

“You have to dig for the money in the soil”

A discourse analysis of low-cost irrigation technologies in rural Zambia

By Vera Borsboom



MSc thesis 'International Development Studies', Wageningen University, 2012

Rural Development Sociology Group

Supervisor Rural Development Sociology : Dr. Paul G.M. Hebinck

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Abstract

This thesis presents a discourse analysis on low-cost irrigation technologies in Kafue district, Zambia, following an assignment by IDE to study technology adoption and gender relations. It is an ethnography as a result of three months of field work, based on the method of participant observation with formal and informal interviews. The discourse of the NGO International Development Enterprises is set against local discourses of vegetable farmers. IDE's understanding of rural dwellers as potential entrepreneurs implies a homogeneous understanding of poor farmers, targeting a masculine type of farming. Neglecting diversity in discourses, understandings and social realities of local farmers in practice leads to selecting male rather than female farmers in the project intervention. At the level of implementation, it seems that the social realities of local farmers are crucial for the shape which the implementation is given. The discourses of the contact farmer, the intermediate between farmers and IDE, together with dynamics at the community level as well as the social relations of IDE's field officer together construct the process of implementation. IDE's individual approach to development neglects the important of dynamics on community level. It is suggested that for an intervention in rural development, it is important to understand the realities of local people, and take these into account in the design and implementation of the intervention.

Preface

It was March 2011 when a good friend of mine left to Zambia for her master's research in international development studies. I sincerely wished her good luck with her research, and at the same time could not imagine myself ever going to Zambia. Not even two weeks later I read a vacancy, calling for a student from the social sciences to do research on the impact of micro irrigation technologies adoption on gender relations in Zambia. Since I was looking for a research opportunity in which I could learn more about gender relations in rural development, I eagerly applied, and almost before I realized I found myself in Zambia.

My study is commissioned by International Development Research Centre (IDRC), and designed in the context of a joint research proposal by IDE Zambia and Wageningen University and Research Centre, called "Gender Differentiated Impact of Low-cost Irrigation Technologies". It has been an adventure for me to spend three months in Zambia, and to do fieldwork in the rural areas with poor farmers. I had to face a variety of challenges, from extreme heat and sunburns to feeling lost and alone in an environment with only basic conditions. At the same time, it was a time in which I learnt more about myself and my capacities, in which I made friendships and found new family members, and an opportunity to develop a new perspective on my own culture.

I am proud of my achievements, of carrying out a research independently in an environment that could not have been any different than my background, and of making a big step towards graduating in rural development sociology. However, I would have never been able to achieve any of this without the guidance, assistance and motivation of many people. First of all, I want to thank IDE for giving me their support and space to carry out this research. Particularly Jairos Simukoko, who has not only been a great, though little belated, driver, but also a friend, able to cheer me up and willing to provide explanations when needed. I want to thank Obed for his company in Lusaka and in Kabweza, and for the conversations full of new insights and motivation to continue. Ash, you have been such a great support to me, I do not know how I could have managed my work without you. I am grateful for the guidance and inspiration provided by my supervisors Paul and Gert Jan: you have urged me to work hard and use my potentials. And last but not least I want to thank my families. Mr. Mulilo, Mr. and Mrs. Hamweene, and Anita and Mr. Mweemba, I am unbelievably grateful for your hospitality and I will never forget you and your beautiful families. And lastly, because the last people you mention are the most important, my own, Dutch family. Thank you, for your encouragement and never ending support to my never-ending surprising and world-wide plans.

Utrecht, March 2012

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The photo in figure 2 is taken by Obed Tuabu. All other pictures are from the author.

