. For example, in the smallholder case studies, of the seventeen farm input and consumer goods shops interviewed, eight had full-time employees with 52 monthly paid jobs. In addition, a number of shops engaged *ganyu* workers for tasks such as loading and offloading goods. The wages varied, with one of the large companies paying as much as MWK1 000 per day for off-loading goods. In the estate case studies, of the six shops identified and interviewed only one shop had one full-time employee to help in the business.

5 Patterns of accumulation and investment

Access to finance and capital is one of the constraints of agricultural development in Malawi. Prior to reforms, the smallholder agricultural sector relied on government-administered credit that experienced high default rates in the early 1990s and was consequently abolished (Chirwa, 2014). Since the early 1990s, no financial institution has provided agricultural credit for smallholder agriculture. In such a credit-constrained environment, investments for agricultural development and non-farm investments tend to be self-financed from own farming and non-farm activities. This also affects the nature and scale of investments in the rural areas.

Sources of capital

The sources of capital for farm and non-farm activities in the case studies were diverse. Among the Tier 1 smallholder farmers, production was largely financed from own savings. Most of the landholding was inherited under customary tenure, but there is increased incidence of a land rental market by smallholder farmers cultivating horticultural crops in wetlands (stream or river basins). Of the seven Tier 1 smallholder farmers, only one obtained soya seeds on credit from a smallholder farmer organisation. The surpluses from agriculture in one season were often reinvested in existing agricultural activities or new crops. Although informal credit was the common source of capital, such credit was often used to finance immediate consumption expenditure rather than investments in agriculture and non-farm activities. There were also cases of smallholder farmers that engage in *ganyu* labour and use their wages to finance investments in their own farm activities (purchase of seeds, fertilisers and payment of *ganyu* workers); for example, one *ganyu* worker with 1.2ha of land growing burley tobacco, soya beans and maize used wages received from *ganyu* to partly pay *ganyu* workers on his own farm.

As observed above, surpluses from agricultural production have provided capital for investment in non-farm business enterprises for some smallholder commercial farmers that now own retail and wholesale shops in the local economy. Most of the local shop owners reported that agriculture provided the capital for their diversification into non-farm economic activities. While the shop owners have diversified into non-farm activities, farming remained an integral part of their livelihood portfolio. Some of the non-farm business activities were owned by retired workers and estate workers, whose source of capital is own savings.

The sources of capital for estate production and large scale input sellers and supermarket outlets were not known as the owners live outside the local economy, and most of the estates and large retailers were foreign-owned.

Nature of investments

The case studies linked to the smallholder farmers revealed a diversity of kinds of investments in rural areas. Firstly, there was a high incidence of investments in land rentals and purchases although land is held under customary tenure. Under customary tenure land is held in perpetuity by the family and can be subdivided to family members but no transfers through sales are permitted. Secondly, rural people also tended to invest in household assets – with many of the households spending their income on household utensils and materials for home improvements. Thirdly, another area of investment was livestock with many smallholder farmers in the case studies indicating investment in goats and cattle as a way to accumulate wealth. Fourthly, the surpluses from agriculture were regularly ploughed back into the agricultural sector through purchase of inputs and payment of wages. Fifthly, as has been noted above, in an environment of tight financial markets success in agricultural activities was highly linked to investments in non-farm economic activities. Most of the local shop owners indicated that their source of start-up capital was the surplus made from farming activities and that

surpluses made from these non-farm activities were invested to expand the business and support commercial farming activities. The following examples illustrate the nature of investments in the study areas:

Case 1: *The owner of D General Dealers is married with two children and holds an intermediate diploma in business management. He opened his first shop at Waliranji Trading Centre with a capital of MWK300 000 in 2003, using proceeds from tobacco sales. With expansion of business, he opened six shops in other areas including Kamwendo, targeting surrounding farmers. An investment of MWK5 million was made to kickstart the Kamwendo shop, which included MWK300 000 to purchase land at the trading centre and build shop infrastructure. Apart from selling inputs, the shop also purchases farm produce – groundnuts, soya beans of between 800 and 100 metric tonnes which are sold to other companies like Kulima Gold, Farmers' World and Expert Trading Company. He plans to open an agro-processing plant in future for making oil or packing roasted groundnuts.*

Case 2: *MS Agro-Dealer is located at Kamwendo Trading Centre and sells farm inputs, mainly seeds and chemicals, to different farmers in the area. The owner is married and has seven children. He attended primary school. He only grows maize for food consumption on his 2-acre plot. His agro-dealer business started in 1994 as a grocery shop, and he expanded it into an agro-dealer shop in 2008 when his grocery and hardware shops failed. He began this business because people had started taking farming seriously and were investing in technology to raise productivity such as improved seeds and fertilisers. Most of the money is re-invested in the shop.*

Case 3: *NGS Grocery Shop is the main shop in the village for household expenditure. The grocery shop is owned by a 33 year-old lady who is married with two children. In terms of education, she completed Form 2. The main source of income for the household is farming, with the grocery shop supplementing their income. The household owns 0.8ha of rain-fed cultivation land, 0.2ha of dimba land and 0.1ha of rented dimba land. The main crops grown include maize, sweet potatoes, soya beans, groundnuts, cabbages, tomatoes and rape vegetable. She started the grocery business in 1999 using proceeds from cabbage sales. Most of her customers come from within the village. The income realised from the grocery store was used to buy groceries, relish, clothes, re-stock the grocery and pay ganyu workers who help in farming, and for saving in a Village Savings Bank.*

Case 4: *TAYA Grocery Shop is located at Mtsapira Trading Centre and is the largest shop at the trading centre with MWK1 million sales per month. An owner-operated grocery shop, it opened in 2006 with capital of MWK50 000 realised from sale of firewood. Other economic activities by the grocery owner include operating a tearoom and offering informal credit to farmers who repay in-kind with agricultural produce.*

Case 5: *KK Grocery is an owner-operated grocery shop in Kapita Village where most households in the village spend their money to buy basic needs. The owner is married with three children. His highest education qualification is a secondary school Junior Certificate although he reached Form 4. He also buys produce of all kinds including maize, beans, soya beans, groundnuts, sunflower and cow peas for sale to Bongah Investments who come on trucks to buy produce in the village. He started his grocery business in 2008. The shop also sells beer and fertilisers. The returns from the grocery shop, apart from being re-invested in stock, were invested in a motor vehicle and solar panel bought in Lilongwe*

(outside the local economy), two bicycles from Chipiku Stores at Kamwendo, eight cows bought within the local economy and clothes from shops in Lilongwe.

Extent of diversification

The study found that rural livelihoods are highly diversified, consistent with the existing literature (see Ellis, 2000). The case studies of smallholder farmers, grocery shop owners and employees reflected the diversity of livelihoods pursued in rural communities. First, there was diversification of sources of incomes in the farming sector. All the smallholder farmer case studies cultivated more than one cash crop in addition to maize. Secondly, there was also diversification in non-farm activities. Most owners of local grocery shops and small-scale input suppliers were also engaged in cultivation of many cash crops as part of a diversified livelihood strategy. Thirdly, there was also some evidence in the case studies that *ganyu* workers were also smallholder farmers producing maize and cash crops such as groundnuts, soya beans and tobacco. Fourthly, there was a case in which a shop owner was involved in commercial agriculture and was a money lender to farmers in his area. Fifthly, there was a case of a local school teacher involved in farming and vegetable farming and another involved in farming and operating a grocery shop. In the estate case studies, three of the shops were owned by estate workers and run by their spouses. Sixthly, there were also cases where the shop owners were involved in purchasing commercial crops from smallholder farmers in their local areas. Finally, there was a case of an ox-cart transport service operator who was also involved in commercial farming.

6 Conclusion

This paper set out to examine the nature of the farm and non-farm employment links in rural Malawi by contrasting two farming systems: smallholder and estate sectors. The smallholder sector is dominated by small owner-operated farms using mainly family labour and producing for both subsistence and market needs, while the estate sector operates large farms managed by agents (recruited farm managers) producing for market needs. The main issue was to investigate spatial dimensions of the links between farm and non-farm employment and the extent to which these links take place within the local economy. The study used a case study qualitative research approach and was conducted in Mchinji District in central Malawi, as the geographic extent of the local economy, where smallholder and estate systems of farming co-exist. These case studies were drawn from a largely agricultural district, with poorly connected road infrastructure and without major manufacturing and service industries. Most of the enterprises operating in the district were family-level enterprises within a very local economy. Nonetheless, there are a number of small towns, known as trading centres, which serve as commercial hubs with a sizeable concentration of the population employed in the service industry. Outside of these trading centres is mostly farm land and unplanned settlements with village-level small grocery shops. These trading centres define the spatial articulation of the farm and non-farm employment links in the district.

Smallholder farmers typically have small land sizes with tenure governed by customary laws. On average smallholder farmers cultivate 1ha of land but all of our case studies in the sub-sector had above average land and grew a diversity of crops. Agriculture in the smallholder sector is largely self-financed, partly due to market failures in agricultural credit. All the smallholder case studies were owner operated and decisions took place within the local economy. The smallholder farmers sold their commodities mainly in spot markets with very little relationship established with buyers and very few repeat trade relationships. In contrast, estate agriculture occurred on large leasehold farms of over 50ha of land. The estates grew a diversity of crops, mainly cash crops, some of which were cultivated under contract with seed companies. All of the estate case studies were manager operated and most of the decisions on inputs and markets occurred outside the local economy.

