FROM PEASANTRY TO PROFIT

Entrepreneurial Farming in Rwanda: The Constraints and Opportunities for Female-headed Households in Transitioning away from Peasantry through a State-run Modernization Model

By:

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WAGENINGEN UNIVERSITY
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Entrepreneurial Farming in Rwanda: The Constraints and Opportunities for Female-headed Households in Transitioning away from Peasantry through a State-run Modernization Model

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Abstract

This research took place within the CIALCA/Humidtropics project, in cooperation with IITA, Bioversity International, and Wageningen University. The Government of Rwanda set the objective of transforming into a middle-economy country by 2020 through modernisation of the agricultural sector. This study examines how the government defines entrepreneurial farming in terms of household labour, land, and access to financial capital. In addition, this study set to find out how the transition from peasantry to entrepreneurship is envisioned and if theoretical prerequisites to agricultural transition are adhered in government policy. Results indicate that female-headed peasant households are not able to participate in the Crop Intensification Program through a lack of household land, labour, and access to capital. This means that the factors preventing participation are exactly the problems it aims to address. Agricultural extensions services are focussed on persuading these households to participate rather than to facilitate the transition. The top-down policy that the Government of Rwanda takes in agricultural transition fails to take in account the specific needs of women, making successful participation unlikely. This study recommends that the agricultural policy in Rwanda is revised in order to make voluntary transition more likely and all groups in society get to reap the benefits.
I. Abbreviations & Acronyms

CIP = Crop Intensification Program
GoR = Government of Rwanda
IP = Innovation Platform
MFI = Micro-finance Institutions
MINAGRI = Ministry of Agricultural and Animal Resources
MINECOFIN = Ministry of Finance and Economic Planning
NAES = National Agricultural Extension Strategy
NISR = National Institute of Statistics Rwanda
NLTRP = National Land Tenure Regulation Program
RWF = Rwanda Franc
SACCO = Savings and Credit Cooperation

II. Tables of Figures, Tables, and Boxes

Figure 1; Peasant reproduction system (van der Ploeg, 1990, p14) ........................................ 10
Figure 2; Entrepreneurial (re)production system (van der Ploeg, 1990, p17) ......................... 11
Figure 3; Theoretical Framework ................................................................. 14
Figure 4; Map of Nyamirama sector (NISR, 2010) ................................................................... 16
Figure 5; Entrepreneurial farming according to the GoR ....................................................... 34

Table 1; Key-informants and their sector group in the local innovation platform ........... 18

Box 1; Defining Peasants and Households ............................................................................... 14
Box 2; The Impact of the Absence of a Research Permit on the Original Research Focus … 17
Box 3; From Peasant to Landless Labourer ............................................................................. 25
Box 4; From Peasant to Trader ............................................................................................... 29

III. Conversion Rate

1 Rwanda Franc (RWF) = 0.0018 Euro
1 Euro = 810 RWF

Table of Contents

I. Abbreviations & Acronyms 5
II. Tables of Figures, Tables, and Boxes 5
III. Conversion Rate 5

Chapter 1: Introduction 7
   1.1 The Global Food Production Challenge 7
   1.2 Rwanda’s Agricultural Transformation 7
   1.3 Traditional Gendered Agricultural Practices in Rwanda 8
   1.4 Problem Statement 8
   1.5 Research Objectives 9

Chapter 2: Theoretical Framework 10
   2.1 Peasant and Entrepreneurial Forms of (re)Production 10
   2.2 From Peasantry to Entrepreneurship 11
   2.3 Production, Reproduction, and Gender 13
   2.4 Theoretical Framework 14
   2.5 Defining the Female-headed Peasant Household 14
   2.6 Research Questions 15

Chapter 3: Research Methods 16
   3.1 Area of Research 16
   3.2 Original Research Focus 17
   3.3 Research Activities 18
   3.4 Data Analysis 19
   3.5 Ethics 20
   3.6 Generalizability 20

Chapter 4: The Road to Entrepreneurial Farming 21
   4.1 Labour Markets and Farm Mechanisation 21
   4.2 Land Availability and Formalisation of Land Rights 23
   4.3 Financial Capital 27
   4.4 Agricultural Extension or Coercion? 30

Chapter 5: Conclusions 33
Chapter 6: Discussion 38
Chapter 7: Recommendations 40

References 42

Annex A: Household Interview Topic List 45
Annex B: Household Profiles 49
Annex C: Coding Schemes 53
Chapter 1: Introduction

1.1 The Global Food Production Challenge

Global food production is currently not growing a sufficient rate to accommodate the steadily growing global population. Studies conducted by the UN project that there will be 9.7 billion people on the planet by 2050 (Godfray et al., 2010; UN, 2015). An additional 50 per cent of food will have to be produced in order to prevent a future food crisis by that time (Horlings & Marsden, 2011). Finding ways to increase the worldwide food production has been high on the global agricultural development agenda ever since a large peak in population growth during the 1960s (Frankema, 2014). The agronomic research and policy that emerged in that period was primarily focussed on intensifying crop production in order to achieve higher yields per unit of land. These efforts have led to a drastic global increase in crop yields after the 1970s (Mundlak et al. 1997). Technological innovations such as high-yielding crop varieties, farm machinery, pesticides, insecticides, and herbicides have facilitated this increase in food production (Frankema, 2014). However, agronomic challenges and their perceived solutions have long been framed from a top-down perspective by donors, states, and researchers. This fact-based approach to increasing productivity started to become more critically examined in the second half of the 20th century with the recognition that agronomic technologies function in complex political, social, and economic settings (Sumberg, 2013). The ‘poor’ often did not benefit proportionally from these innovations and were sometimes even disadvantaged as a result of focussing on macro-level objectives. Small farmers are were often not able to compete with large-scale producers during the original green revolution, leading to a decrease in the quality of their livelihoods (Horlings, 2011). Also, women have reportedly often benefitted proportionally less than men from technological innovations due to their specific needs not being accounted for in the design and implementation of new technologies (Pingali, 2012; da Corta and Venkateshwarlu, 2008).

1.2 Rwanda’s Agricultural Transformation

The Government of Rwanda (GoR) has engaged in a self-proclaimed second attempt for a ‘green revolution’ over the last decade. This was started in response to an increasing population pressure within Rwandan borders and a wish to participate on the global market with agricultural produce (Huggins, 2014a). Rwanda is characterized by being a small landlocked country with the highest population density in Africa. Of the 10.5 million inhabitants that resided within the country borders in 2012, 83 per cent live in the countryside (NISR, 2015). This results in very small and fragmented plots of land being available to farmers. While the average land size of households used to be 2.5 acres in 1988 (Randolph and Sanders, 1988), it is currently anywhere between 0.9 acres (Pritchard, 2012) to 1.2 acres (Huggins, 2014b). The population of Rwanda is projected to increase anywhere between 47 and 61 per cent during the period 2012 – 2032 (NISR, 2015), indicating the need for a rapid increase in food production during the years to come.
The GoR has prioritized agricultural transformation through economic growth in order to reduce countrywide poverty and food insecurity. National policy addresses the agricultural sector with specific care as it is considered the ‘motor of economic growth’ (Ansoms, 2008). The GoR aims to reduce the amount of people relying on subsistence agriculture from 90 per cent in 2000 to 50 per cent by 2020, which demonstrates the vision that agriculture is envisioned as a business rather than a subsistence activity. The result of this transformation, according to the GoR, will be that the agricultural sector is able to produce labour-intensive crops of high value, which will be able to compete on the African and global markets (MINAGRI, 2010). The Crop Intensification Program (CIP) is the flagship program through which this agricultural transformation takes place. The CIP aims to increase national agricultural production through an increase in irrigated land, agricultural inputs, and land use through marshland development (Cantore, 2011). In addition, the GoR encourages small farmers to consolidate their land with other farmers’ land and form farming groups. These groups synchronise cropping calendars of specific high-value crops to achieve higher yields and farm profits (MINAGRI, 2012). Farmers are convinced to change their farming practices through agricultural extension programmes run by the GoR. These programs are geared towards “… contributing to the professionalization of producers and to the effective adoption of agricultural innovations, in order to increase, diversify, specialize and intensify agricultural production, under economic profitability conditions for producers and for the Nation at large” (MINAGRI, 2010, p4). This is seemingly paying off as the production of kcal/person/day is already well above the set target and yields have increased by 200 to 300 per cent during recent years in Rwanda (Cantore, 2011; Huggins, 2014a).

1.3 Traditional Gendered Agricultural Practices in Rwanda

The vast majority of Rwandans are engaged in semi-subsistence farming (FAO, 1997). As in in most sub-Saharan African countries (Palacios-Lopez et al., 2015), food in Rwanda is traditionally grown for household consumption purposes. Any excess yield, in addition to some cash crops such as coffee, is sold on the market. A clearly gendered segmentation in crops grown and division of labour was present in in Rwanda in 1988 (Randolph and Sanders, 1988). Women in the Ruhengeri prefecture in Northern Rwanda were responsible for the cultivation of subsistence crops such as beans, sorghum, sweet potatoes, manioc, and peas. Men on the other hand were responsible for the cultivation of cash crops such as coffee and bananas, as well as the keeping of livestock. A more recent study conducted in the Southern and Eastern regions of Rwanda in 2007 confirm these findings are still valid as the CIP started. Men were more commonly involved in high-value crops whereas women were more likely to engage in the cultivation of subsistence crops in order to provide in food security for households (Nabahungu and Visser, 2011).

1.4 Problem Statement

Lessons learned from the original green revolution show agricultural modernisation is a process that needs to be planned carefully in order to avoid negative side-effects on small farmers. As the GoR is currently engaging in a self-proclaimed green revolution, careful evaluation of the modernisation process from the perspective of small farmers is invaluable. Few authors, with the notable exception of Pritchard (2012), have studied the perception of farmers of the CIP and their
willingness to transition into a more entrepreneurial mode of farming. As such, the perspectives of these peasants on the rapidly changing agricultural environment in remains largely unknown. Food production for household consumption is traditionally done by women in Rwanda. Transitioning into an entrepreneurial mode of farmering may require specific care for this widely acknowledged vulnerable group. However, the specific needs of women have been largely overlooked in Rwandan Agricultural policy. More insight in specific constraints and perceptions of women is required in order to guarantee their smooth transition into entrepreneurship.

1.5 Research Objectives

**Research Objective #1**: Assessing female-headed household's perceptions to - and constraints of - participation in the Crop Intensification Program, and how the Government of Rwanda aims to facilitate the transition of peasant farmers into entrepreneurs.

**Research Objective #2**: Contributing to the academic literature regarding the ability of women to transition into entrepreneurs through a top-down and state-run policy.

**Research Objective #3**: Making recommendations for policy and further research regarding successful participation of women in the Crop Intensification Program.
Chapter 2: Theoretical Framework

2.1 Peasant and Entrepreneurial Forms of (re)Production

There is a wide variety of modes of farming present across the globe. This can be seen through a lens of a three-dimensional constellation consisting of capitalist-, entrepreneurial-, and peasant farming. *Capitalist* farming is characterised by large-scale industrial farms, usually owned by corporations rather than individuals. Profit maximisation is the main objective of corporations this mode of farming and labour is organised primarily through hiring wage-labourers rather than using family labour (van der Ploeg, 2008, p2). *Entrepreneurial* farming is often the result of state-run modernisation programmes. It is highly dependent on - and geared towards - production for market purposes, and is often facilitated by access to credit, farm inputs, and technological innovations. More often than not, this farming system has the objective of expansion and profit maximisation. The main difference between the entrepreneurial and capitalist mode of farming is the ownership aspect. Entrepreneurial farms are owned by individual farmers whereas capitalist farms are owned by corporations (van der Ploeg, 2008, p1). Lastly, *peasant* farming refers to agricultural systems that are aimed primarily at household reproduction as opposed to the market. Food is grown mostly for subsistence purposes and any excess food may be sold for a cash income (ibid; Ellis, 1993, p13).