List of abbreviations

AWM	Agricultural Water Management
CCF	Christian Child Fund
CETZAM	Christian Enterprise Trust Zambia
CIDRZ	Center for Infectious Disease Research in Zambia
IDE	International Development Enterprises
INGO	International Non-Governmental Organization
IWMI	International Water Management Institute
MEDA	Mennonite Economic Development Associates
NGO	Non-Governmental Organization
RPI	Rural Prosperity Initiative
ZNS	Zambian National Service

Chapter 1 - Introduction

“You have to dig for the money in the soil”. I am sitting with Mrs. Violet on small wooden stools on her compound. Mrs. Violet’s garden, hidden from our sight by a fence erected from dried grass, is currently fallow. However, the income that she earned earlier from selling her ‘too much good cabbages’ has allowed her to construct a new house. She has been so busy with building that she did not have time to cultivate vegetables again. She started vegetable cultivation in 2009 after seeing the success of her neighbor Anita’s garden. Before 2009, she lived merely from rain fed maize farming. By selling bags of maize to the government’s Food Reserve Agency, she used to earn a single sum of money each year. She used the money to buy fertilizer for next year’s maize production. The leftover money could be spent on other household expenses like soap. Now that she grows and sells vegetables, she manages to earn money all year round. She can pay for her children’s school fees, and even for the construction of a new home. “Gardening is very good. It is better than just being seated, you will not find money like that. You have to dig for the money in the soil.”¹

This thesis is the result of three months of fieldwork in a rural area in Zambia with International Development Enterprises (IDE). In order to fight rural poverty, IDE designs and sells affordable, individual² irrigation technologies in different parts of Zambia in the context of their Rural Prosperity Initiative (RPI). In three villages in Kafue district in Zambia, I lived, ate, irrigated, talked, ploughed and planted seeds with vegetable farmers, ‘gardeners’, with the aim to understand the importance of IDE’s irrigation technologies for male and female farmers.

During this fieldwork I have come to understand how vegetable production and irrigation technologies have different meanings for different small holder farmers. The key to understanding the differences, is the willingness and ability of farmers to make investments through loans. I have identified two local discourses, two different ways of speaking about and reflecting on vegetable production. Some farmers are business-oriented, and regularly borrow money to invest in irrigation technologies and other farming inputs in order to increase their income. They reflect on their vegetable production in terms of past and future changes and developments, and have clear plans on how to develop their garden in the future. Other farmers do not speak in terms of loans and investments. They are not willing to take the risk of a loan, or are unable to find a way to obtain one. They do have ideas on how to make the work in the garden less intensive, and to expand the area under cultivation, but want to save up money to invest in irrigation technologies which can achieve these changes rather than take a loan in order to finance these. Possibilities of farmers with respect to taking risks are highly gendered. Women have less control over financial resources than men and are also likely to spend their money on family and household maintenance rather than on technological or productive assets. Hence, IDE’s market-based approach, which assumes that farmers invest in their garden as entrepreneurs, targets a masculine rather than a feminine type of farming. Female farmers are likely to be left out of IDE’s intervention.

I have further seen how the course of IDE’s intervention is shaped not only by the NGO itself, but also to a high degree by the field staff, the villagers, and mostly by the recruited ‘contact farmer’. I will show in this thesis

¹ Interview with Mrs. Violet on 27 October 2011.

² Designed for the individual farmer or family as opposed to for a community or group of people.

how these different parties involved shape and give meaning to the external intervention. I argue that the contact farmer's discourse, along with his or her reputation in the community and the community's social dynamics, play a crucial role in the way in which the project unfolds. This findings serve to explain that the processes of interventions are socially constructed, and that the outcomes of interventions are a result of ongoing social processes.

Hence, by focusing on the intervention as such on the one hand, and on the implementation of the intervention, this thesis aims to analyze, on the field level, the discourse held by IDE about low-cost irrigation technologies and its potential to alleviate rural poverty. In this introduction I will provide first a brief introduction in IDE's approach to solving rural poverty and elaborate on the concepts 'gender' and 'technology'. Consequently, I will discuss discourse analysis in the field of anthropology of development.