Agricultural development in Malawi has undergone various policy reforms – from heavy state intervention to market-led agricultural development policies, with more recent policies favouring the smallholder sector. The performance of the agricultural sector has, however, been disappointing and erratic, and poverty remains high in the rural areas. In the smallholder sector, the products were grouped into two: horticultural and non-horticultural crops. Horticultural crops are horticultural produce including Irish potatoes, tomatoes and cabbages, mainly cultivated on *dimba* (wetlands) land using drip irrigation along the streams and rivers in the areas and upland using rain-fed cultivation. These horticultural products are mainly consumed in the local economy. Non-horticultural crops included in the case studies for smallholder farmers included soya beans and groundnuts. These are cash crops grown by many people in the area and their consumption occurs mainly outside the local area, industries in large urban centres and export markets. Estates are mainly involved in the cultivation of cash crops.

The main driver of the linkages between farm and non-farm employment activities was consumption expenditure – either as purchases for final consumption or purchases for intermediate consumption. These centres of consumption are spatially concentrated in rural trading centres such as farm input markets, retail and wholesale shops. This was the case for both the smallholder and estate sectors. The surpluses from the sale of crop produce tended to circulate within the local economy, supporting employment on the farm and non-farm activities. Nonetheless, there were marked differences among smallholder and estate case studies and within the smallholder case studies.

In the estate sector, the major activity was on-farm employment with recruitment occurring both locally and countrywide, and the head offices outside the local areas making input and marketing decisions. The majority of workers were paid at government minimum wage levels and tended to be involved also in their own farming and non-farm economic activities. As a result, the links could only be traced up to second tier with a lot of spot trading activities.

In contrast, the links in the smallholder sector were dense, with backward and forward linkages to the farm enterprises. More significantly, horticultural crops that are largely consumed in the local area tended to have dense links compared to non-horticultural crops that are usually marketed to mobile traders from outside the local economy. The study also found that horticultural crops were more profitable and helped to smooth seasonal variations in incomes as they could be produced several times a year. Smallholder farmers also tended to have control over the price of horticultural crops, with buyers having less countervailing power than smallholder farmers. Although the proportion of farmers engaged in horticultural crop production was relatively small and the scale was also small compared to non-horticultural crop production, demand in the local economy presents untapped potential for agricultural development in the short- and medium-term with larger multiplier effects to the non-farm sector. Non-horticultural crops brought additional money into the area through 'exports', but the incomes from such crops were low, with produce prices dictated by 'importers'. Smallholder farmers were usually price takers in the non-horticultural produce market. There were other differences in terms of the high incidence of relational trading in horticultural produce through repeat trade while non-horticultural produce markets were spot trading markets.

Agricultural development in the case study areas, in addition to providing *ganyu* employment on the farm and employing the owners on the farm, had both backward and forward non-farm links. The main backward link was the input market with all the smallholder farmers in the case study purchasing inputs from importer distribution outlets, independent agro-dealers, supermarket chains, cooperative managed outlets and other smallholder farmers. All these input sources were within the local economy. By contrast, the sourcing of inputs in the estate sector took place at head offices located outside the local economy and as such estate agriculture did not generate downward linkages within the local economy. Other non-farm links within the smallholder sector were transport services, rural credit markets, remittances, retailing and wholesaling and output markets. The major channel through which agricultural development links with non-farm activities was final consumption. Both in the smallholder and estate sector the incomes from sales of produce and employment were mainly spent in the local economy on consumption goods. However, the surplus made in the estate sector was spent outside the local economy owing to the fact that owners resided outside the local economy. Most of the retail shops were located at the trading centres while a few were located in the villages but obtained their supplies from larger shops at trading centres.

Most of the non-farm activities were owner-operated from within the local economy and generated very little paid employment. In cases where some owners had a number of shops in the district, they employed relatives to operate the shops. Employment outside the family was dominated by casual employment in the non-farm sector and characterised by short-term task-based work with cash wage payments. The majority of the *ganyu* workers were men.

One of the constraints in promoting agricultural development and non-farm economy in the study area was the lack of credit. This implies that most of the investments in rural Malawi were financed from internal sources and tended therefore to be small investments. In some cases, smallholder farmers engaged in *ganyu* labour on other farms to generate funds for undertaking investments in their own agricultural production. In other cases, surpluses from agriculture have enabled diversification into the non-farm sector. There are a number of retailers dealing in farm inputs and consumer goods whose source of funding was income from agriculture.

Overall, rural Malawi is not well connected in terms of infrastructure with scattered settlement patterns. There are no major non-farm economic activities apart from retailing and wholesaling. Nonetheless, small towns serve as centres of economic activities that support agricultural development. In turn, farm activities in the rural areas are highly linked to non-farm activities particularly through the use of agricultural surpluses for consumption and investment expenditure. The density of network from agricultural activities to non-farm activities is thicker in the smallholder sector compared to the estate sector, and that of horticultural crops is thicker than for non-horticultural crops in the smallholder sector. Although estates generate a lot of farm employment relative to the smallholder sector, the latter plays a critical role in generating and keeping non-farm employment in rural Malawi. There is also unexploited potential for rural development in the promotion of horticultural crops with a demand base in the local economy.