Figure 1 shows the relatively autonomous reproduction system of peasant farming. Cycles of production are based on resources produced in previous cycles of production and only part of the produced output is commercialised. Productive employment is used as a way of increasing reproduction as this is the most readily available resource in family farms.

*Figure 1; Peasant reproduction system (van der Ploeg, 1990, p14)*

The GoR does not consider capitalist farming as a tool in the agricultural modernisation of the nation. Rather, the CIP tries to transition peasant households into family based entrepreneurial farmers (MINAGRI, 2010, p6). The entrepreneurial form of production according to van der Ploeg (1990) is shown schematically in Figure 2. The main characteristic of this production pattern is that all produced goods are sold on the market after which the resources
for production are purchased again. Labour input should be minimized in this mode of farming as this is a marketed good. It is therefore in the nature of entrepreneurial farmers to increase the production of yield per unit of labour, contrary to the nature of peasant farming.

Van der Ploeg argues that there is a big difference between the empirical reality of small farmers and the theoretical focus that policy and research project onto them. The peasant mode of farming is often considered to be irrational by political actors due to not being aimed at profit maximisation in classic economic terms. However, the risk averse strategies that peasants often employ are based on expert local knowledge of their environment and guarantee the reproduction of these households. This makes peasant economics rational at household level for the purpose of survival but often conflicts with goals set a national level (van der Ploeg, 2008, p19; Ellis, 1993, pp82-104). In the case of female farmers, this perceived irrationality has an additional dimension. Women tend to focus more on increasing the well-fare of the family through care work activities and farming for food than men, who are more likely to engage in profit maximisation in the classic sense (Ellis, 1993, p192). Female-headed peasant households may therefore have a significantly harder time to adjust to the logic of entrepreneurial farming than their male counterparts.

2.2 From Peasantry to Entrepreneurship

A focus on entrepreneurial farming is often considered as the way forward, leaving little space for peasant farming. In other words, peasant ways of farming fit well into a peasant society as does entrepreneurial farming into a more modernized agricultural setting. Entrepreneurial farming in a peasant society is often seen as a taboo. Peasant farming in a modern society, however, is seen as an obstacle to productive change due to the perceived economic irrationality of peasants (Bernstein, 2006; van der Ploeg, 2008, p19).

The main external variables for transitioning from peasant farming into an entrepreneurial mode of farming are a well-functioning market for labour and land and adequate access to credit.
Ellis (1993) states that the resources of land, labour, and capital are features of peasant households that play a different role in entrepreneurial farm households. In addition, agricultural extension often plays a significant role in the adaptation of new technologies and modes of farming (Leeuwis, 2004), and will therefore also be an object of study.

**Land and Labour**

Whereas peasants rely exclusively on the availability of land and labour through the household, entrepreneurial farmers have access to these resources through market mechanisms. For peasants, having access to land for crop cultivation is the basis of their livelihoods and long-term re-productive security. Land rights are an important factor in access to land, and types of land rights vary greatly per country. However, land rights can be broadly divided into formal and informal categories. Formal land rights are often transferable and registered to name whereas informal land rights depend greatly on the local culture (Ellis, 1993, p8).

In addition to farming on family land, peasant households rely for a large part on family labour. External labour may be hired in certain seasons with a heavy agricultural workload, such as during harvesting. This is one of the most defining aspects of peasantry as more entrepreneurial farmers tend to rely on wage labourers exclusively (Ellis, 1993, p8). The transferability of land and labour is an important prerequisite as a result of these definitions of entrepreneurial farming (Zhang and Donaldson, 2010).

The availability of land and labour in a given society greatly determines the type of technological progress that peasants have to make in order to become entrepreneurial farmers. When land is scarce and labour abundant through the market, investments should be made in innovations that increase the productivity of the land by public and private actors. Investments are made in promoting and developing farm technologies that increase production, such as high yielding crop varieties. In environments that face labour scarcity but have an abundance of land, labour saving technologies impact farm productivity the most. Private sector actors encourage investments in farm machinery that allows fewer people to work more land. Theoretically, public and private research and policy always engage in the investment of innovations which impact the resource that is scarcest. Successfully engaging the target population in the innovation process ensures that innovations are consistently appropriate for the beneficiaries (Ellis, 1993, p231).

**Financial Capital**

One of the main differences between peasant and entrepreneurial farm households is their access to financial capital. Entrepreneurial farm households typically accumulate financial capital in order to expand operations while peasant household typically have little access to financial services (Ellis, 1993, p9). Peasants typically have to engage with local money lenders or business men in order to get credit. These forms of credit are often associated with high interest rates that do not enable peasants to grow their enterprise effectively (Ellis, 1993, p213). Entrepreneurial farmers have better access to credit from formal institutions due to their orientation on making money rather than re-reproduction, and a larger amount of assets that can serve as collateral (Ellis, 1993, p214). Having access to credit through state-run schemes is a viable way of providing capital to peasant farmers who are transitioning into entrepreneurs. The risks of defaulting on
loans and a high administration costs are disadvantages of providing this service (Ellis, 1993, p161). However, as labour, land, and agricultural inputs require investments by peasants in order to make the transition to entrepreneurial farming, access to credit has to be addressed by the state.

**Agricultural Extension**

In order to achieve policy objectives as those in the CIP, communicative intervention is often used by states to convince farmers to adopt certain new technologies, ideas, or policies. This usually takes place through persuasive transfer, which is when an actor, such as an extension worker, strategically manipulates farmer’s actions to match pre-defined behaviour. This sharply contrasts with more participative forms of communicative interventions where extension workers take on a role as a facilitator or advisor, rather than imposing behavioural change on farmers. Based on the fact that persuasion is required in order to make a behavioural change, and people don’t usually ask to be persuaded, this indicates that farmers are being approached by very top-down and vertical knowledge exchange methods (Leeuwis, 2004, p35).

### 2.3 Production, Reproduction, and Gender

On average, 40 per cent of the agricultural labour is provided by women in Africa according to a recent large-scale study in six African countries done by the World Bank (Palacios-Lopez et al., 2015). One conclusion this paper puts forth is the fact that agricultural work is highly gendered in all studied countries, with specific crops often being grown by either men or women. Also, various activities in agriculture such as land preparation, seeding, and harvesting have a gendered component. This differentiation of agricultural labour between the sexes is widely accepted and has been demonstrated by authors such as Allison (1985) and Burfisher and Horenstein (1985).

Women are most commonly doing care work activities at household level around the world, while also frequently working on agricultural production. The relatively high workload of women is one of the main reasons why gender is an important factor in agricultural productivity and transformation. Women often primarily care for many aspects of reproduction within the household such as child rearing, maintaining the cleanliness of the home, collecting firewood, and cooking. This results in women spending more time on household (re)production than men, who usually exclusively work on income generating activities or farm production (Ellis, 1993, p173).

Numerous authors have demonstrated that men and women cannot simply be grouped together when examining topics such as labour, capital, and vulnerabilities in the context of agricultural production (Carr, 2008; Ransom and Bain, 2011). Assumptions that men and women have the same needs are likely to hinder womens’ efforts in agricultural production and thus the reduction of poverty and food security. Gender related constraints in development are increasingly recognized by international agricultural development policies, while still frequently being overlooked by government policies (Ransom and Bain, 2011; Allison, 1985).
2.4 Theoretical Framework

Figure 3 presents an overview of the theory regarding peasantry, enterprising farmers, and the transition from the former to the later.

(Female-headed) Peasant Household
(Figure 1)

Semi-subistence crop production
Family labour & land
Limited access to capital & credit

Entrepreneurial Farm Household
(Figure 2)

Specialised crop production
External labour & land
Access to capital & credit

Figure 3; Theoretical Framework

2.5 Defining the Female-headed Peasant Household

In order to clearly define this concept, a concrete definition is given for both peasants and the household in Box 1. These two definitions partially overlap in the sense that they are family based units that manage resources in order to sustain themselves. Ellis’ definition of peasant households adds the dimension of agriculture and markets while Rudie’s definition stresses the fact that the household takes care of its primary needs.

An important distinction made between two types of female-headed households being de jure and de facto. A de jure female-headed household refers to households that are female managed due to separation from their husband through either divorce or the husband passing away. The woman in charge of a household is supposed to be relatively independent from other male actors although male members of the family may interfere with daily routines. A de facto female-headed household refers to a household which is managed by a woman due to her husband being absent as a result of being employed elsewhere or having multiple wives. The independence of these women in charge depends on the frequency of the men contacting the households, either in-person or through other means (Niehoff, 2011; Allison, 1985).

Box 1; Defining Peasants and Households

Peasants:

“Peasants are households which derive their livelihoods mainly from agriculture, utilise mainly family labour in farm production, and are characterised by partial engagement in input and output markets which are often imperfect or incomplete” (Ellis, 1993, p13)

Household:

“a co-residential unit, usually family-based in some way, which takes care of resource management and primary needs of its members” (Rudie, 1995)
2.6 Research Questions

The introduction, theory, and concepts lead up to the following research questions that are posed in this study.

**Research Question #1:** How is access to labour, land, and financial capital envisioned in entrepreneurial farming as part of the CIP by the GoR, and what is the role of agricultural extension in the transition to this mode of farming?

**Research Question #2:** How does the current access to labour, land, financial capital, and agricultural extension constrain and/or enable female-headed peasant households to participate in the CIP?
Chapter 3: Research Methods

3.1 Area of Research

This fieldwork component of this study took place in the Kayonza district in the Eastern province of Rwanda. The district borders Tanzania and is for a large part within the perimeter of Akagera National Park. Kayonza District has a population of 344,157 (2012) and a population density of 178 inhabitants per square kilometre, making Kayonza District the district with the lowest population density of the seven districts in the Eastern Province. Christianity is the predominant religion and the average household consists of 4.3 people (NISR, 2015). According to a study by IITA, roughly 70 per cent of the farmers in the Kayonza district have access to improved seed varieties and 20 per cent of the farmers have access to agricultural extention by the government. Besides agricultural extention through the government, a small percentage of farmers have access to agricultural extention by NGO's or other private actors. Inorganic fertilizers are not widely applied in the Kayonza district as roughly 90 per cent of the farmers indicate not applying such inputs (IITA, 2015).

This study took place in the Kayonza district due to presence of an Innovation Platform (IP), which is part of the CGIAR Research Program on Integrated Systems for the Humid Tropics (Humidtropics). This program works in various (sub-) tropical regions across the globe, among which Rwanda and the objective of enhancing the livelihoods of poor people in rural areas. Two local IPs have been established in Rwanda to achieve this. Various technological and institutional innovations are experimented with by the IPs in order to improve rural livelihoods and household food security (Humidtropics, 2012; Lamers et al, 2015).

In Kayonza district, IP field sites are present in three sectors: Mwiri, Rukara, and Nyamirama (Lamers et al, 2015). Data collection has taken place in three of the four administrative cells of Nyamirama sector: Gikaya, Shyogo, and Rurambi (Figure 4). This sector is suitable for this study due to the fact that the CIP has not yet been implemented on a large scale. This is an important prerequisite for this study as non-participants are required in order to establish the constraints and perceptions prior to participation. Also, Nyamirama sector is known to have a relatively poor population compared to other sectors (CIAT staff, personal communication, 30-10-15) which may make the transition into entrepreneurial modes of agriculture more challenging due to a lack of available labour, land, and access to financial capital.