1.1 IDE: Low-cost irrigation technologies as solution to rural poverty

In this thesis, I present an analysis of IDE's discourse on low-cost irrigation technologies. IDE perceives low-cost irrigation technologies for individual farmers as a potential solution to rural hunger and poverty. With this goal in mind, IDE started the Rural Prosperity Initiative (RPI), an intervention implemented in four different countries among which Zambia. Since purchasing irrigation technologies normally requires more cash than smallholder farmers dispose of, IDE re-designs irrigation technologies into affordable versions. In addition, IDE attempts to develop value chains, in order to ensure that local manufacturers are capable of producing the irrigation technologies. IDE operates with a market-based approach. The rural smallholder is perceived as an entrepreneur, producer and customer, rather than as a beneficiary and recipient of aid. Within IDE's approach, gender deserves special attention. IDE recognizes that men and women have different roles and responsibilities which should be accounted for as IDE strives to an equal benefit from program interventions between men and women. Gender equality, IDE believes, will make a household, community or society stronger (IDE 2008; IDE 2012).

I refer to IDE's beliefs about the potential of affordable irrigation technologies to alleviate rural hunger and poverty as the discourse on low-cost irrigation technologies. I will present this discourse in more detail in Chapter 3. In this thesis, I will show with ethnographic material how the discourse on low-cost irrigation technologies is embodied in practice. Gender plays an important role in my argumentation, for two reasons. First, I went to the field with the aim to focus on gender dimensions, inspired by IDE's gender statement and their and IDRC's assignment to carry out a research on irrigation technologies and gender relations. Identifying gender roles and patterns in gardening was thus my goal before going to the field. Second, I have observed that there are obvious differences between the possibilities of men and women to mobilize labor, as well as in the way they spend their income, and will argue that these dynamics play a role in the possibilities that males and females have with respect to vegetable production.

1.2 Gender and technology

Part of IDE's discourse on low-cost irrigation technologies is gender. I understand gender as the social meaning given to the biological differences between men and women (see Oakley 1972, paraphrased in Zwarteveen 2006). Whereas 'sex' refers to biological differences between men and women, 'gender' refers to the psychological and cultural meanings assigned to this difference. Gender is a useful concept to describe social patterns divided by sex, as social relations between men and women cannot be explained merely by biological differences between the sexes. Gender identities are contextual and hence worked out in society. They are under constant negotiation and review (see Zwarteveen 2006). As such, hegemonic forms of masculinity and femininity both constrain and influence the actual behavioral practices of women and men. However, they do not determine behavior (Connell 1987 in Zwarteveen 2006). As we will see later on, gender relations play a large role in the practices and possibilities of male and female vegetable farmers in the villages of Kafue district in Zambia. However, they do not determine the social action of individuals. One of my key informants, who plays also a crucial role in the execution of IDE's Rural Prosperity Initiative, shows a striking example of how gender relations are negotiated and have an impact on men's and women's behavior and possibilities, whereas they cannot fully determine the social relations and room for maneuver that people have in practice. This finding supports Vijfhuizen's (1998) argument that social organization, including gender divisions, are actively shaped and transformed by social actors themselves.

Technologies, to continue with, are not merely understood as material artifacts, but rather as social constructs of meanings and values. Technologies are not neutral, and cannot be objectively judged on their effectiveness, without taking into account their particular context (see Jasanoff 2002). This is a key insight in order to identify how a discourse can be understood differently in the field. For example, drip irrigation in the discourse can be seen as an ideal, low-cost irrigation technology with a variety of advantages like labor and time efficiency, whereas farmers do not seem to appreciate the drip kit as such. Hence, understanding technologies as construct, given meaning in a social practice, rather than as neutral material objects, creates spaces for identifying different meanings given to low-cost irrigation technologies by different parties involved in the intervention. As Zwarteveen (2006: 40) puts it: "What an irrigation system is, in an ontological sense, is a question that cannot be answered out of the context in which the system is used."

Hence, both gender and technology are social constructs, which derive meaning in a particular context, and are subject to change. I will now present a brief introduction to Boserup's (1970) thoughts about the role of women in agricultural development, and to Ellis' (2000) ideas about gendered differences in income expenditure and possibilities for labor mobilization. Also, I present the concept of livelihood diversification, as this plays a role in the potential investments done by farmers in irrigation technologies.