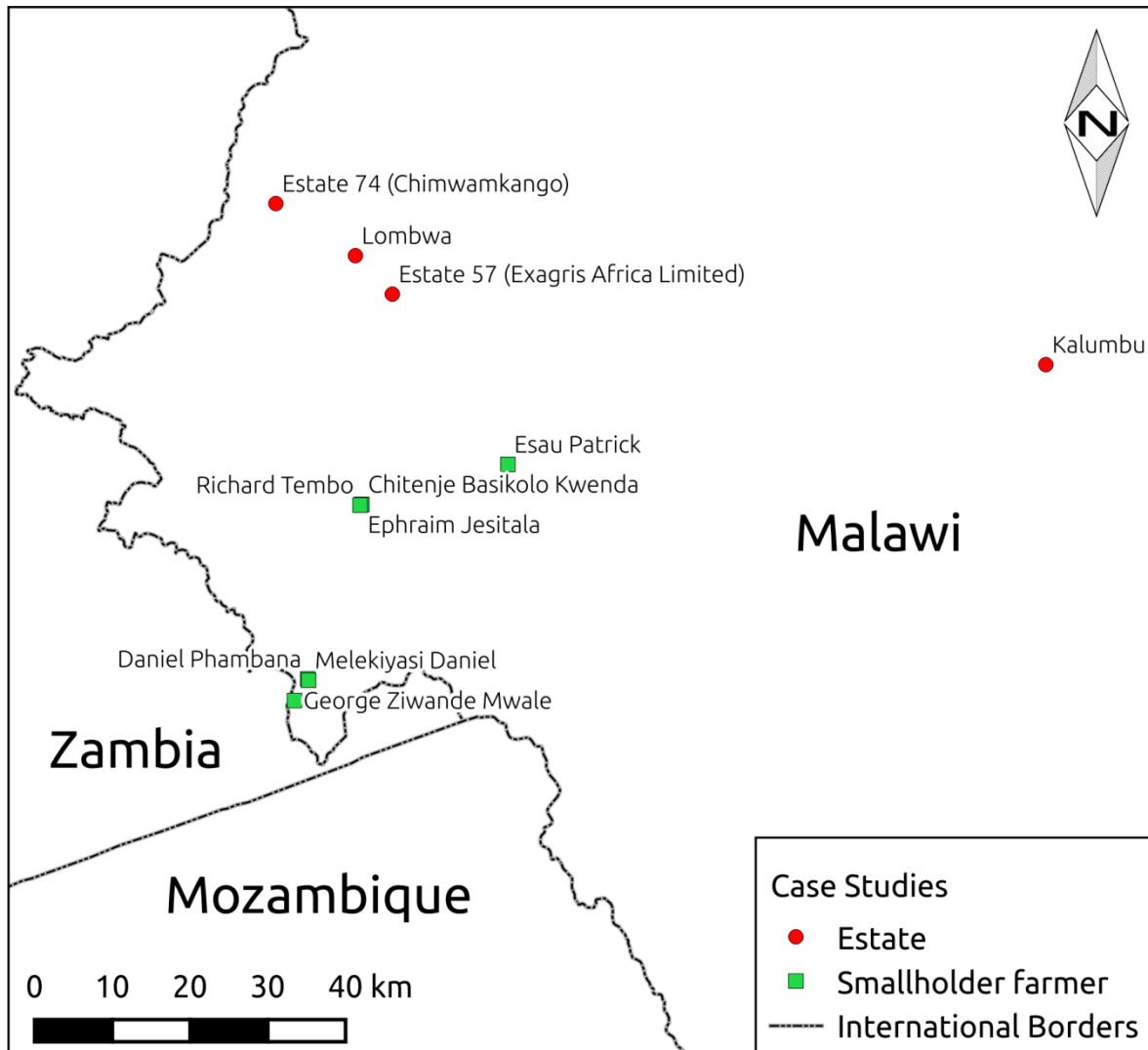
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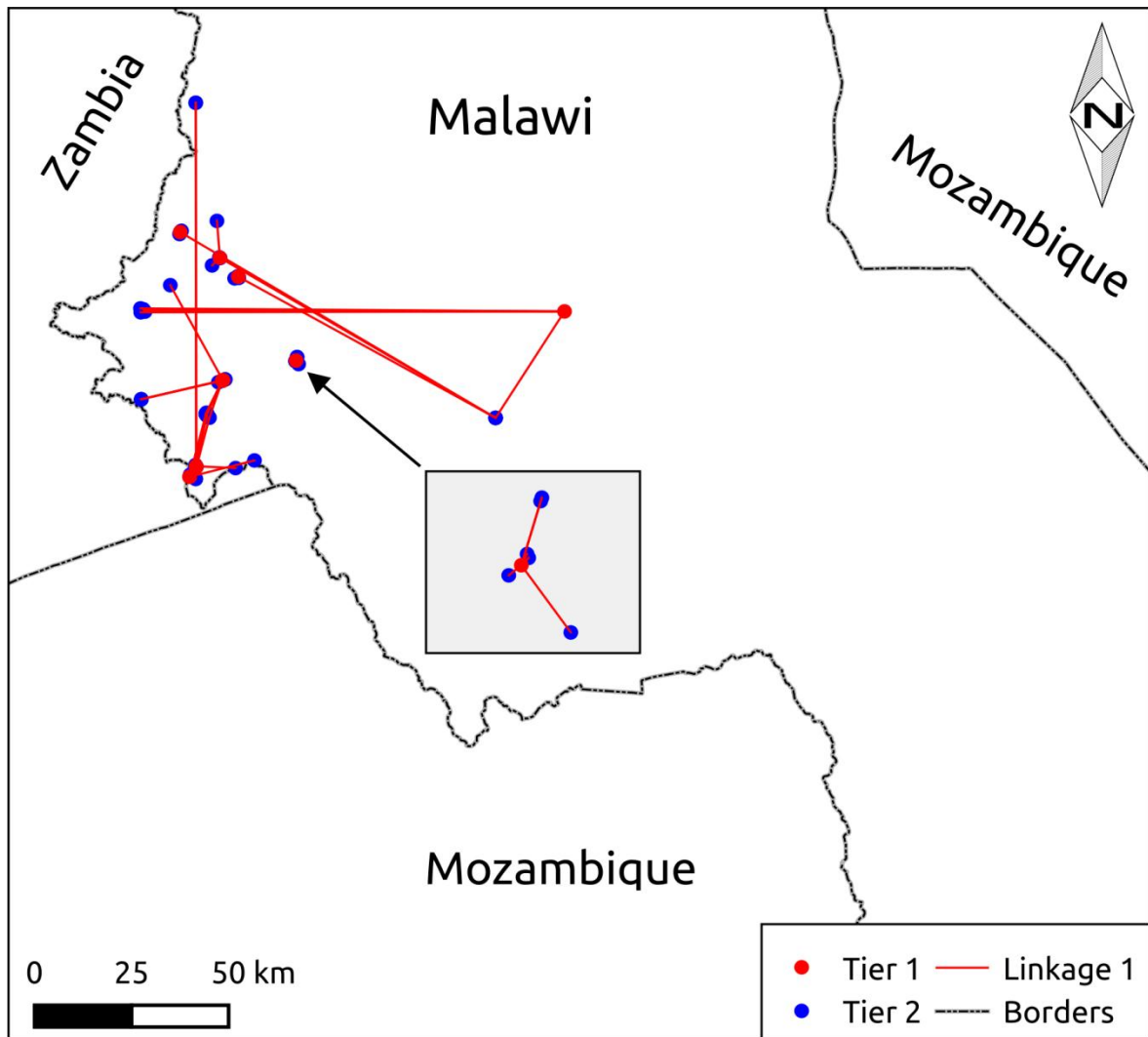
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Annex: Network maps

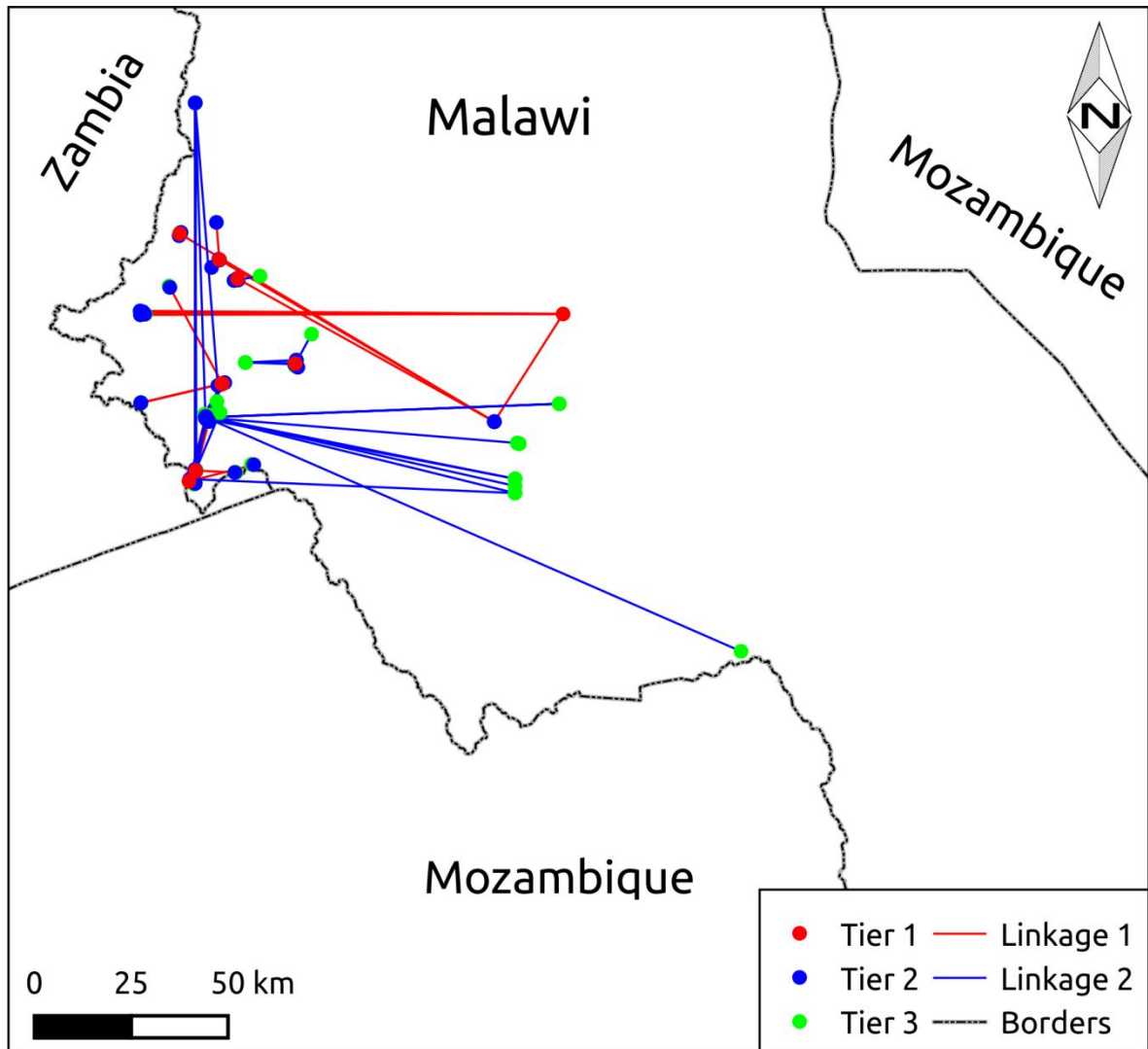
Annex 1: Map of location of case studies