![Figure 4; Map of Nyamirama sector](NISR, 2010)
3.2 Original Research Focus

This study differs significantly from the proposed research. The original study aimed to assess the impact of the Crop Intensification Program on women’s land rights, labour allocation and access to knowledge, in addition to household food security in the Kayonza district of Rwanda. These resources were chosen as objects of study as access to - and the decision-making power on - resources are seen as prerequisite to women’s empowerment (Kabeer, 1999). These three resources were chosen based on the likelihood that they were affected by household participation in the CIP.

However, this research focus was abandoned due to the absence of CIP participation in the research area, that was designated by Bioversity International due to the presence of an IP in the region. To adapt to these conditions, the study was redesigned to compare the access of women to these four resources between female- and male-headed households. However, female participants in male-headed households were hard to obtain in the field as these household heads are more reluctant to let their wife’s be interviewed than in the case of women in female-headed households. The absence of a formal government issued permit for this research limited the inclusion of male respondents as illustrated in Box 2.

<table>
<thead>
<tr>
<th>Box 2; The Impact of the Absence of a Research Permit on the Original Research Focus</th>
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We took off our dirty shoes and were offered sandals to wear inside the house. It felt very welcoming. We sat down and I explained my purpose of visit and introduced myself. At some point, two men entered the house. One of them was about a generation older than the other and they both sat down with us on a second couch. They remained silent for a couple of minutes as I proceeded the preparations of the interview and as I started to explain the right to refuse answers and stop the interview at any time, the older of the two men started to get involved and respond to everything I said. Immediately the woman shut down completely and phased out. He seemed to be okay with everything so far and said it was fine. He did ask me to reintroduce myself again as he missed part of my introduction, which I did. At the point where I asked the woman if it was okay to record the interview, the man, which I now learned to be her husband, started to be difficult. He got into a discussion with Stella and I did not follow exactly what was going on. I heard the terms ‘[name of sector agronomist]’ and ‘RAB’ and Stella explained to me that she tried to explain to him on who’s authority we were here. He then asked me for a research permit and I explained to him that I was with RAB but that my permit had not been processed yet. I was scared at this point because I knew that he had a point and for a second I was afraid that he would call the authorities on me. It did not go this far, however, and we were simply told that we ought to leave. We left the house, put on our shoes and shook hands goodbye. The woman was quiet throughout the whole process and seemed rather disillusioned. I am not sure whether this was disappointment or embarrassment for her husband, but she wasn’t happy. When talking to Stella after we walked away from the house she told me that he had been very rude to her in Kinyarwanda, which I did not pick up on in the interview. She was happy that we left, and so was I. Even if he let us continue the interview I feel he would have taken over completely and the woman would not have been able to freely communicate with me. I decided to move far away from this household before taking on another interview as I did not want to be confronted with this guy again, also because he knew I was not operating strictly legal and I feared him taking action when seeing me again.

(Field notes Interview 8: 30-11-2015)
The data collected in this study is largely based on these previous research designs rather than the current one. It is for this reason, for example, that the topic list found in Annex A is not perfectly tailored for the current study. Also, data obtained from the in-depth interviews that have been conducted in this study are largely, but not completely, irrelevant in this study design and has therefore had limited use in answering the current research questions.

3.3 Research Activities

The necessary data for answering the research questions of this study was obtained using three data collection methods. Besides a review of GoR policy documents and academic literature, key-informant interviews and semi-structured interviews with female-headed households have taken place during the data collection phase in October, November, and December 2015. The two latter data collection methods will be discussed in the following sections.

Key-informant interviews

Local IP members were interviewed at the beginning of this study in order to explore some general topics during a period of two weeks. These in-depth interviews, which were unstructured, allowed for a large degree of freedom in exploring and/or elaborating on topics as they emerged during the interviews. As the knowledge of certain concepts of interest varied among IP members, the topic lists that were used for the interviews differed per key-informant.

The six key-informants have been selected purposely based on their role in the IP (Table 1). Stakeholders of all four sectors that are present in the IP have been interviewed in order to make sure all sectors are represented in the exploration of the various topics at the start of the fieldwork.

Table 1: Key-informants and their sector group in the local innovation platform

<table>
<thead>
<tr>
<th>IPK key-informant</th>
<th>Sector</th>
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<tbody>
<tr>
<td>Nyamirama sector agronomist</td>
<td>Private</td>
</tr>
<tr>
<td>Nyamirama Savings and Cooperatives Corporation (SACCO) manager</td>
<td>Private</td>
</tr>
<tr>
<td>Gardens for Health agronomist</td>
<td>NGO</td>
</tr>
<tr>
<td>CIAT researcher</td>
<td>Research</td>
</tr>
<tr>
<td>Farmer (male)</td>
<td>Farmers</td>
</tr>
<tr>
<td>Farmer (female)</td>
<td>Farmers</td>
</tr>
</tbody>
</table>

Semi-structured interviews

Fourteen semi-structured interviews took place with female household heads during a period of six weeks. As there is a need for some uniformity in the topics covered in order to compare the interviews and draw valid conclusions, these interviews were semi-structured. The order of the topics covered has differed per interview but most topics were covered each time. The topic list that was used for the semi-structured interviews is shown in Annex A. With permission of the respondents, all interviews in this study were recorded and transcribed. Citations from the interviews in this study are sometimes altered slightly for readability purposes.
Snowball sampling was used to select the women that have participated in the semi-structured interviews as there was suitable sampling frame available to draw the participants from. This sampling method involves asking the current respondent for another suitable candidate for an interview. Snowball sampling is justified by the fact that mostly female-headed peasant households were interviewed, which were otherwise hard to locate. However, snowball sampling does have consequences for the sample in this study. Respondents are likely to know each other and have social ties, which results in a possible community bias (Mason, 2002). The diversity of the interviewed households was monitored in order to prevent this bias as much as possible. Random women are asked whether they knew of a female household head in the vicinity that would be available for an interview when the intended respondent was not home, or the previous respondent could not think of a suitable household for participation in this study.

Of the thirteen women that were interviewed in this study, ten are de facto household heads and three are de jure household heads. The unmarried women are mostly widows with the exception of one woman who divorced her husband due him cheating on her. Another woman was abandoned by her husband as he refused to return to Rwanda with his wife from exile after the genocide. The other eight women lost their husband in the genocide (3), traffic accidents (2), by murder through witchcraft (2), and reasons unknown (1). Of the three de jure household heads, two have husbands that work elsewhere in the country. The last one of them has a husband that left to Uganda in search for work six years ago and although she has not been in contact with him since and she suspects he remarried, she still considers herself married.

The average age of the women in this study is 48 years old with the youngest being 38- and the oldest 60 years old. The average household consisted of 5.6 members and was usually composed of the household head and her children. Six respondents went to school of which one finished secondary school and two finished primary school. Five respondents did not go to school at all and the education level of two women is unknown. More detailed information on the demographics per household is located in the household profiles presented in Annex B.

3.4 Data Analysis

The analysis of the data obtained during the fieldwork phase of this study was taken in four steps. In order to gain an understanding of how respondents talk about the topics, the data was first transcribed and read through multiple times. This step was followed by the identification of codes and themes relevant to the research questions of this study. These codes were primarily developed top-down based on the themes that were expected to be relevant. Following this, the data was coded using the software package ATLAS.ti, after which the quotations belonging to the corresponding codes from the different interviews were grouped. These collections of codes were used in order to present the results of this study (Green and Thorogood, 2014, pp210-7). As adjustments were made to the coding scheme during the data analysis, these steps were not taking statically in this order. The coding scheme used for data analysis is shown in Annex C.
3.5 Ethics

Informed Consent

All participants in this research project were informed on the research objective of this research prior to their participation (Silverman, 2011, p98). Permission for using a voice recorder to record the interviews was always obtained. In addition to this, interviewees were told that they had the right to refuse answering any question and to stop the interview at any time.

Confidentiality

The exactly location of the households and names have been omitted from the interview transcripts in order to safeguard respondent identity.

Responsibility towards the Research Participants

The the basic ethical principles of (1) non-maleficence, (2) autonomy, (3) beneficence, and (4) justice have been adhered to in this study. This means that (1) no physical, psychological, or emotional harm has been caused to the participants; (2) participants have always be treated with respect regardless of differences in philosophy; (3) the research has aimed at being beneficial to the participants or the community as a whole; and (4) all individuals have been treated equally and just (Green and Thorogood, 2014, p74).

3.6 Generalizability

The generalizability of a research project refers to the degree to which the results are applicable to other settings. Some people argue that theory building through qualitative research is a way to generalise one's results to a broader perspective. However, care has to be taken with generalizing the results of this study to other settings due to the possible local factors and conditions that influence the results. Potential examples of these local factors could be the level of poverty in the region, the presence of certain NGOs that work on credit provision and poverty alleviation, and the fertility of soils. The results coming forth from this study could, however, contribute to theory building in future studies regarding participation in the CIP for female-headed peasant households in other places in Rwanda.
Chapter 4: The Road to Entrepreneurial Farming

The presence of an economically stable middle class is the backbone of the 2020 vision of the GoR to transition to a middle income country. Besides trying to occupy a niche sector in the region in providing financial-, logistical-, and telecommunication services, a productive agriculture sector should pave the way for achieving this goal (GoR, 2012). Land, though a relatively scarce resource, is fertile and the commercialisation of agriculture is seen as the solution to making this resource more productive. Roughly 70 per cent of the population was still engaged in subsistence agriculture in 2010 (GoR, 2012), making the nation-wide transition into entrepreneurial farming by 2020 a challenge.

The challenges that MINAGRI considers most hindering in the current agricultural sector are soil degradation, climate dependence, poor farming skills, and farmers’ available land (MINAGRI, 2010). In order to overcome these challenges, the objective of the National Agricultural Extension Strategy (NAES) is to "... contribute to the professionalization of producers and to the effective adoption of agricultural innovations, in order to increase, diversify, specialize and intensify agricultural production, under economic profitability conditions for producers and the nation at large" (MINAGRI, 2010, p4). Central to this objective are the terms 'professionalization' of - and 'economic profitability conditions' for - producers. This chapter presents how the GoR envisions the entrepreneurial mode of farming and how they aim to overcome the perceived constraints of female-headed peasant households to 'professionalize' and is done in four sections. The first three sections deal with labour, land, and financial capital, in this order. The role of these three resources, in entrepreneurial farming according to the GoR, is discussed in addition to the constraints that female-headed peasant households currently face regarding these resources in the transition to this mode of farming. The fourth section of this chapter discusses the role of agricultural extension in the transition from peasantry to entrepreneurial farming.

4.1 Labour Markets and Farm Mechanisation

Rwanda’s agricultural situation is characterized by scarcity of land and an abundance of potential labour power resulting from its high population density. In theory, this should result in public and private actors engaging in the intensification of land use rather than promoting labour efficiency in order to increase production (Ellis, 1993, p231). The goal of the CIP is to increase land productivity through consolidation practices, introduce of high yielding varieties, increase agricultural inputs, and develop mono-cropping practices, which are all innovations that intensify land use (MINAGRI, 2012). However, the GoR does not explicitly mention that a well-functioning agricultural labour market is a prerequisite for entrepreneurial farming in any of their known-of policy documents. Instead, the CIP aims to mechanise farming practices in order to unburden peasant farmers who rely predominantly on family labour for production (MINAGRI, 2011, p22). The GoR states that "... agricultural mechanisation has many benefits. It contributes to improving productivity of cultivated land and facilitates expansion of cropping areas, improving overall food security. Mechanisation also eases labour constraints including seasonal shortages, and reduces the requirement for physical drudgery, leading to both improved production and lifestyles for farmers. Agro-processing and value addition through mechanised equipment can also generate employment..."
and raise rural incomes” (MINAGRI, ?, p21). This document abstract clearly illustrates the logic of the GoR of decreasing farm-labour use through the creation of alternative sources of employment outside farming as a result of increased crop yields. A MINAGRI document on land consolidation confirms this stance as it states that an increased availability of employment options is expected in agro-processing, trading, and other unspecified supply chain activities, as a result of these policies. This document also recognises, however, that these anticipated jobs are still largely lacking (MINAGRI, 2012, p29) making this is a peculiar vision in a country that is characterised by an abundance in labour.