1.3 Gender, livelihoods and agriculture

To understand gendered roles and patterns in irrigated agriculture in rural Zambia, I draw on the work of Boserup (1970) and Ellis (2000). Ester Boserup, who wrote one of the first and still significant works on gender and development, "Woman's role in economic development" (1970), states that women's work in agriculture

remains non-technical, traditional, and aimed at subsistence, whereas men shift to the production of cash crops with the help of technologies. Her argument can be summarized as follows: before the colonial time, African farming systems were generally based on shifting cultivation. Hard work like tree felling was in these systems done by men, other, lighter tasks were for women. However, during the colonial times, men's jobs like hunting, warfare and tree felling became much less important. Europeans induced a new farming system based on the production of cash crops which employed men rather than women, and also recruited unmarried men in work in construction, mining or on plantations. Women remained in the villages, carrying out most of the agricultural work, while the married men were, by means of a tax system, forced into cash crop production for European export. In places where population density is low, subsistence farming need not be labor intensive, and fertilizers and land improvement need not be applied. Though when population increases, plough cultivation is required to increase labor productivity. Generally, ploughs are operated by men and less work is left for women as weeding becomes less important. With irrigated agriculture, the labor required increases even more, and both men and women are required to work hard. Boserup argues that while men shifted to cash crop production, women's continuation of subsistence farming led to a deterioration of her status. Being regarded as superior to women, men were, rather than women, the target of education and extension services. Producing cash crops instead of subsistence crops, men were able to invest in the improvement of their production. As such, the gaps between male and female farming widened, leaving women in traditional and non-technological subsistence farming and pushing men more into improving and increasingly technological forms of cash crop production. Often, this goes together with an increasing domination of men over women, as this production pattern allows men to be the independent decision-maker, whereas women are bound to the role of family aid or hired worker. Chambers (2000) adds that "whatever is larger-scale, marketed and modern is more likely to be managed by men than women."

Hence, Boserup argues that the prevailing farming system, together with the colonial history and the dynamics of status and subordination, explain the different roles that women and men have in agriculture. Ellis (2000) also connects dimensions of gender to agricultural practices and argues that in the case of rural livelihoods in general there are common differences in expenditures between men and women, as well as in agricultural work and in assets. In line with Boserup, Ellis states that men are able to mobilize labor - including the labor of his wife – and is the one who produces high value or cash crops. He is also the decision maker concerning inputs and investments in agriculture. Moreover, Ellis argues that women are more likely than men to spend cash on household needs rather than on personal consumption. This is a significant gender difference in household expenditures, and as a result of these dynamics, women are rarely able to spend income on agricultural inputs, because all or most of her money is assigned to her family and household.

A livelihood, or means to a living, is a complex combination of assets, activities and access to activities which together form the living gained by an individual or household (Ellis 2000). Rural livelihoods in contemporary developing countries show the ability to adapt, which suggests that the construction of livelihoods is an ongoing process. Not only are livelihoods likely to change over years of time due to changing circumstances, also within a year due to seasonal variety, elements of a livelihood are likely to differ. Livelihood diversity is related to this, and refers to the existence of many different sources of income simultaneously. Diversification of livelihoods then refers to the creation of diversity, that is, the process by which people or households seek to expand their assets, activities and access to these. This expansion reduces risks through redundancy. The more diverse and complex livelihoods are, the better they are buffered against shocks and failures (Chambers 2000). According to Chambers, livelihood diversification can be deployed in six different domains: acquiring

skills and pursuing education, hence increasing capability; assign different tasks to different members of a family or household; diversifying the activities, for example farming, employment and wage labor; investing in social relationships; change activities according to seasonality; and exploit interlinkages, hence re-use materials or apply materials or resources in sequences.

I will now discuss the core of my research, discourse analysis.