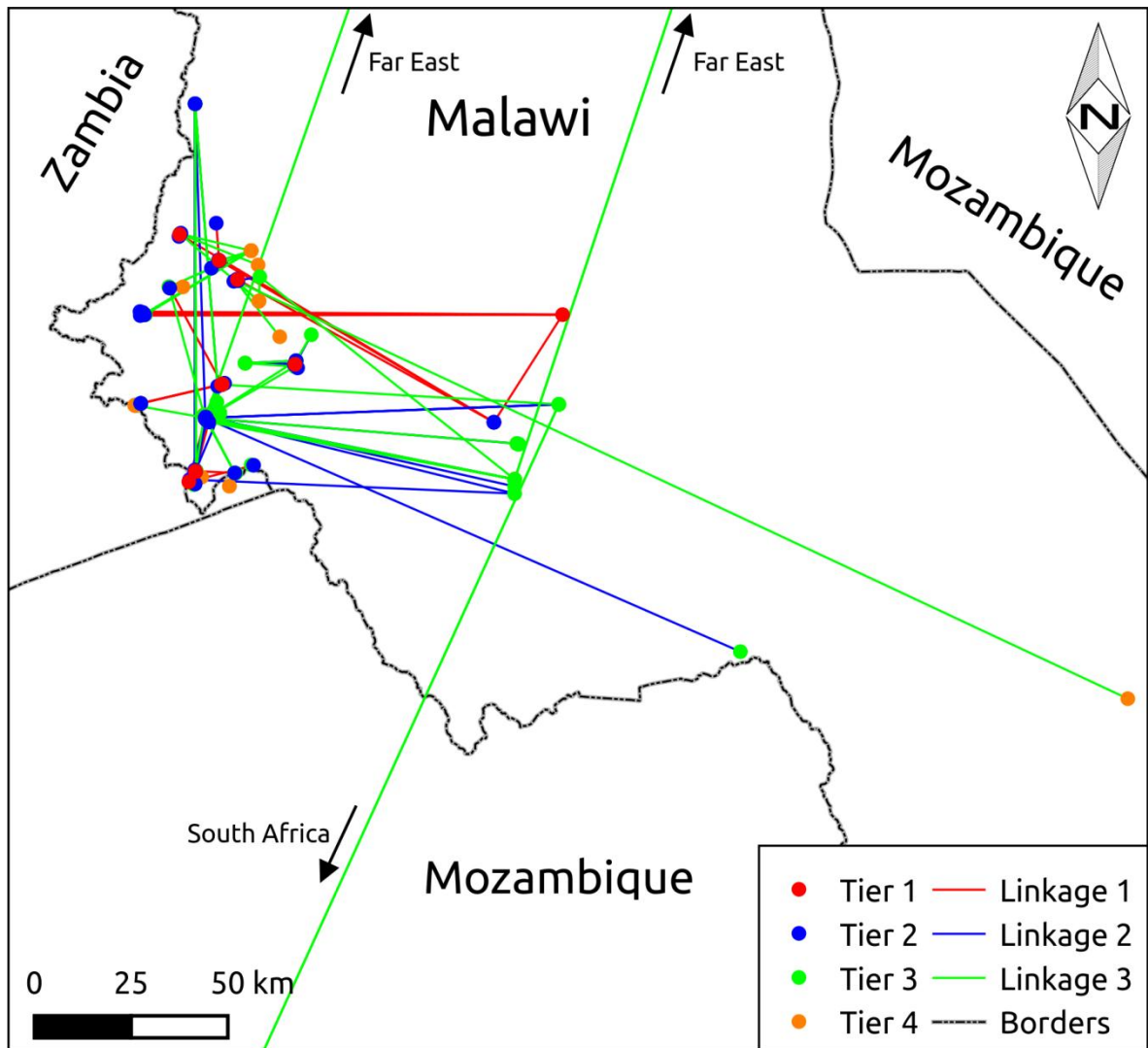
Annex 2a: Map of linkage 1 for all case studies



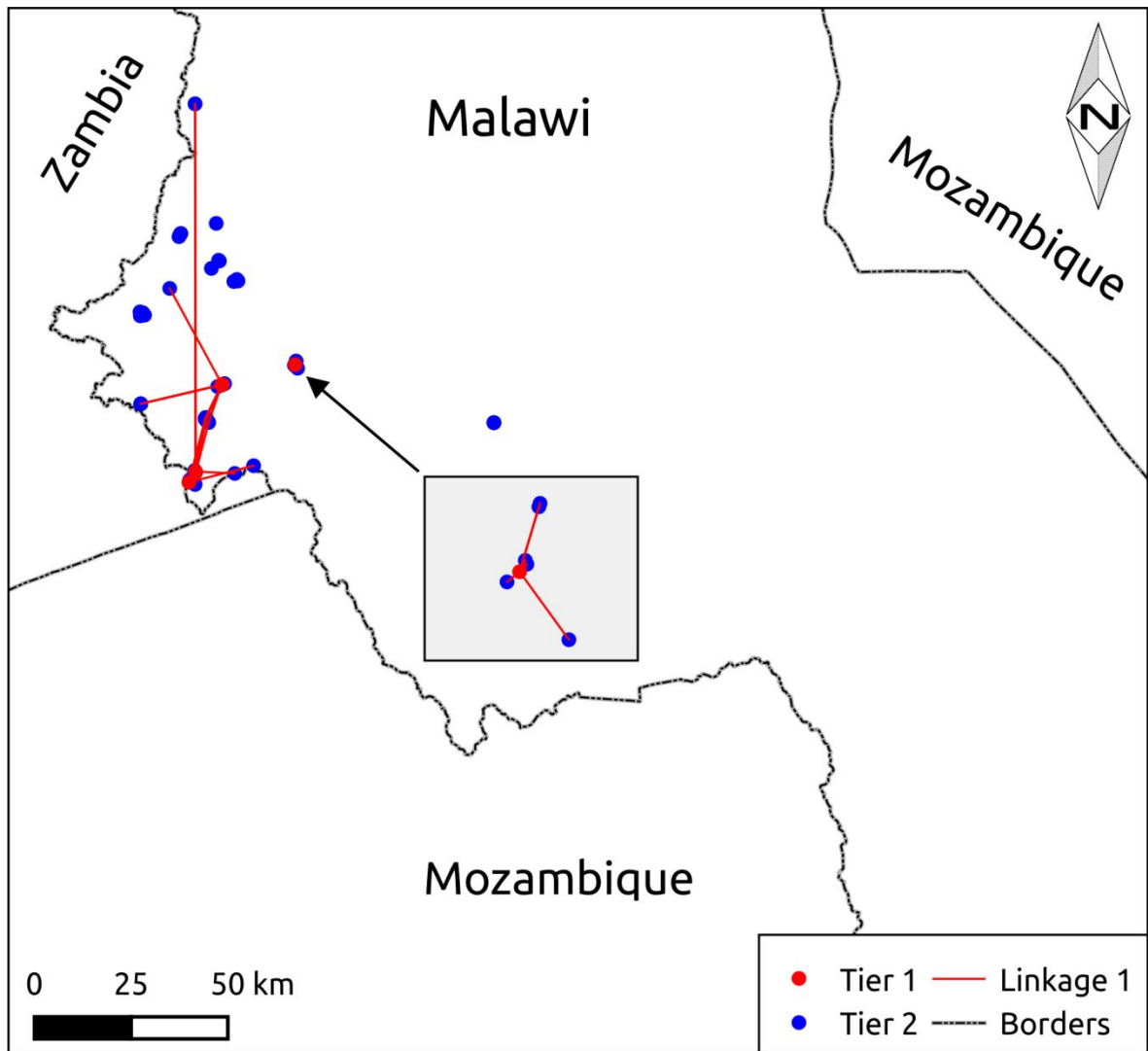
Annex 2b: Map of linkages 1 and 2 for all case studies



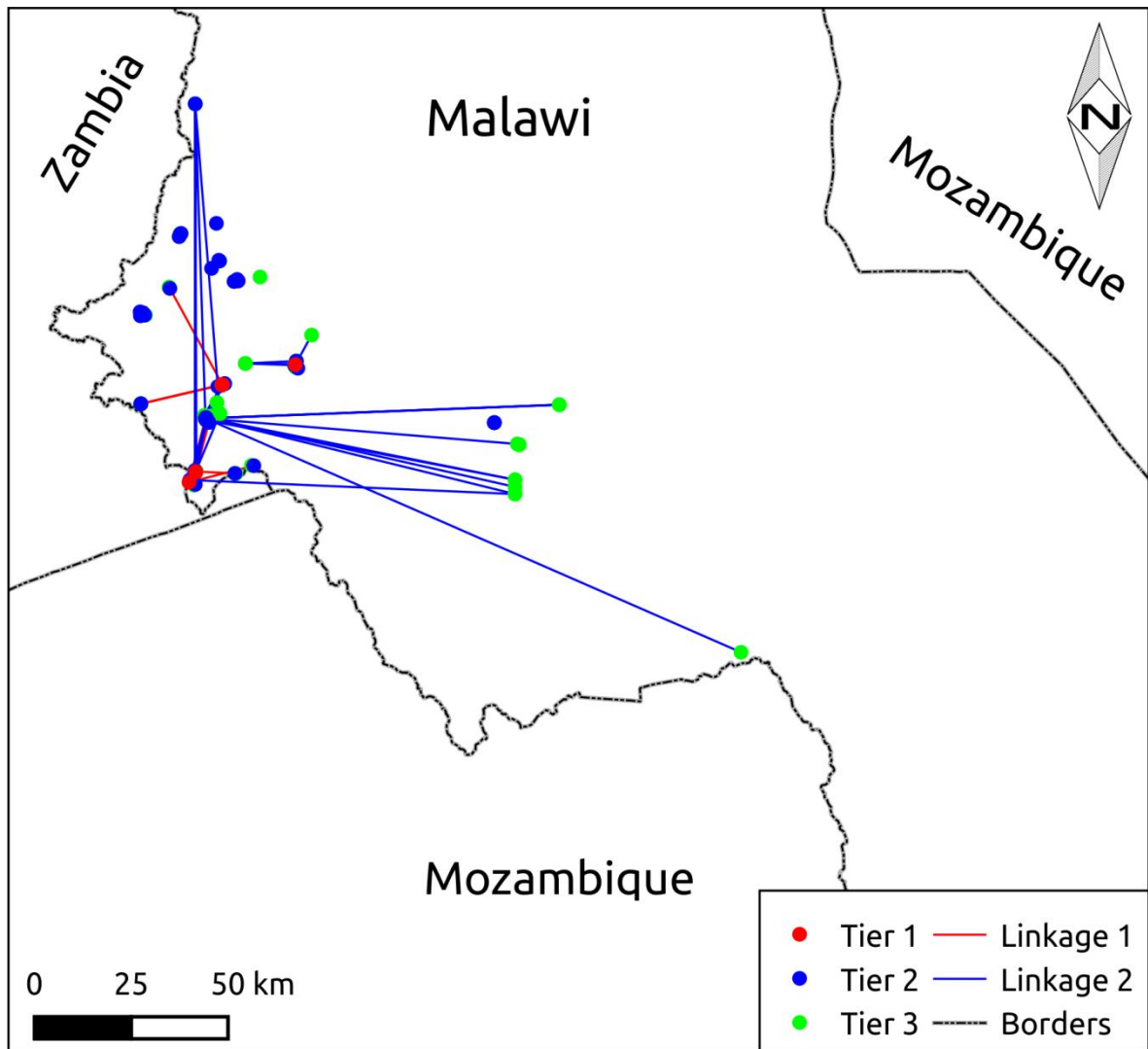
Annex 2c: Map of linkage 1, 2 and 3 for all case studies