The Role of Labour Availability and the Labour Market in Peasant Households

The farm sizes of the respondents in study are small and production is predominantly geared towards providing subsistence needs. However, sufficient labour to achieve optimal production is indeed indicated to be lacking in some of these female-headed peasant. Health constraints and the absence of a husband and were mentioned to be the two underlying causes for this labour shortage within the family farm.

One of the respondents with a labour shortage in her household stated that "Before it was very easy for me because my husband could help me. These days my kids are … in the mature stage, and they don’t even like to help me digging and that’s why these days its very hard for me to feed them. And leaving the farm destroys the crops” (Household Interview 5). Two aspects of labour shortage in female-headed peasant households are revealed in this interview fragment. First, it shows an aspect of vulnerability for female-headed households specifically; the absence of a husband to work with. Three other respondents mention this problem with labour availability due to the absence of an additional pair of hands as well. The second aspect of this interview fragment reveals the fact that the children of the respondents do not seem to favour doing agricultural work. In all but one households that participated in this study, the children of the respondent did not help with doing agricultural work on the farm. This supports the stance of the GoR that labour opportunities are to be created outside the agricultural sector as the next generation of Rwandans is not willing to take up agricultural work in farming. Farm mechanisation could fill this gap in labour which would benefit these female-headed peasant households. However, none of the respondents mentioned farm mechanisation to be the solution to labour shortages. Being able to hire external farm labour, however, was mentioned as a solution to labour constraints.

Female-headed peasant households participate actively in the labour market. The possibility of hiring external labour during peak season is mentioned in two of the interviews. One of these women stated “Because some days I have a sickness and when I get sick … it disturbs by life that’s why I like someone to help me [farming] because it is very easy” (Household Interview 1). This respondent illustrates that having the resources to hire external labour mitigates the problem of having physical constraints to get the agricultural work done on the farm. The other respondent is able to hire external labour occasionally which she is able to pay for with the money that comes in through her husband’s job in construction. Six households in this study provide labour to other farms and are paid with either cash or food. They are able to provide services on these farms as their farmland is too small for them to be occupied full-time. Also, it is often the only source of income available to them. This will be discussed further later in the section on financial capital.
Labour Availability as a Constraint for Participation in the CIP

Three respondents indicate that labour availability is an issue for participation in the CIP. One respondent explains that when she would consolidate land with others, she would not always be able to contribute to the communal farming activities due to health constraints: “In this system we have where there is a farm where they combine that land. They go and work together, they combine their land, they grow the crop that the government needs. But for me, because some days I don’t have any energy and some days I am sick, I can’t go there and combine with them. Me I work for myself, those people also who work there, who combine their land, they also have their own farms that they go in” (Household Interview 3). The respondent would still have to farm her own land besides farming on the consolidated land when participating in the CIP. This is explained by the fact that the GoR encourages farmers to maintain a small plot of land for the cultivation of food for subsistence, such as a home garden (Sector Agronomist Interview: 27-10-15). Another respondent that faces labour constraints shares that she could perhaps join the CIP if she had a husband with whom share the labour burden. She states that “It would be good when me husband was here, one of us could participate in that cooperative and the other one could stay at home and doing our own farm” (Household Interview 5). It is hardly surprising that these women do not feel they have enough time to deal with working on two separate farms. It is indicated that besides doing the vast majority of farming, all respondents in this study do most of the care work around the house such as cleaning, laundry and cooking, sometimes with help of their children. This assumption of multiple roles suggests that it could be harder for female-headed peasant to make the transition to entrepreneurial farming.

The Necessity of Farm Mechanisation and Labour Market Promotion

The availability of household labour is not always a given, though labour should not be in short demand in Rwanda due to its relatively high labour-to-land ratio. The main factors contributing to the labour deficit for the female-headed peasant households in this study are health problems, the absence of a husband, and having children who are unwilling to engage in farming. Although in the current peasant mode of production the availability of labour is not a big problem either due to limited land size or being able to hire external labour, labour availability would form a significantly bigger problem when participating in the CIP. This could be either addressed by the GoR through farm mechanisation, as planned, or through encouraging the mobility of labour through market mechanisms. That said, none of the respondents mention farm mechanisation as a solution to the shortage of household labour. As Rwanda is characterised by an abundance of labour power, this is hardly surprising.

4.2 Land Availability and Formalisation of Land Rights

Formalisation of Land Rights Through the National Land Tenure Regulation Program

The first programs that the GoR launched in order to modernize the agricultural sector were the land law reform of 2005 and the National Land Tenure Regulation Program (NLTRP). This land law reform formalized the previously customary land tenure systems that were in place in Rwanda while the NLTRP enabled the registration of 10.3 million parcels in Rwanda. Male
farmers were usually the owners of plots based on individual ownership in the customary land tenure system. Prior to these programs, parcels of land were frequently rented out or sold on an active informal land market in the absence of a formal state-run land registration program. In the current land tenure system, all issued land registrations are in the form of a 99-year lease from the state, making all land effectively state property. These leases are, however, both available to men and women equally and are transferable through sale, rental, or inheritance (Huggins, 2014b). This registration process dramatically increases women's tenure security as household heads by entitling them to the land if their husband passes away and allowing women being able to be jointly mentioned with their husband on the certificate (Huggins, 2014a). Farmers are charged 1000 RWF for the registration of each plot, with the average farmer in Rwanda owning five plots of land. The average 5000 RWF that farmers have to pay for their land registration is considered to be affordable, making formal tenure arrangements accessible for the bulk of the Rwandan population (Pritchard, 2012).

The availability of formal land rights for peasant farmers, including women, is confirmed in interview data with Gardens for Health and the Nyamirama sector agronomist. The sector agronomist states that “… all farmers they have official rights for their land, they own the land” (Sector Agronomist Interview: 27-10-15) and continues by saying that in the case of a married couple, both names are usually on the land title. Gardens for Health confirms this by saying that “… in theory if you own land and you are legally married that land belongs to both parties” (Gardens for Health Interview: 23-10-15). However, the respondent notes that land disputes are still common among the Rwandan population: “There is a lot of discussion and a lot of dispute around land. I would say, but there is also a sense that it is much more of a fungible asset now … to sell and buy land than there ever has been. This creates good things and problems” (Gardens for Health Interview, 23-10-15). This interview fragment indicates that although the mobility of land has increased, this possibly has the negative side-effect of people trying to challenge these rights through the legal system.

**Formal Land Rights and Perceived Tenure Security of Women in Nyamirama Sector**

The vast majority of the respondents possess formal land rights, with only two indicating that these are absent. One women shared that she is currently farming on her deceased husband’s family’s farm. He passed away before the NLTRP was implemented, making her not part of the formal inheritance. As a result of this, the land rights were transferred to his family rather than to the respondent. She does, however, expect the land to be registered to her name soon facilitated by her deceased husband’s family. Another respondent indicated that she does not formally have land because she is farming land owned by her son. She owns the house she lives in, although the official certificate is also missing, compromising her ability to verify ownership. She is not afraid of losing the house through any dispute or theft as “I don’t have that paper but everyone knows that this house is mine” (Household Interview 6). She further explains that if anyone ever challenges her on her property, the local government would investigate and conclude that the land is indeed hers. One respondent indicates that she fears losing her land to the government. She says that “Yes I have that fear. Even while I am seated here they can come and say ‘can you please move away? go!’” (Household Interview 5). This respondent owns the formal land certificate, however, she is afraid she will be relocated. She lives by the side of a major road.
and the GoR sometimes decides to use this land for infrastructural works, explaining her fear. All other respondents indicate that they feel secure in their land ownership. If the GoR decides to use their land for other purposes, they are confident that they will be allocated another piece of land to farm and live on. Problems with the correct transfer of land are still present since formal registration of land started in Rwanda. One respondent indicates that she lost her land after a land dispute and her story is shown in Box 3. In short, formal land ownership by women is common in Nyamirama sector indicating that a solid foundation for a land market is present, paving the way for entrepreneurial farming.

**Box 3; From Peasant to Landless Labourer**

Gladys had a good life before her husband John passed away. She used to work on their family land, usually harvesting enough to provide food for the two of them and their four children while producing a surplus for the local market. John worked as a mechanic, fixing bicycles in town. Life was good. They never grew hungry and there was always money to provide for the children’s school fees and clothes. Gladys’ situation changed drastically after John passed away. He had been the sole beneficiary of his father’s inheritance, leaving him in control of all the land his father owned. The children that John’s father had with another woman grew jealous of this inheritance and decided to take action. After numerous attempts to confiscate John’s land, John reported them to the local governments. In response, John’s half-siblings bewitched him, which led to his death.

Although John and Gladys did own a formal government letter stating that the land was theirs, Gladys lost the land to John’s half-brothers after John died. A bribe at local government level ensured that the land which had been providing John and Gladys with a stable livelihood for years was transferred to John’s half-brothers, leaving Gladys with no land besides a small home garden behind her house. The quality of life that Gladys used to enjoy has faded. She and her three children face hunger on a daily basis. Three years ago her youngest child died of malnutrition. The main reason for this lack of food is that after having lost her family land, she did not have the ability to grow enough food. Although she cultivates a few crops in her garden, this is by far not enough to feed her family. While she is able to do some work on other people’s land to make some money, this is not enough to be able to invest in a new piece of land.

Gladys remains optimistic that she will be able to create a better life for her and her children. She has recently made a deal with a friend of hers that she will raise his goat for him after which she is entitled to the goat’s first born kid. This young goat will be hers and she plans to start breeding them to generate a cash income resulting in the successful acquisition of another piece of land to turn back to peasantry. Gladys thinks that with the current land registration system, experiences like hers should be a rare occurrence. *Things have improved, but it came too late for her and her husband.*

*(Based on Household Interview 4 and field notes. The names in this narrative are fictional)*

**Land Consolidation: Planning and Perceptions**

Land consolidation is one of the most important components of the CIP as it is the foundation of successful agricultural modernisation *(GoR, 2012, p13)*. MINAGRI argues that the consolidation of the small and highly fragmented farm plots in Rwanda enhances productivity and environmental sustainability through increased access to extension services, agricultural inputs, irrigation and mechanisation, and output markets *(MINAGRI, 2011, p15)*. A consolidated plot of land needs to have a minimal size of 12.3 acres and the various farmers owning the adjacent plots
need to engage in planting the same crop. The GoR has chosen seven crops to be grown on consolidated land: maize, wheat, rice, beans, soybeans, Irish potatoes, and cassava. Only one of these crops is to be grown at the same time and which one is to grow is decided on my the GoR. Furthermore, similar agricultural inputs need to be used by individuals in farmers’ groups and planning for the various activities such as harvesting and weeding should be harmonized. In 2011 roughly 36 per cent of the fields were consolidated meaning that the GoR is well on their way to reaching the 70 per cent of the fields that should be consolidated in 2020 (Huggins, 2014a; Huggins, 2014b). The relocation of farm houses to village centres is part of the land consolidation program. This is done through collaboration between local government authorities and farmers to ensure that fields are connected without interruption (MINAGRI, 2012, p6).