1.4 Discourse analysis

To understand the concept discourse, it is helpful to turn to Foucault. He understands a discourse as “a group of statements linked to a ‘referential’, itself consisting of ‘laws of possibility, rules of existence for the objects that are named, designated or described within it, and for the relations that are affirmed or denied in it’” (Foucault 1972: 91, cited in Grillo 1992: 12). Central to a discourse is language, as well as the objects and relations represented through language. In the context of development studies, Ellingson’s definition is helpful. He understands a discourse as “a relatively bounded set of arguments organized around a specific diagnosis of and solution to some social problem” (Ellingson 1995: 107). This definition is not much different from Hall’s explanation of a policy paradigm, which he describes as “a framework of ideas and standards that specifies not only the goals of policy and the kind of instruments that can be used to attain them, but also the very nature of the problems they are meant to be addressing” (Hall 1993: 279). Hence, a discourse provides a way of understanding a social problem as well as a solution and the means through which the solution can be reached. A discourse is powerful, because it provides a way of understanding social reality. It has the potential to create, recreate and modify both culture and language (Sherzer 1987, cited in Grillo 1992: 12). As Seidel puts it: “Discourse is a site of struggle. It is a terrain, a dynamic linguistic and, above all, semantic space in which social meanings are produced or challenged” (1985: 44, cited in Grillo 1992: 12).

Discourse analysis is a central component of anthropology of development and characterizes an engagement with critical perspectives on development and development processes (Grillo 1992). Olivier de Sardan (2005) characterizes discursive anthropology, a particular approach of anthropology of development, by a critique on the gap between discourse and practice, and a critique on development agencies that they are politically driven and donor oriented. Escobar is considered as one of the representatives of the discursive approach. Development, as he understands it, is a western creation with roots in historical processes of modernity and capitalism, aimed at transforming the economic, cultural and political realities of other societies. It is through the discourse on development, he argues, that certain parts of the world have come to be defined as underdeveloped, hence, underdevelopment is an invention which came into being through discourses and practices of development (Escobar 2010). The authors in the discursive approach to development studies generally hold a homogenous understanding of development agencies, and are prone to refrain from fieldwork and from studying development action (Olivier de Sardan 2005).

Other than Escobar, Hobart identifies more than one discourse on development. In his understanding, there are three co-existent discourses on development: the professional discourse; the discourse of local peoples; and the discourse of national governments and local officials. Between these different discourses, he argues, communication is impossible. They rest of different systems of knowledge which lack common ground, hence

miscommunication is unavoidable (Grillo 1992).

Yet, both Escobar and Hobart underpin the so-called 'myth of development', following the tendency to think of development as a monolithic enterprise, powerful and doubtless about its own wisdom, disregarding local knowledge and understandings. Hobart identifies a variety of discourses on development, yet it is limiting to understand these discourses each as homogeneous. Within each of the discourses he distinguishes, there is a large diversity, a multiplicity of voices and knowledge, each with its own relative power (Grillo 1992).

Another approach to anthropology of development explored by Olivier de Sardan (2005) does build upon the notion of multiple discourses. He names it 'entangled social logic', an approach which is based on the understanding that different actors involved in development practices have different discourses, values and practices, which intersect and intertwine in encounters and experiences of people from diverse social-cultural practices. It suggests that development and modernity are inconsistent, incoherent, dynamic and inevitably local. Central to this approach is the study of social interaction to analyze development processes, which implies field-enquiries, and adopts an actor-oriented approach. The actor-oriented approach recognizes multiple realities and diverse social practices of various actors, and aims to study how people experience transformations and are active producers of change. Issues for development researchers in this approach are the significance and potency of "official" discourses on development and the strategies and language of local people (Arce & Long 2000).

A key concept in the actor oriented approach is social interface. When a planned intervention is implemented, there is a discontinuity in social life. It is a point in which encounters of different life worlds take place: usually, the world of the development agency comes into contact with the world of the beneficiaries. Each of these life worlds has its own goals, perceptions, interests and relations, and the encounter between these is therefore likely to be dynamic and even potentially conflictive. This point of intersection is described by Long (1989) as the interface. It is at the interface that "structural discontinuities, based upon differences of normative value and social interest, are most likely to be found" (Long 1989: 1).