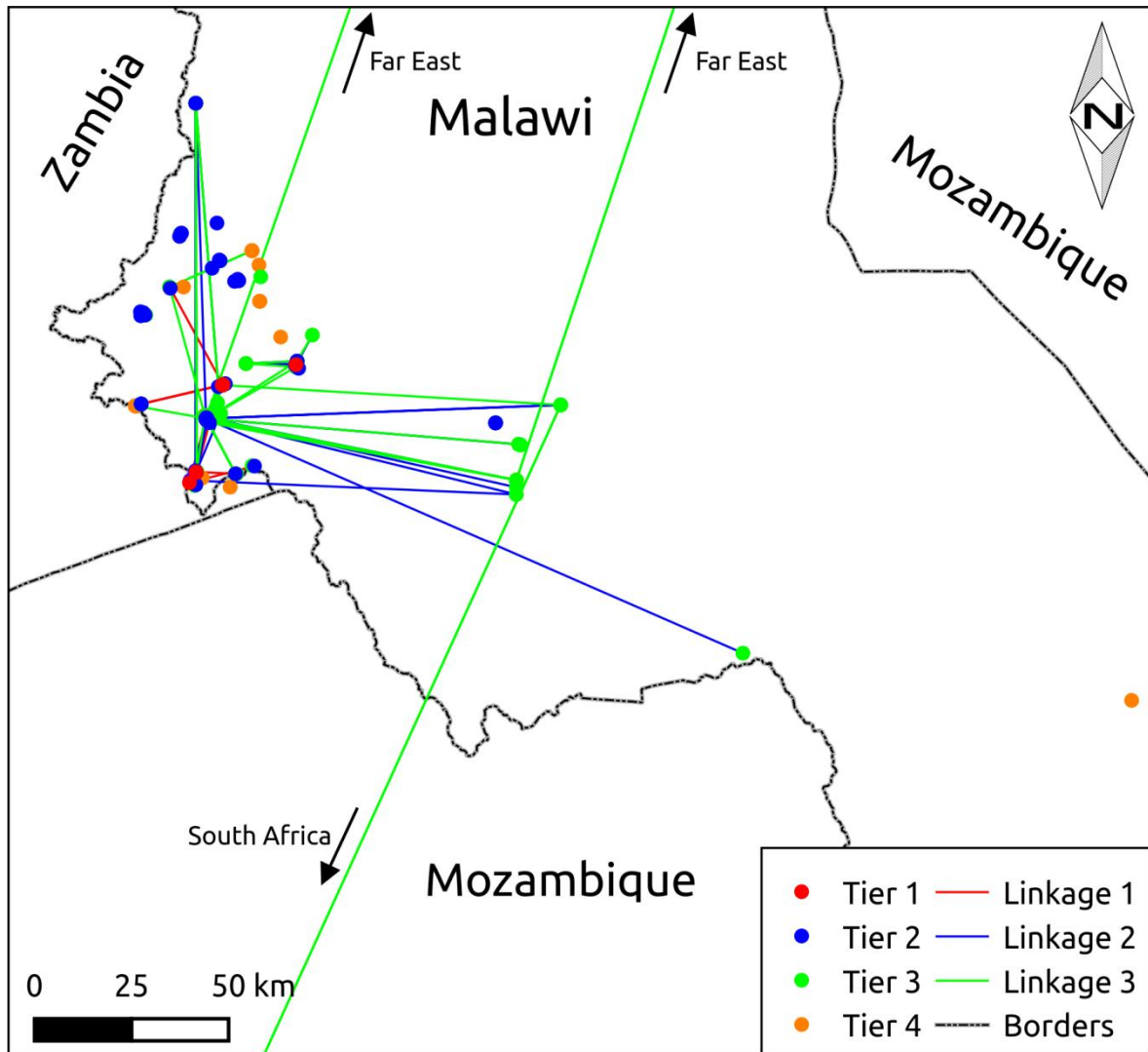
Annex 3a: Map of linkage 1 for all smallholder case studies



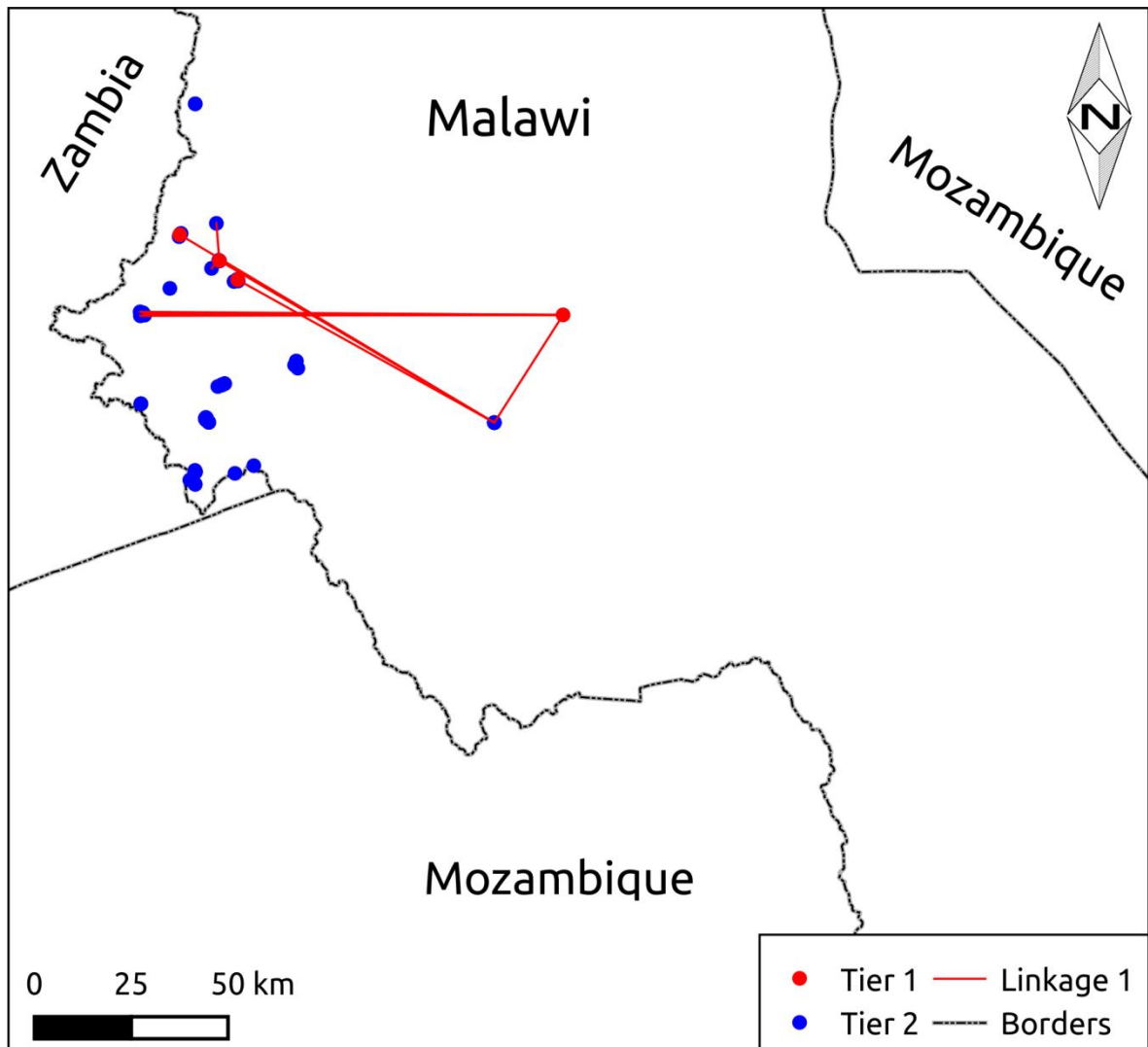
Annex 3b: Map of linkages 1 and 2 for all smallholder case studies