Farm households remain in possession of their formal land rights when consolidating, and work together in the coordination of the process. These teams of around twenty to twenty-five farmers are usually led by the village chief. In other cases, a lead farmer is assigned by the local government to lead the team of farmers and works together with two assistant farmers who plan and monitor the activities on the consolidated lands (MINAGRI, 2012, p11). This collaboration with other farmers is exactly what three respondents do not like about the land consolidation aspect of the CIP. One respondent states that “The reason why I don’t want to join that [the CIP], I feel like I don’t want to join that, when we put like the seed together and we grow one farm it means that it belongs to all of us. No one to take the decision, we could sit together and take the decision. And you can’t tell them I need to eat that, I need to eat something. You can’t tell them them. But when you have your own farm you can go, whenever you need something, and get it” (Household Interview 10). The main concern of this respondent is that due to the joint decision-making processes involved in land consolidation, she would not be able to harvest whenever she needed something to eat. Another respondent confirms this by stating that “If I grow my own crops and I really want to eat I just harvest and eat some but those ones that you combine, you can’t go there and get something to eat whenever you want” (Household Interview 13). The fact that many peasant households are hesitant in participation in the CIP due to the land consolidation aspect of the program is recognized by the GoR. This is illustrated by an assessment of the land use consolidation program which states that “Although the policy faced some hesitation from the farmers during the initial phase of implementation, many farmers across the country have eventually begun to recognize the benefits of land use consolidation. Across the country, a large number of farmers, who were until now not familiar with improved seeds and fertilizers, have started accessing inputs through the program” (MINAGRI, 2012, p11). This lack of enthusiasm for participation in the CIP is being addressed through agricultural extension, which is discussed in one of the following sections.

A lack of farm size - and the inability to acquire more land - is one of the main constraints for the transition into entrepreneurial farming among the respondents in this study. Six respondents indicate land shortage as a reason for not being able to participate in land consolidation. One of them explains that “If I could get that enough land and it is nearby another one who has that, a big land, we can do that. But these days we don’t have enough land and we can’t join it with another one” (Household Interview 8). This problem relates to the fact that consolidated farm units need to have a collective size of 12.3 acres. Getting enough farmers together to consolidate land with is hard for this respondent due to the small plots of land that peasant households own in
Nyamirama sector. A different constraint to participation in the CIP is mentioned by another respondent: "It is because of the small land that we have. It is not enough for us to grow one crop because we grow the grasses for the cows ..." (Household Interview 2). The GoR would argue that with the profits of participation in the CIP one could buy fodder to feed her cow. This logic, however this logic is not sold on this respondent. This indicates that the mind-set of some peasant households is still very much on growing crops for personal use rather than the market.

**Peasant Land Markets**

Although formal land rights make transfer of land possible, the prices of land in Rwanda are high due to its relative scarcity. The data of this study demonstrates that the prices associated with land rental and transfer are a main constraint for engagement of peasant households in farm expansion. The average land size of the peasant households in this study is 0.46 acres with the smallest farm being 0.02 acres (Household 4) and the largest farm being 1.6 acres (Household 2) in size. Five households mention the wish to expand the size of their farmland in order to increase production. They would rather farm their own land than work on the farms of other households as an abundance of labour is present in order to provide in their livelihoods. One respondent states that "The biggest reason [for hunger in the household] is that we do not have enough land and the other reason is that I don’t have anywhere to get that money so that I can even rent a small land to grow my crops there" (Household Interview 8). Renting land was possible for her when her husband was still alive but currently there is not enough cash income to afford this. This stresses that financial capital is a main constraint for land expansion and thus, theoretically, the transition to entrepreneurial farming.

The fact that it is possible for some female-headed peasant households to engage in land transfers in Nyamirama sector is demonstrated by one of the respondents in this study. She rents a small plot of land to farm on nearby her house for 30.000 RWF over a period of two years while renting out another piece of land located further away from the households that she has invested in for 100.000 RWF (Household 12). The sale of her cow enabled her to make this happen. Her story will be elaborated on more in the next section in narrative form.

### 4.3 Financial Capital

**Access to Cash Income for Peasant Farmers**

The lack of respondent engagement in income-generating activities outside the agricultural sector strongly reflects the fact that Rwanda is an agricultural labour-led economy. None of the respondents practice jobs outside agriculture with the exception of one who is employed as a primary school teacher. However, two of three de jure female household heads have husbands who are employed elsewhere in the country. One of them is working in construction and the other as an HIV councillor, both supplying the household with a steady cash income. All other respondents rely on selling excess produce to local markets, trading, or working on the farms of other households.

Six respondents mention being engaged in providing labour for other farmers in exchange for either food or money, making this the most frequently mentioned income-generating activity in this study. One respondent specifically mentions that being able to work on farms of other
households is crucial as she has too little land to farm on herself and no other sources of income. However, health constraints make this work difficult for her to do. She explains that “When I spend a whole week digging for someone to give me money, it gives me so much pain compared to when I am working for myself because then I get some time to rest. When I talk to someone that I will dig for, for the whole week, and we agree on money sometimes they give me money before I dig to survive, other times the give me money after. This means it is so stressing to work…” (Household Interview 9). The main reason for preferring farming on her own land over working for others is that this enables her to work at her own pace. However, she does not have a choice but to do so in order to survive. This illustrates the interrelatedness of the aspects of labour, land, and cash income of the struggles that peasants face in order to provide in their livelihoods.

The lack of off-farm income generating activities among the women in this study is striking. A possible explanation for this is found in a statement made by one of the respondents: “It is easier for men [to find a job] because they can even help those people that are constructing houses but for me I can’t manage that because I am a woman and I am very old. No-one can give me a job. So for men it is very easy for them to get another job than farming” (Household Interview 10). She does not specifically mention why it is harder for women to find jobs. The CIAT researcher offers a possible explanation for this by stating that men are expected to perform physical labour rather than their female-counterparts (CIAT Researcher Interview: 30-10-15). Three respondents state that their preferred method of generating an income would be through starting a business in trading agricultural produce. However, the start-up capital that is required for this type of income generation though, and is generally lacking.

**Credit & Start-up Capital for the Rural Poor**

For the transition from a peasant mode of farming into entrepreneurial farming, access to credit is considered to be a pre-requisite as would enable peasants to acquire land and labour for increased production and participation in the CIP. That said, credit is considered inaccessible by respondents. One respondent mentions a lack of collateral as the reason why credit cannot be accessed by stating that “I don’t have something to show them that if I don’t pay you money, you will take this from me” (Household Interview 8). She does not have the official certificates of ownership for her land, making this hardly surprising. However, none of the other respondents with formal land rights do indicate that they have access to credit. The fact that it is hard to obtain a loan for single peasant households is confirmed by the SACCO manager of Nyamirama sector. The limited land sizes of peasant households are often too small to offer as collateral for a loan, he explained. “You cannot come here to ask fertilizers for that small land. But those groups, we have cooperatives, which have also the licence of the Rwanda Cooperative Agency, those cooperatives we give them, at the beginning of the season ... we give them a loan for fertilizers” (SACCO Manager Interview: 20-10-15). Farmers need to consolidate land first before getting access to credit as loans are given to farming groups, rather than individuals. This creates a bottleneck as farmers feel that investments in land and labour are required prior to consolidating land.
It is evident that obtaining credit prior to transitioning into an entrepreneurial farmer is near to impossible for the peasant households in this study. “Some decide to sell their land to go and do business, they don’t want to be farmers, they want to do business. That is where they can get a lot of income to feed their families and others do different things to get money” (Household Interview 1). However, the sale of one’s land only makes sense if a peasant household is distancing itself from farming rather than turning to more entrepreneurial farming. This does thus not provide as a solution to facilitating the transition between the two modes of farming. It does stress that people are willing to sell their land and transition into other sectors of the economy as envisioned by the GoR. The narrative in Box 4 provides an example of a respondent who successfully started a business in trading farm produce, rather than solely producing it.

**Box 4; From Peasant to Trader**

Lydia and her four children are living a comfortable life ever since she managed to invest in large quantities of sorghum to turn a profit on the market. In fact, when setting foot in Lydia’s house the first thing anyone will notice is the presence of three enormous bags of sorghum occupying most of the living room. Sorghum is one of the main ingredients of local beer and although she does not turn it into beer herself, local brewers come to her house to buy the soaked sorghum off her. This business of serving as a middle woman between large farms and local brewers has turned her life around. Whereas Lydia and her children frequently grew hungry in the years running up to her initial investment in sorghum, she can now buy food for household any time of the year in addition to providing in the school fees and books for her children.

The sorghum business did require a significant investment in order to get started. A couple of years back Lydia received a cow from the government program called “One Cow per Poor Family”. She received a cow and had to feed and raise it until it gave birth to a calf. She had to donate this calf to another poor family before being able to sell the cow for 200.000 RWF. Lydia invested this money in two things; land and sorghum. First, she bought a piece of land for 100.000 RWF which she now rents out to turn a profit on the long run providing her with a steady income. Second, she invested the remaining money in the purchase of the sorghum in order to start her business.

Although Lydia still farms a small plot of land near her house in order to produce food for the household, she is capable of combining farming with doing business while still doing the care work in the household. Four days a week she is working on her farm while on the other three days she prepares the sorghum for selling by soaking it in water. The fact that her children occasionally help her out with chores such as cooking and cleaning makes her work schedule doable. She remains, however, a busy woman that turned her life around from being a peasant farmer to a farmer with a steady cash income on the side through an abundance of entrepreneurial spirit.

*(Based on Household Interview 13 and field notes. The names in this narrative are fictional)*
Government Credit Schemes

Adequate access to credit and financial services for farmers is crucial to achieve the GoR’s goal to become a middle income country by 2020 (MINECOFIN, 2009, p4). In government documents there is a lot of mention of providing credit to farmers through banks and micro-finance institutions (MFIs). However, these loan provisions are mostly targeted at farmers that already transitioned into entrepreneurial farming rather than peasant farmers seeking to make this transition (MINAGRI, 2010; 2011). The national agricultural extension strategy of Rwanda states that “Agricultural credit services through MFIs, were selected by MINAGRI using the official procurement process, to provide support required for the envisaged maize and wheat intensification process within selected districts, working mainly with existing maize and wheat farmers’ cooperatives” (MINAGRI, 2011, p47). The support that is mentioned here means investments such as fertilizers and storage facilities for farming groups are aimed at groups of farmers rather than individuals. Furthermore, the SACCO manager and respondents in this study confirm that it is very hard for an individual farmer to gain credit from a MFI.

Access to credit is typically required in order to transition to entrepreneurial farming. As it is difficult for peasant households to access credit, this may hinder the transition process in Rwanda. The GoR states that “Farmers are not sufficiently sensitised on the utility of agricultural credit and fear to take credit” (MINAGRI, 2010), which clearly indicates that the GoR expects farmers to take out loans if better educated on the issue. However, persuading peasant farmers to take out loans may be difficult in a financial environment that is not accommodating. The role of agricultural extension is evident here in order to realize the government’s plans for modernization.

4.4 Agricultural Extension or Coercion?

Persuading Peasant Farmers to Modernise their Practices

Agricultural extension is the cornerstone of Rwanda’s current agricultural policy and an integral component of the CIP. The NAES states that agricultural extension is key to creating ideal conditions for agricultural modernisation. Among other things, it aims to address the poor farming skills and organisation of farmers and the practice of farming on small plots of land (MINAGRI, 2010, p2) through “Creating awareness through various extension modules such as radio, multi-media, and workshops ...” (MINAGRI, 2011, p33).