The research for this thesis endorses the entangled social logic approach as explained by Olivier de Sardan (2005), and adopts an actor-oriented approach. The result is an ethnography, as a part of which I, as researcher, reflect on my own role in the process of studying³ (see Arce & Long forthcoming). The ethnography presents a way to understand different discourses on irrigation technologies and vegetable production. The discourse analysis presented is not merely concerned with the design or language of the development discourse, but mainly with the social practices which embody the discourse at a local level. Hence, I will focus on the ways of practicing development, as well as on the social realities of the beneficiaries of development intervention. This analysis is two-fold and first aims to analyze the intervention designed by IDE in the context of the low-cost irrigation technologies discourse. The social practices related to gardening, and how these are shaped by gender relations, reflect the discourses of farmers concerning vegetable production and irrigation technologies. The analysis of the discourses at field level shows how IDE's intervention by its design is selective in reaching potential beneficiaries, or clients. In the second part of the discourse analysis, the social practices related to the implementation of the project are analyzed. The contact farmer is shown to be a key figure in the implementation of the project, and his or her understanding and appreciation of the intervention, his or her

³ See Chapter 2 - Methodology

role in the community in combination with general characteristics of the community are suggested to be of primary importance in the ways in which the intervention is given shape in practice. With the help of the concept of social interface, I will show how the low-cost irrigation discourse is embodied in the implementation of the intervention.

With this ethnography, I aim to answer the following question:

How is IDE's discourse on low-cost irrigation technologies embodied in the discourses of vegetable farmers in rural Zambia, and how do the local discourses as well as other social dynamics at community level influence the implementation of the Rural Prosperity Initiative?

1.5 Organization of the thesis

In the following chapters I will present the empirical data collected during my fieldwork. Chapter 2, to start with, discusses the methodology. I present the villages in which my research has taken place, and the informants. I describe how I approached and how I selected the informants that I involved in my research. I also discuss the research methods that I applied: participant observation and various types of interviews. There is also scope for the limitations of the study and for my role as a researcher within the research. All in all I hope that with this chapter, I show that I critically reflect on the ways in which the data for this thesis have been collected, and that I provide enough arguments to defend the choices that I made in the process of researching.

In chapter 3, I present background information about IDE as an international organization and about its belief in the potential of low-cost, individual irrigation technologies to solve problems of rural hunger and poverty. I will also present the Rural Prosperity Initiative (RPI), the project which forms the context of this research, as well as IDE's ideas about gender. Hence, chapter 3 serves to provide an understanding of the background and assumptions of the discourse on low-cost irrigation technologies.

Chapter 4 and 5 can be considered as introductions to the life-worlds of villagers. I will first give an introduction to the villages in which I did my field work, and pay attention to practices of farming and irrigation in the villages, and show how farming and irrigation should be understood in a context of a variety of livelihood strategies which rural dwellers deploy. In the following chapter I will elaborate on gender relations, how they have changed but are still persistent and differential. Findings from Long (1968) and Seur (1992) support my data and help to put these in a different perspective.

Chapter 6 presents the discourses of vegetable farmers as well as a categorizations of vegetable farmers. As such, I take both an insider's and an outsider's view to understanding vegetable production in Zambia. I will show how investing in irrigation technologies does make a difference for the livelihoods of small holder farmers. IDE assumes that farmers make investments by taking loans. Taking the risk of a loan is a social process, which is linked to livelihood diversification, labor availability, and gender relations.

Chapter 7, to continue with, shows how dynamics in the village play an important role in the way the intervention is given shape in the social reality of vegetable farmers. With the help of the concept of social interface I will show how actors involved in the implementation of the RPI have different interests, expectations, and understandings related to the project. The contact farmer is a key figure in the ways in which the project unfolds, since both his or her status in the community and his or her understanding and appreciation of the intervention are very important for the shape that the intervention is given in reality. Also the characteristics of the community play a role in this process. With this chapter I will show how interventions enter an existing life world with established, though not fixed, social relations and practices. The shape that the intervention takes in reality is negotiated in the process of interaction of different parties involved.