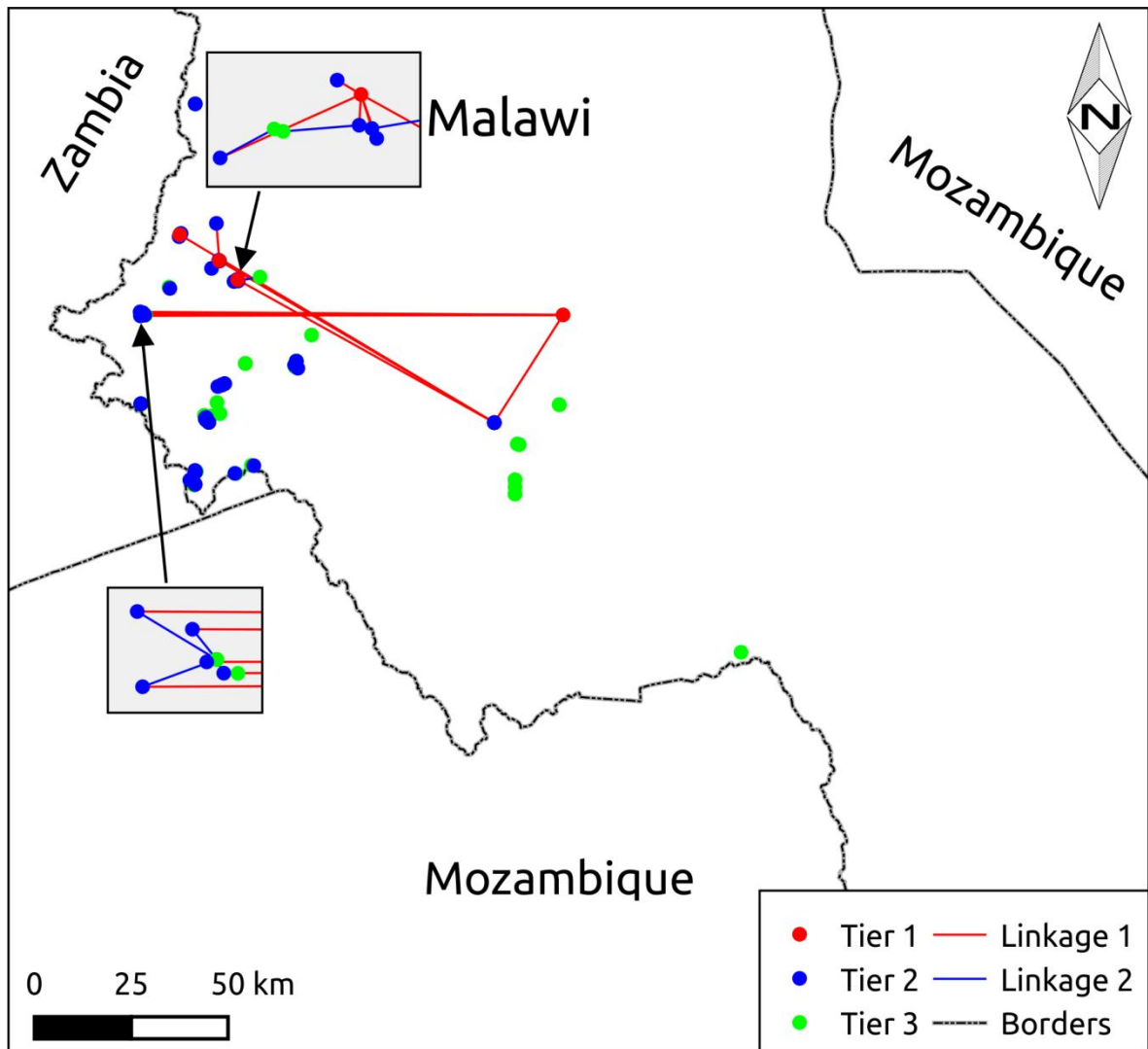
Annex 3c: Map of linkage 1, 2 and 3 for all smallholder case studies



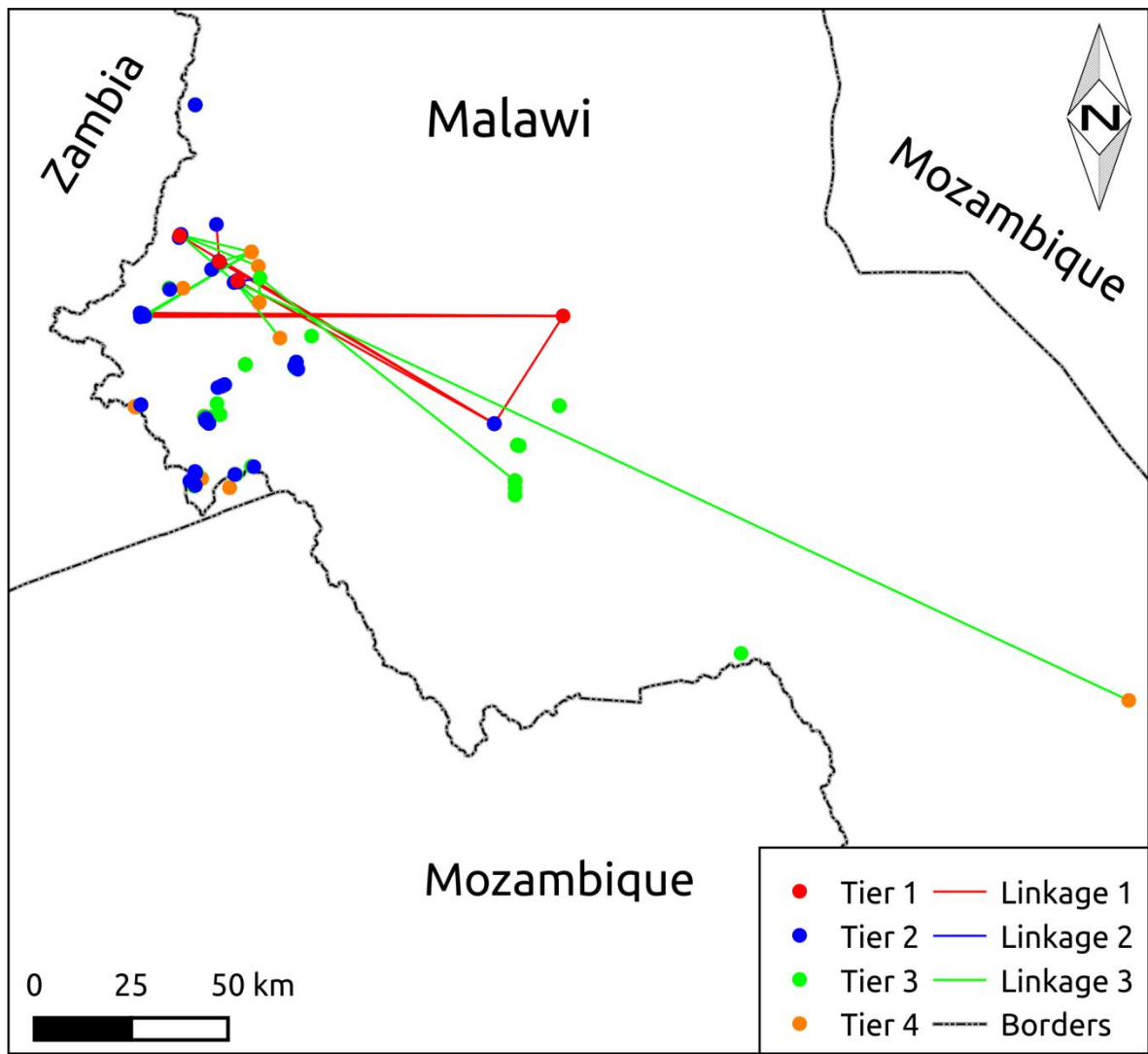
Annex 4a: Map of Linkage 1 for all estate case studies