The GoR uses three agricultural extension methods in order to persuade farmers to join the CIP. The first is extension through individual contacts. This entails home and farm visits, personal letters, and telephone calls from the local extension worker. The second is group contacts in the form of workshops, seminars, and field trips. The third and last method is through mass outreach. This means the sharing of knowledge through mass media such as radio and television, and advertisements such as leaflets and posters (MINAGRI, 2010, p22).

The Nyamirama sector agronomist, who is locally in charge of agricultural extension, explains that group contacts are the most common form of contact between her and the farmers in the sector. Meetings are held on a weekly basis with groups of farmers that are called together by the village chief. The sector agronomist, or one of her representatives, informs farmers on how to
apply fertilizers, the merits of land consolidation, and how to treat crop diseases (Sector Agronomist Interview: 27-10-15). Although not all respondents attend the group meetings, every single one of these women was aware of the CIP. This indicates that other means of extension or an informal exchange of knowledge among farmers is present. One of the respondents says that “It is something that is in the tradition, to grow different crops [poly-cropping], because even long ago we didn’t know about that, growing one crop at the big land. But for these days these people are trained to grow different crops. When you grow maize, you grow it alone, you don’t mix with others meaning that the country is developing” (Household Interview 1). Agricultural extension is clearly illustrated to be the main driver behind making peasant households aware of the CIP. The last word of this fragment – ‘developing’ - is striking and illustrates well how the GoR sells the idea of mono-cropping as progress to the local population. When another respondent was asked about what the agronomist taught her in the group meetings, she responded with “… they always talk about that where you join land and work together” (Household Interview 9), indicating that the need to consolidate land is a dominant message in agricultural extension.

The importance of encouraging farmers to consolidate farm plots is frequently mentioned in the NAES. Interview fragments such as “At the implementation level, the local authorities and extension agents shall be engaged in determining and explaining the advantages of land subject to consolidation” (MINAGRI, 2011, p25) and “The pitfalls in conception of land use consolidation amongst farmers exposes the limitations in proximity extension services. The issues, concerns and confusions on land ownership need to be addressed by the extension service providers to improve adoption rates” (MINAGRI, 2011, p18). This indicates that the GoR is aware of the objections farmers have to the practice of consolidating land. Two respondents in this study say that although they received the information on land consolidation, it is not useful to them as they do not expect to be able to participate. One of them illustrates this by saying that “I don’t think there is a reason to be told about that because I don’t even have enough land to dig, to practice what they taught me, so I don’t need it” (Household Interview 7). It remains unclear if the CIP will be a success in Nyamirama sector based on voluntary participation. Although agricultural extension is widely available to female-headed peasant households, very few people seem willing or able to join the CIP.

The respondents in this study made clear that two other factors influence a negative perception of the CIP besides not wanting to limit their decision-making power over their land. Two respondents mentioned that the profits of the CIP are expected to be too low to live off of and four respondents stated that the CIP was not desirable as mono-cropping could not provide for the family in terms of dietary needs. This latter objection is possibly the result of peasant farmers being used to growing multiple crops in the same field in order to diversify their diet. The logic of selling a large amount of crops and buying food on the markets using the obtained profit is not logical to them and could potentially be a huge obstacle to mass CIP participation. The stark contrast between the entrepreneurial and traditional mode of farming is likely to cause this. One of the respondents illustrates this by saying “It is something that is in the tradition, to grow different crops, because even long ago we didn’t know about that, to grow one crop at the big land.” (Household Interview 1). The speed at which the CIP is being implemented in Rwanda may be at the root of this and is cause to suggest that the he GoR’s vision for 2020 may need to be adjusted as it may take a lot longer for peasant households to embrace this mode of farming.
Coercion as an Alternative to Persuasion

The GoR clearly considers the peasant mode of farming as irrational as they state that traditional practices are ‘poor farming skills’ (MINAGRI, 2010, p2). The language in the documentation on the CIP makes clear that in the end the GoR will not take no for an answer regarding participation (MINAGRI, 2010; 2011). For example, the GoR states that “The demand for inputs shall be raised by convincing the smallholder farmers through demonstrations of the profitability of the use of inputs and through aggressive extension services” (MINAGRI, 2011, p4). The use of both words ‘convincing’ and ‘aggressive’ in the same sentence illustrates the commitment that the GoR has to changing the farm practices of farmers. Although the documentation focuses on persuasion, the GoR has been known to force farmers to participate in the CIP. In some cases, failure to cooperate in the CIP has resulted in the transfer of agricultural land of the offenders to other people who are willing and able to reach the targets set by the local government as included in the 2005 land law (Pritchard, 2012; Huggins 2014a). Other reported punishments have included the uprooting of non-approved crops, fines, or even imprisonment (Huggins, 2014b). Although respondents made no mention of these aggressive methods of forced participation during the interviews, respondents state that they would cooperate with the GoR if forced. One respondent says that “… they [GoR] talked about that but they are not so much pressuring us, we are still waiting and we are still doing our thing. If they become so strict, we will do that” (Household Interview 2). This specific respondent is not in favour of participation in the CIP but says she would not resist if being forced to, perhaps being afraid of the repercussions of refusal or resistance. While farmers are currently persuaded to participate in the CIP on a voluntary basis, this might not continue to be the case in the future.
Chapter 5: Conclusions

This study set out to assess female-headed household’s perceptions to - and constraints of - participation in the Crop Intensification Program, and how the Government of Rwanda aims to facilitate the transition of peasant farmers into entrepreneurs. The relevance of this objective comes forth from the fact that many agricultural modernisation projects have failed to benefit men and women equally, or do more harm than good in general to small-scale farmers.

The previous chapter provided data on how access to labour, land, and financial capital currently restricts female-headed peasant households into transitioning into the envisioned mode of entrepreneurial farming by the GoR. This chapter will bring the results of this study together by providing concrete answers to the questions this study has set out to answer.

Research Question #1: How is access to labour, land, and financial capital envisioned in entrepreneurial farming as part of the CIP by the GoR and what is the role of agricultural extension in the transition to this mode of farming?

The Role of Land, Labour, Financial Capital, and Extension services in Modern Farming

The definition of entrepreneurial farming applied by the GoR differs substantially from the theoretical characteristics that have been presented in the beginning of this document. Whereas the two definitions overlap in terms of solely producing high-value crops for market purposes, there are big differences in how this production is made possible. According to Ellis (1993), the entrepreneurial mode of production entails active participation on labour and land markets leading to farm expansion and use of external wage labour. Having access to financial capital is required to engage these markets. However, the GoR does not actively stimulate any of these three features and takes a different approach.

The GoR made formal exchange of land possible by enabling farmers to register their land. However, the exchange of land between owners is not encouraged. Rather, land consolidation is encouraged as a means of increasing the acreage under the same management. When peasant households engage in consolidating their land with others, owners retain all individual land rights even though they manage the combined property together. However, with a minimum of 12.3 acres per consolidated land area, it is difficult for farmers to organise themselves in groups due to the high number of participants required.

While Rwanda has an abundance in potential labour, the GoR is aiming to mechanise farm activities in order to be able to transition workforce into the manufacturing and service sectors. Farm mechanisation is made possible and profitable through the consolidation of land which is an integral part of the CIP. In this vision of entrepreneurial farming family labour is mostly relied on rather than hiring wage labourers through active participation on the labour market.

Farmers who consolidate land and function as a group have access to credit which is typically inaccessible to individual farmers. MFIs such as SACCOS provide credits that facilitate the acquisition of farm inputs such as fertilizers, pesticides, and herbicides, as well as machinery to replace labour requirements for working the land. These credits are not usually available to individual small scale-entrepreneurs due to the high risk of them defaulting on the loan. This
stresses the importance of working as a group rather than an individual in the envisioned mode of agricultural entrepreneurship.

Agricultural extension is used to sensitise peasant households on the merits of land consolidation and transitioning to entrepreneurial farming. Farmers are persuaded to consolidate land and information is provided on the farming practices that should be engaged in after joining the CIP. Sector agronomists speak with farm groups in order to provide this information but it does not adequately address the doubts that female-headed peasant households have about joining the program.

**Conclusion**

The GoR evidently sees the modern farmer function in a group rather than individually, as opposed to the theoretical definition of entrepreneurial farming presented in this study. Neither land nor labour markets are encouraged and credit is not available to individual farmers. Agricultural extension is used as a persuasion tool rather than as a way of engaging dialogue with farmers, stressing the top-down approach that the GoR is taking in agricultural modernisation.

Besides the differences in use of land and labour markets and access to credit, the vision of the entrepreneurial farmer diverges from the definitions presented in the theoretical framework of this study in one last way. The GoR encourages farming food in in gardens near the home, contrary to van der Ploeg’s characterisation of Entrepreneurs selling all produce to the market. This adds to the labour burden of households, especially as the home gardens will unlikely be subject to the advantages offered by farm mechanisation. The overview of the factors defining entrepreneurial farm households by the GoR, which runs contrary to the one presented in the theoretical framework, is shown in Figure 5.

![Entrepreneurial Farm Household (GoR)](image)

**Research Question #2:** How does the current access to labour, land, financial capital, and agricultural extension constrain and/or enable female-headed peasant households to participate in the CIP, and how are these constraints addressed by the government in order to facilitate participation?

**Redistributing Rwanda's Labour Force**

The women in this study frequently face labour constraints on their farms in order to achieve optimal production. Female household heads cite poor health, lack of time, not having a husband to work with, and the next generation of Rwandans not being interested in practicing agriculture
as causes of this labour shortage. However, an abundance of labour present is in Nyamirama, as can be seen by the high mobility of farm labour of the female-headed households in this study. While the GoR does not mention the promotion of a labour market in any of the examined policy documents included in this study, an active and accessible labour market is required in order to facilitate the transition to entrepreneurial farming.

The GoR wants to drastically reduce the amount of people that rely on agriculture by the year 2020. However, respondents indicate that jobs outside agriculture are still largely unavailable for female farmers in Nyamirama sector. Respondents observe that jobs are available for men in construction, transportation, and mechanical repair. However, women have no other option than to work in the agricultural sector on either their own farms or those of other households. Some female household heads in this study indicate that they would like to move into agribusiness but are limited by a lack of investment capital. The narrative shown in Box 4 does show that starting a business can have positive effects on the livelihoods of female household heads.

Female-headed entrepreneurial households potentially benefit from farm mechanisation due to labour shortages. However, none of the respondents in this study have mentioned farm mechanisation as a solution to this problem. This is peculiar as farm mechanisation plays an important role in the CIP and as labour shortage is perceived to be a difficulty for participation in the CIP and land consolidation practices by respondents. The reason for this absence of knowledge about the potential of using farm machinery on consolidated plots of land is unknown. Including this element of the entrepreneurial mode of farming. The provision of information on the of farm mechanisation through agricultural extension has the potential of encouraging female-headed peasant households to make the transition to entrepreneurial farming.

**Restructuring Rwanda’s Layout of the Land**

Land scarcity is one of the main challenges that Rwanda faces due to a high population density. Ellis (1993) claims that in an environment like Rwanda, this should logically result in the investment in land intensification technologies such as the application of fertilizers and monocropping. The GoR does indeed stimulate these innovations in the CIP in order to increase production. Large areas of land are considered more productive by both Ellis (1993) and the GoR. Ellis (1993) says that entrepreneurial forms of farming in land-scarce areas typically engage in land acquisition through markets in order to increase their acreage. The GoR takes a different approach to increasing farm size by stimulating the consolidation of farmland were farmers retain their individual rights to the land.