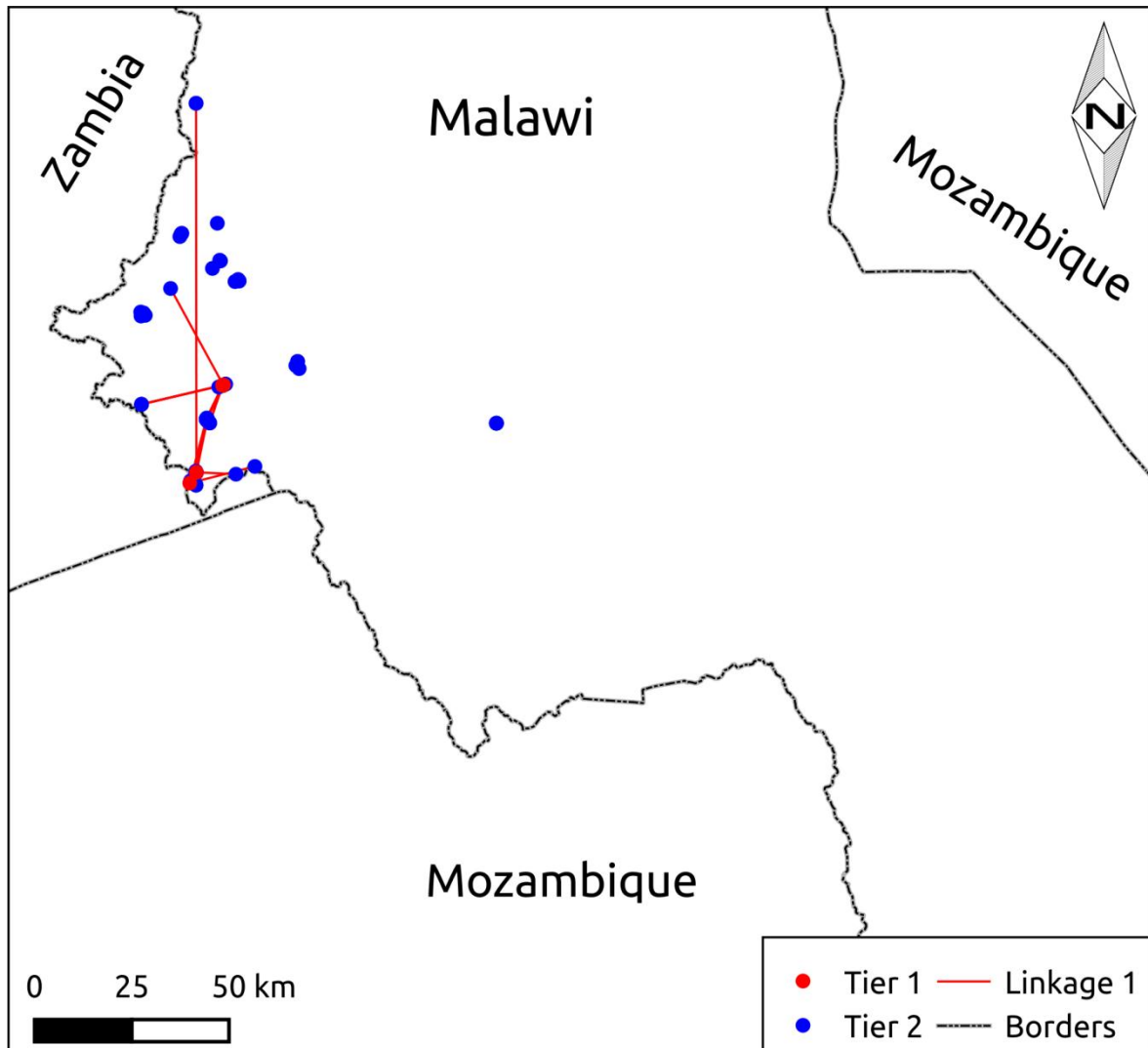
Annex 4b: Map of linkages 1 and 2 for all estate case studies



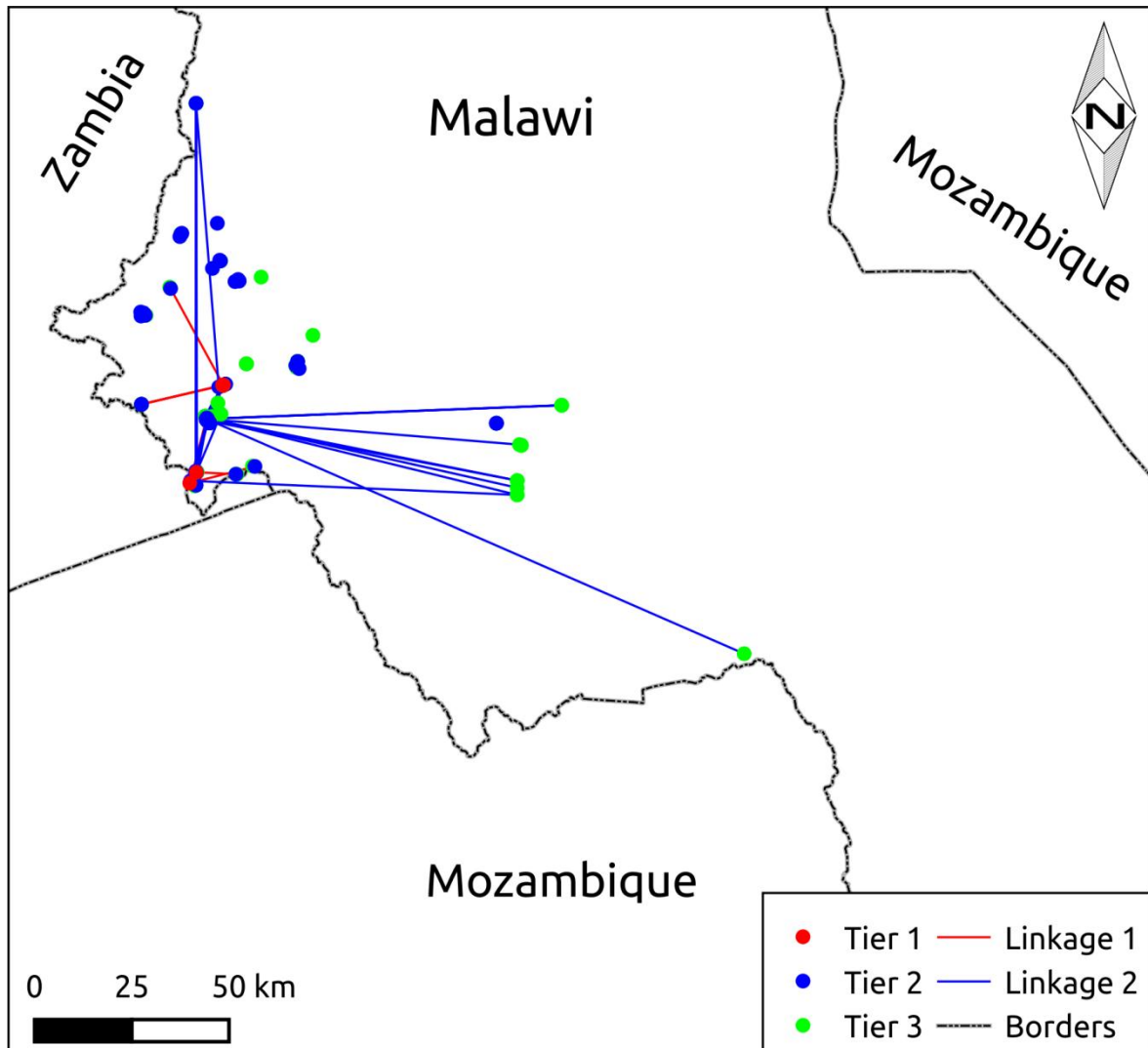
Annex 4c: Map of linkage 1, 2 and 3 for all estate case studies



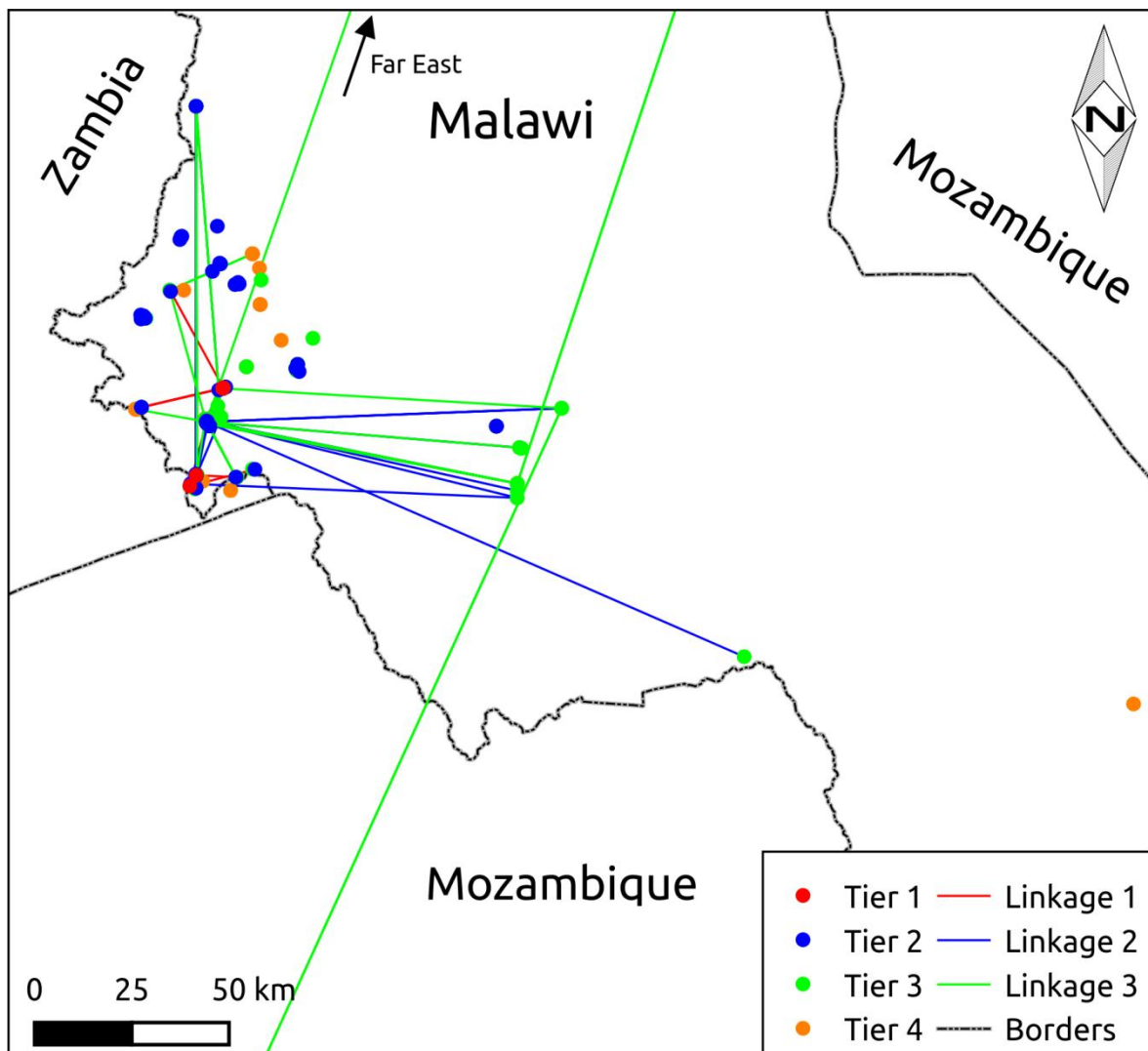
Annex 5a: Map of linkage 1 for smallholder case studies – non-horticultural crops