Formal land rights are accessible to most Rwandans. Although this important prerequisite for land exchange is in place, there is no evidence that land markets are stimulated by the GoR. Land rights are available to all but two of the respondents in this study and two of the respondents indicated that they are involved in renting or renting out land. The perceived high land price makes explains why the exchange of land through the market is limited. Five respondents did mention farmland expansion as desirable in order to increase their food production. These households were all characterised by having an excess of labour, indicating that these two resources are closely interrelated. An abundance in the either one of these resources automatically means a shortage of the other.
The GoR promotes land consolidation rather than encouraging the expansion of individual entrepreneurial farmland. This is interesting in the light of the fact that in this vision, many small farm households will remain in their current state. As a result, less people will transition away from farming into other sectors of the economy. The reason why the GoR would adopt this approach remains unclear but possibly the GoR has chosen this path of technological innovation due to the fact that it expects the next generation of Rwandans to not be interested in agriculture. This study corroborates this concern; most of the children of the respondents were not interested in practicing, or helping the head of the household to practice, agriculture. If this is the underlying rationale of the GoR, it will take a lot longer than a few years for the majority of the population to shift away from depending on agriculture, particularly in female-headed households where alternative income-generation activities are not an option.

For now, respondents indicate that having too little land is keeping them from participating in the CIP. For this reason alone, it would be wise to stimulate land markets in order to expand the farm sizes of individual farmers. At this point in time it seems that what the CIP aims to address is exactly what keeps some female-headed peasant households from joining the program.

**Investment Opportunities for the Rural Poor**

Opportunities for obtaining credit for individual farmers are limited, if not impossible, due to a lack of collateral to offer MFIs. The GoR’s goal for peasant-turned-entrepreneurial farmers to have access to credit through their farm groups. This would enable entire groups of farmers to be able to afford farm inputs and machinery that would increase production. However, credit is considered to be required by respondents for peasant households in order to be able to engage in participation in the CIP. The respondents in this study indicate that limited amounts of labour and land constraints participation in the CIP, which could be addressed through access to credit.

As access to cash-incomes is still mainly reserved for men, female-headed peasant households, may have a significantly harder time to expand resources in order to participate in the CIP. Ellis (1993) claims that access to credit for individual farmers is a requirement for successful transition into entrepreneurship, which is confirmed by the respondents in this study. This creates a bottleneck where the poorest are not able to make the transition to entrepreneurial farming, possibly widening the gap between rich and poor in Rwanda.

**How Persuasion may not Suffice in Facilitating Change**

The GoR considers the persuasion of farmers through agricultural extension to be an effective way of encouraging peasant households to join the CIP. However, respondents in this study are not thrilled about the idea of participation. Respondents identify three main reasons for their negative perception of participation in the CIP: limited decision-making power of their land, expected low profits from mono-cropping, and the conviction that eating solely one crop is unhealthy. As all respondents were aware of the CIP and most of them visit the group meetings organised by the sector agronomist, persuasion is insufficient to realize large-scale participation. The GoR does indicate that negative perceptions are dealt with through agricultural extension, but there is no sign of any results found in the data of this study. The fact that only female respondents were interviewed in this study may be the reason for the range of negative
perceptions of the CIP. As it is women that traditionally engage in subsistence farming, the shift to farming cash crops may be bigger for them than for men. Also, fear that mono-cropping results in their households losing a diverse diet may come forth from the fact that women are usually responsible for cooking and providing food for the family.

Extension services in Rwanda provide information on 'right' farming practices rather than engaging in dialogue and acting as facilitation for the desired change of farmers. This indicates that the GoR does indeed engage solely in persuasive transfer of peasant households as is predicted in line with the top-down approach to modernizing the agricultural sector. It remains unknown if the respondents of this study will be forced to engage in a form of entrepreneurial farming in the future. If so, the female-headed households are likely not to benefit proportionally due to the absence of policy tailored to their situation. Decennia of learning would be discarded, again at the cost of the peasant.

**Conclusion**

Female-headed peasant households state they are unable to participate in the CIP due to a lack in labour, land, and financial capital. Participants owning small plots of land and having a lack of labour available due to various reasons are the root of the problem. Access to financial capital would be able to mitigate these conditions in favour of being able to participate in the CIP, but is not available to these individual households. The GoR focusses on the consolidation of land and farm mechanisation to address these issues rather than encouraging the acquisition of land and labour through market mechanisms. The role of agricultural extension is to persuade farmers to adopt - and provide training in - modern farming practices and information exchange is very top-down in nature and the current extension services are not sufficient in order to enable and persuade female-headed peasant households to join the CIP.

The difficulties that the CIP aims to address through joining the program are factors that prevent farmers from participation. A very practical problem arises as a result of this. Stimulating the participation of female-headed peasant households on land and labour markets through providing access to credit leads to a situation where the entrepreneurial farm household make use of external labour and bought or rented land. However, this is in stark contrast to the vision that the GoR has on entrepreneurial farming as seen in Figure 5. The GoR prevents female-headed peasant households to engage in entrepreneurial farming if participation in land and labour markets are not stimulated. In conclusion, the state has to either adjust its vision of entrepreneurial farming or find others solutions than the use of external land and labour in order to create the opportunity for female-headed peasant households to engage in an entrepreneurial mode of farming.
Chapter 6: Discussion

The top-down approach that the GoR is taking in order to modernize the agricultural sector in Rwanda does not differ significantly from previous green revolutions that took place over the last few decades. Horlings (2011) indicates the social dimension has been missing in agro-industrial models such as the CIP. She indicates that large decreases in agricultural employment have led to a decrease in peasant’s freedom. Entrepreneurial farmers often have very limited influence over the production chain as they are at the far bottom of the commodity chain. This makes them increasingly dependant on policy-measures and markets to generate their livelihoods (Horlings, 2011). Another social side effect of the agro-industrial model is the fact that mechanisation has led to an increase of poverty for some. This effect is a result of the absence of a job market to absorb the surplus labour (Conway, 1997; Horlings, 2011). The current absence of alternative jobs in Nyamirama sector may indicate that farm mechanisation may have similar effects here. For farmers, mechanisation has both been positively and negatively evaluated in the academic literature. In some cases, mechanisation has led to increases in yields for female farmers because it renders labour intensive tasks, such as ploughing, easier (Mukhopadhyay, 1984). Other reports prove that mechanisation has led to income redistributions favouring men over women due to machinery usually replaces women’s labour opportunities then men's (Greeley, 1987). It is unknown which would be the case in Nyamirama for female-headed peasant households. However, considering the labour constraints that these household heads expect to experience it is likely that it could contribute positively.

Consultation with women in the design of innovation is key to making a positive impact on their livelihoods (Gass and Biggs, 1997; Carr, 1982). The CIP does not target the most relevant needs of women as its approach is very top-down and there no evidence of participatory policy design. The lessons that were learned regarding farm mechanisation in the 80s have not been adopted, indicated by this flaw in the agro-industrial model not being addressed.

In terms of land planning, the CIP uses an unfashionable approach to restructuring the place of production. Whereas land consolidation practices have been popular in many countries after the WWII, this practice has received various critiques over recent decades. European governments heavily invested in the relocation of farm houses and the processing of new land ownership papers in order to join land together in order to increase post-war food production. This reorganisation of the landscape led to great production increases but went at the cost of massive environmental damage as a result of heavy fertilizer use, which resulted in eutrophication (van Dijk, 2004). In the Netherlands, the countryside has increasingly developed into a space that serves as a place for nature, recreation, and alternative forms of agriculture, rather than intensive agriculture. This created tension between the government and farmers as “The government wants to use land consolidation to accomplish goals that do not have the support of the local farmers. The farmers therefore no longer regard land consolidation as a friend but as a wolf in sheep’s clothes that comes to impose governmental objectives against their will” (van Dijk, 2004, p9).

A similar tension is found in the result of this study. Female heads of peasant households consider their farms as a space of food production for subsistence households whereas the GoR considers these lands as a space for the intensive production of food for market purposes. Van
der Stoep (2003) demonstrates that in the Netherlands, voluntary participation is more successful than the alternative. Farmers tend to be more comfortable with the procedures when being able to back-out of the consolidation group and process at any point in time. The GoR is currently taking a voluntary approach to participation in land consolidation in Nyamirama sector but if voluntary engagement remains low it is likely that farmers will be forced to participate in the future.

This discussion of mechanisation and land consolidation demonstrates that the GoR is making use of outdated strategies in an era where the agro-industrial model as an approach to addressing the well-being of citizens has fallen largely out of grace. A review of forty agricultural intensification projects done by Pretty et al. (2011) demonstrates that it is possible successfully modernize the agricultural sector in a socially sustainable fashion. However, this study does however state there are seven requirements in order to do so: (1) scientific and farmer input in technological innovations, (2) trust building between individuals and agencies, (3) farmer trainings increasing individual capacity and knowledge, (4) private sector engagement for adequate supply of agricultural resources, (5) a focus on women's specific needs, (6) adequate access to micro-finance and banking, and lastly (7) public sector support to increase infrastructure, market access, legal land status, and other factors (Pretty et al., 2011). According to the findings of this study, the GoR largely ignores factors 1, 2, 5, and 6.

Although the GoR recognises agro-industrial scientific knowledge in its policy planning, farmers’ input in policy remains limited. Engaging in a more participatory approach through the inclusion of peasant households in developing the government's approach to entrepreneurial farming could result in the creation of trust-building which could result in voluntary adaptation. A specific focus on women’s needs is not applied by the GoR. The government currently pays little attention to women’s lack of access to labour and financial capital. Women are a group in Rwandan society that needs to be dealt with with specific care and currently the GoR shows no signs that it recognises this. An increased differentiation between men and women could be the result of this ignorance based on lessons learned from other modernisation projects and the specific constraints that female-headed households face in terms of the availability of labour and financial capital. This needs to be addressed in order to avoid negative policy outcomes as found in other agricultural modernisation programs in the past.
Chapter 7: Recommendations

Based on the conclusions in this study, the following recommendations are important for the GoR to successfully transform the Rwandan peasantry into entrepreneurship.

1. Labour availability is currently considered to be a constraint by female-headed households for participation in the CIP. This issue should be addressed by making women aware that farm mechanisation will save labour in the long-run when consolidating plots of land, through agricultural extension. As in the current situation women will neither be able to join the CIP, nor find other sources of income when abandoning farming, additional solutions to this constraint should be found by the state for a transition period.

2. Individual female-headed peasant households in Rwanda should gain access to credit in order to facilitate the transition into entrepreneurship. This would allow these households to engage in the acquisition of land and labour, making voluntary participation in the CIP more likely.

3. A transition plan for households would be beneficial for increasing the amount of people that voluntarily participate in the CIP. The contrast between peasantry and the proposed mode of agricultural farming is big and this study provides evidence that the mind-set of farmers needs to change in order to make this transition happen. Farmers should not be expected to make the change from peasantry to modern farming based solely on information received through agricultural extension, but rather be able to take a step-by-step approach.

4. Women are a vulnerable group in that have limited access to labour and income-generating activities besides farming. This group should be approached with care and specific solutions need to be developed to answer the constraints that these households face. Although this study provides no data on the difficulties that male-headed peasant households face, it is likely that this type of household faces different problems with the adoption of new technologies.

In order to gain a more complete picture of the situation in Rwanda regarding the difficulties that both male- and female-headed households face in adopting modern farming, the following topics are recommended for further research.

5. A more quantitative based on the qualitative data coming forth from this study with the purpose of testing the degree to which the constraints and perceptions of the CIP are widespread in Kayonza district and possibly other districts in Rwanda. The inclusion of male-headed peasant households could help in validating whether the results of this study are also applicable to this particular group of farmers.
6. It would be useful to study if other modes of entrepreneurial farming as currently envisioned by the GoR would be more widely accepted and supported by the local population. The incorporation of principles such as promoting an active labour and land market, in addition to the provision of credit to peasant households, could potentially make a big difference in adoption rates. Studying the perceptions of rural households on these principles would prove useful for further research on policy design in similar settings.
References


Annex A: Household Interview Topic List

Female-headed Household Interview (IVM) Topic List

*Semi-structured questions with possible improvised follow-up questions.*

**A. INTRODUCTION**

The order of the questions may be deviated from when considered appropriate or if the conversation follows a different course. The questions should be considered as a checklist.

Prior to the interview commences, the following topics should be discussed with the respondent:

- Short introduction and simple explanation of the research project and its purpose.
- Guaranteed anonymity of the participants by the researcher.
- Reassurance that any question may be refused to answer without a given justification.
- Reassurance that the interview may be ended at any time without a given justification.
- Permission to record the interview using a voice recorder.

If the farm, garden or yard of the respondent is visited after the interview, explicit permission should be asked to take photographs. Photographs of the respondents themselves should never be made in order to guarantee their anonymity.

**Abbreviations:**

FHH = Female-headed household (family unit)

HH = Head of Household (person)
B. TOPIC LIST

1. Demographics

- Household size (sex, age)
- Education level FHH
- Off-farm income generating activities
- Marital status FHH (short historical narrative)

2. Agriculture (general)

- Farm (size, crops grown, purpose)
- Home garden (size, crops grown, purpose)
- Livestock (type, purpose)
- Decision making on farm / garden / livestock \[HH, children, other family members\]
- External farm labour (provided or hired, seasonality)
- Time lived at current land
- Time of land consolidation \(\text{if applicable}\)
- Time of CIP implementation \(\text{if applicable}\)

3. Labour allocation

- Description typical day for HH
- Task division care work \[HH, children, other\]

3.1. Agricultural labour

- Agricultural labour availability in HH \[sufficient, excess, shortage\]
  - (if shortage) Labour constraints for own farm overall \[specific tasks, energy, health, farm size, labour price, other\]
  - (if excess) Agricultural labour outside household \[availability, seasonality, payment (food / cash), other\]
3.2. Non-agricultural labour

- Non-agricultural jobs of household members
- Constraints / opportunities in obtaining non-agricultural jobs outside household [education, energy, health, care-, and other obligations, other]

4. Food Security

4.1. Nutrition

- Five most eaten crops in the household
  • Reason for consumption [Energy, health, price, availability]
  • Source of the crops [Bought, given, grown]

4.2. Food availability

- Hunger in the household
  • (if hunger) Cause [climate, land size, harvest failure, food prices, soil fertility, labour availability, other] & constraints for improvement

- Change in food availability in last ten years
- Seasonal/monthly difficulties in food provision

5. Access to agricultural knowledge / extension

5.1. Government extension

- Access government extension [village meetings, agronomist visits, media, other]
  • (if present) knowledge obtained / applied [land consolidation, mono-cropping, disease treatment, inputs, home gardens, other]
  • (if not present) reasons [geographical location, gender, no interest by/in household, other]

5.2. Other

- Access NGO extension / training [home gardens, other]
- Informal agricultural knowledge exchange [family, neighbours, friends, other]
6. CIP / Land consolidation

- Awareness CIP/Land consolidation (source)

- Perception CIP/Land consolidation (positive, negative)
  • (if positive) [cash income, increased food availability, lower market prices, crop disease treatment, other]
  • (if negative) [tradition, diet diversity, joint decision-making, other]

- Reasons for participation / non-participation
  • (if participating) [cash income, national well-fare, pressure from government/other actors, other]
  • (if not participating) [labour availability, land size, plot fragmentation, neighbour’s land size, access to agricultural extension, no pressure from government/other actors, other]

7. FHH

- Difficulties of being in FHH compared to MHH
- Advantages of being in a FHH compared to MHH
- Government / other support systems for FHH

8. Land rights

- Presence of formal certificate of ownership
- Duration of possession of certificate of ownership
- Names on the certificate of ownership
- Presence / history of land conflict of household [border disputes, ownership, other]
- Fear of losing land [government, other actors]
**Annex B: Household Profiles**

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<th>Household #1</th>
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<td><strong>HHH</strong></td>
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<tr>
<td>Gender:</td>
<td>Female</td>
</tr>
<tr>
<td>Age:</td>
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</tr>
<tr>
<td>Marital status:</td>
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</tr>
<tr>
<td>Education level:</td>
<td>?</td>
</tr>
<tr>
<td>Job:</td>
<td>Farming (own farm)</td>
</tr>
<tr>
<td>Land title:</td>
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</tr>
<tr>
<td><strong>Household</strong></td>
<td></td>
</tr>
<tr>
<td>Size (members):</td>
<td>6</td>
</tr>
<tr>
<td>Income sources:</td>
<td>Selling excess crops</td>
</tr>
<tr>
<td>Farm Crops:</td>
<td>Beans, Sorghum,</td>
</tr>
<tr>
<td>Home garden:</td>
<td>Green pepper, Cabbage and Green leafs</td>
</tr>
<tr>
<td>Livestock:</td>
<td>None</td>
</tr>
<tr>
<td>Farm size:</td>
<td>0.5 acres</td>
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</tr>
<tr>
<td>Gender:</td>
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</tr>
<tr>
<td>Age:</td>
<td>45</td>
</tr>
<tr>
<td>Marital status:</td>
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<td>Education level:</td>
<td>?</td>
</tr>
<tr>
<td>Job:</td>
<td>Farming (own farm)</td>
</tr>
<tr>
<td>Land title:</td>
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</tr>
<tr>
<td><strong>Household</strong></td>
<td></td>
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<tr>
<td>Size (members):</td>
<td>6</td>
</tr>
<tr>
<td>Income sources:</td>
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</tr>
<tr>
<td>Farm Crops:</td>
<td>Beans, Soy beans, Cow peas and Groundnuts</td>
</tr>
<tr>
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<td>Green pepper, Cabbage and Green leaves and Carrots</td>
</tr>
<tr>
<td>Livestock:</td>
<td>1 Cow</td>
</tr>
<tr>
<td>Farm size:</td>
<td>1.6 acres</td>
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<tr>
<td>Age:</td>
<td>?</td>
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</tr>
<tr>
<td>Education level:</td>
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</tr>
<tr>
<td>Job:</td>
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</tr>
<tr>
<td>Land title:</td>
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</tr>
<tr>
<td><strong>Household</strong></td>
<td></td>
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<tr>
<td>Size (members):</td>
<td>8</td>
</tr>
<tr>
<td>Income sources:</td>
<td>Selling excess crops, breeding pigs, job of husband (construction)</td>
</tr>
<tr>
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<td>Banana, Irish potato, Beans, Maize</td>
</tr>
<tr>
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<td>Green vegetables, Cabbages</td>
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<tr>
<td>Livestock:</td>
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<td>0.4 acres</td>
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<tr>
<td>Household #4</td>
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<tr>
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<td><strong>Household</strong></td>
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<tr>
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<td>External farm labour</td>
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<tr>
<td>Land title:</td>
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</tr>
<tr>
<td>Size (members):</td>
<td>4</td>
</tr>
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</tr>
<tr>
<td>Farm Crops:</td>
<td>-</td>
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<tr>
<td>Home garden:</td>
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<tr>
<td>Livestock:</td>
<td>1 goat</td>
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<tr>
<td>Farm size:</td>
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<table>
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<td>Gender:</td>
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<td>Age:</td>
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<td>Job:</td>
<td>Farming</td>
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<tr>
<td>Land title:</td>
<td>Yes (waiting for title of one small plot)</td>
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<tr>
<td>Size (members):</td>
<td>8</td>
</tr>
<tr>
<td>Income sources:</td>
<td>Selling banana</td>
</tr>
<tr>
<td>Farm Crops:</td>
<td>Beans, Sweet potato, Cassava, Sorghum and Banana</td>
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<tr>
<td>Home garden:</td>
<td>None</td>
</tr>
<tr>
<td>Livestock:</td>
<td>1 cow, 1 goat, 5 chicken</td>
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<tr>
<td>Farm size:</td>
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<table>
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<tr>
<td>Age:</td>
<td>58</td>
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<td>Marital status:</td>
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<tr>
<td>Education level:</td>
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<tr>
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<tr>
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<tr>
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</tr>
<tr>
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<tr>
<td>Home garden:</td>
<td>Green vegetables, Onions</td>
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<tr>
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<td>4 cows</td>
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<table>
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</tr>
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<td>Gender:</td>
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<td>Land title:</td>
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</tr>
<tr>
<td>Size (members):</td>
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</tr>
<tr>
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<td>External farm labour</td>
</tr>
<tr>
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</tr>
<tr>
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<td>Onions, Green vegetables</td>
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<td>Livestock:</td>
<td>3 pigs</td>
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<tr>
<td>Farm size:</td>
<td>0,5 acres</td>
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### Household #8

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<tr>
<td>Job:</td>
<td>Farming</td>
</tr>
<tr>
<td>Land title:</td>
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</tr>
<tr>
<td>Size (members):</td>
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</tr>
<tr>
<td>Income sources:</td>
<td>Breeding pigs</td>
</tr>
<tr>
<td>Farm Crops:</td>
<td>Banana and Beans</td>
</tr>
<tr>
<td>Home garden:</td>
<td>None</td>
</tr>
<tr>
<td>Livestock:</td>
<td>3 pigs</td>
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<td>Farm size:</td>
<td>0,15 acres</td>
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### Household #9

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<tr>
<td>Job:</td>
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</tr>
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<td>Income sources:</td>
<td>External farm labour</td>
</tr>
<tr>
<td>Farm Crops:</td>
<td>Banana, Maize, Beans</td>
</tr>
<tr>
<td>Home garden:</td>
<td>None</td>
</tr>
<tr>
<td>Livestock:</td>
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### Household #10

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</tr>
<tr>
<td>Farm Crops:</td>
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</tr>
<tr>
<td>Home garden:</td>
<td>Green vegetables, Green pepper</td>
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<tr>
<td>Livestock:</td>
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### Household #11

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<tr>
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<tr>
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</tr>
<tr>
<td>Home garden:</td>
<td>Green vegetables, Green pepper</td>
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<tr>
<td>Livestock:</td>
<td>One cow</td>
</tr>
<tr>
<td>Farm size:</td>
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<tr>
<td>Household #12</td>
<td>Household #13</td>
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<tr>
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<tr>
<td><strong>Farm crops:</strong></td>
<td>Beans, Maize, Cassava, Banana</td>
</tr>
<tr>
<td><strong>Home garden:</strong></td>
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<tr>
<td><strong>Livestock:</strong></td>
<td>Three goats</td>
</tr>
<tr>
<td><strong>Farm size:</strong></td>
<td>0.12 acres</td>
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</tbody>
</table>
Annex C: Coding Schemes

CIP
- Perception
- Constraint

Labour
- Off-farm
- On-farm

Land
- Availability
- Rights

Knowledge exchange
- Extension
- Informal

Demographics
- Education
- Age
- Marital Status
- Family size

Agriculture
- Home garden
- Farm
- Farm animals

Capital
- Off-farm income
- Farm
- Farm animals