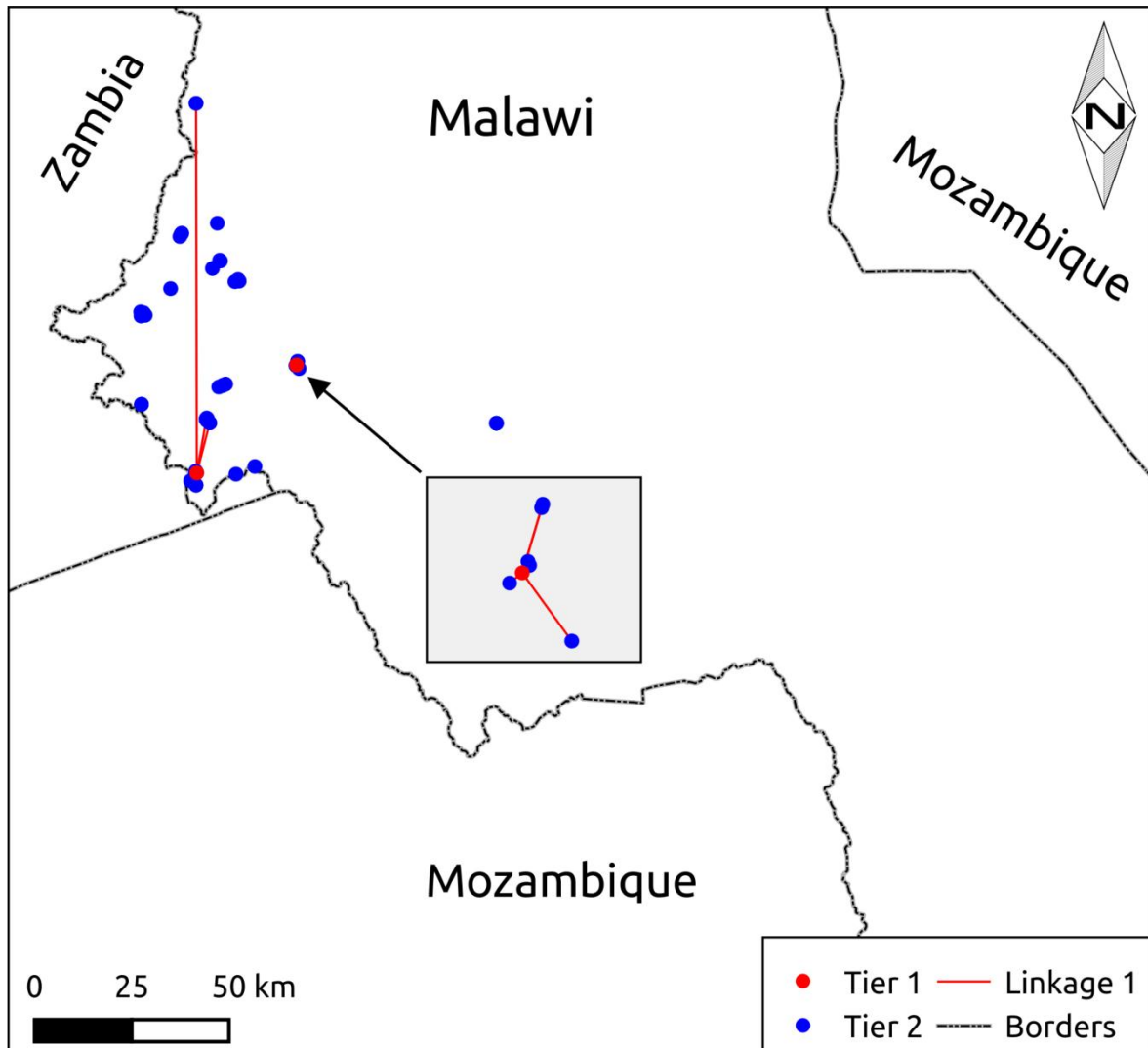
Annex 5b: Map of linkages 1 and 2 for smallholder case studies – horticultural crops



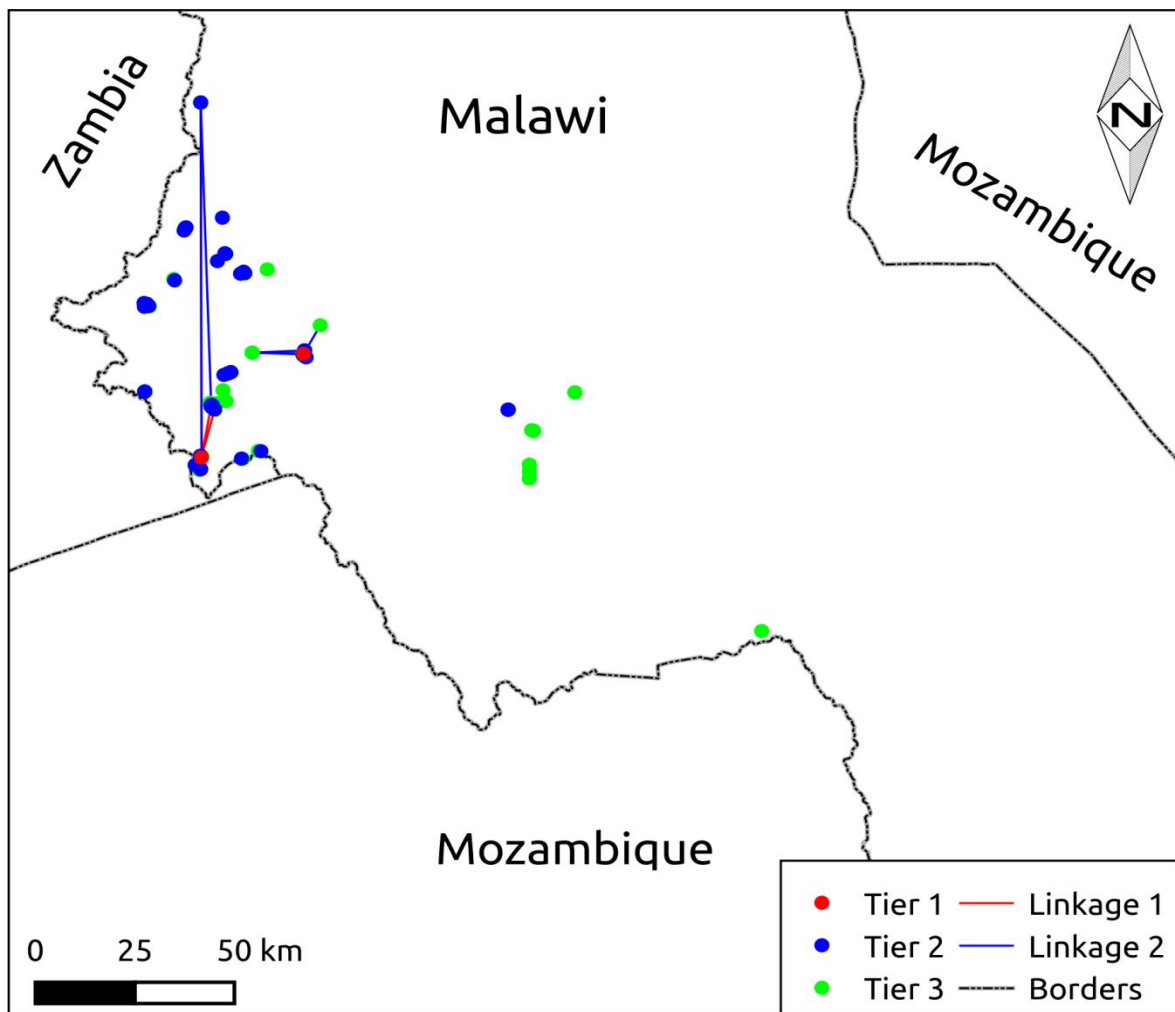
Annex 5c: Map of linkage 1, 2 and 3 for smallholder case studies – horticultural crops



Annex 6a: Map of linkage 1 for smallholder case studies – non-horticultural crops



Annex 6b: Map of linkages 1 and 2 for smallholder case studies –



Non-horticultural crops

Annex 6c: Map of linkage 1, 2 and 3 for smallholder case studies – non-horticultural crops