Chapter 8 is the conclusion. I will argue that IDE's Rural Prosperity Initiative targets a masculine rather than a feminine type of farming. For the RPI to reach the poorest people as intended, IDE should take into account existing gender relations and patterns. Also, I argue that the social relations prevailing in the field determine to a large extent the ways in which a project intervention takes shape in practice. These findings suggest a gap between project design and the practice of project implementation, and indicate that the social reality of beneficiaries is not always incorporated in the design of an intervention aimed at rural development.

Chapter 2 – Methodology

*I must warn those comrades, government officials, politicians and intellectuals... they are too high to really feel what we feel. They always want to talk for us and about us but they must allow us to talk about our lives and our struggles.*⁴

From August 26 until November 30 in 2011 I joined International Development Enterprises in Lusaka, Zambia, to conduct fieldwork. Data collection for my study took place in the villages Chikupi, Kabweza and Mungu. These are located near IDE's field office in Kafue Estates, and they participate in IDE's Rural Prosperity Initiative. I did not manage to spend all my time in the villages. Logistical problems, obligations concerning my visa, and the need for an office environment in order to process my data kept me sometimes in Lusaka for longer than I wanted. Eventually, I did seven village stays: one in Chikupi, three in Kabweza and three in Mungu. On average I stayed in each village for a period of five days, in total I spent 37 days in the field.

In this chapter, I will present the methodological choices and decisions that I made in my field work, and hence how I put a discourse analysis at field level into practical action. First, I give an introduction to the villages where my research took place, and to the informants of my research. I will continue with discussing the methods that I used: participant observation and interviews. I conclude with the scope and limitations of my study, and an explanation for the way in which I decided to present my data in this thesis.

2.1 “The field” – Kabweza, Mungu and Chikupi

The research for this thesis has been carried out in three villages near Kafue Estates, approximately 50 kilometers south of Lusaka⁵. Most of the research has taken place in the villages Mungu and Kabweza, less in the other village Chikupi. There are several reasons for my decision to conduct my research mainly in Mungu and Kabweza. First of all, in-depth qualitative research is best carried out in one or two locations rather than more. My goal was to gather valuable information about gender relations within the household and choices made for livelihood opportunities with respect to irrigated agriculture. I expected that short visits with interviews would not result in in-depth information, even though it would give me the opportunity to include more farmers in my research. Rather, I chose to do participant observation in only two villages, in order to be able to build rapport⁶, have repeated visits to the same informants, and thereby be able to gain a more comprehensive understanding of village life, family life, gender relations, and issues concerning irrigated agriculture.

Second, my choice to do research in Mungu and Kabweza and not in Chikupi was related to the host families that I could potentially stay with. In Mungu and Kabweza, I stayed in host families in which most of the

⁴ Zikode 2005, in De Lange 2006: 180

⁵ The villages are introduced at more length in Chapter 4.

⁶ See DeWalt & DeWalt 2002: 40-45

members, at least the adult or adolescent ones, were able to communicate in English. In Chikupi, however, it was only the father of the family who was skilled in English. Two of his daughters were also able to speak some English, but not much and these girls were also quite young and not much involved in agriculture. Since I spent most of my time with my host family and I was able to have a lot of informal yet very informative talks with the family members, I understood that my stay in a family in which I can easily communicate in English, would lead to much more interesting data for my research. It is for these reasons that I chose to continue my data collection in Mungu and Kabweza rather than in Chikupi. I realized that this was a good decision also for other reasons when I noticed that in a family where I could express myself and my experiences, I felt much more comfortable and confident, and was therefore in a much better condition to go into the field and collect data.

The third and last reason for my decision to limit my research to Mungu and Kabweza, is that these villages seemed to be an interesting combination of villages to study, because they are rather different from one another. Kabweza can be described as the ‘model village’ where the success story of IDE can be illustrated. Many farmers who participated in the Rural Prosperity Initiative in Kabweza had invested in treadle pumps, motorized pumps and drip irrigation. The farmers know each other well and support each other when needed: they reflect a strong sense of community. In Mungu, however, not many farmers are involved in IDE nor do they know about IDE and its intentions. Most of the farmers I met use bucket irrigation, some have different types of pumps but nobody uses a drip kit. Doing research in these completely different villages seemed interesting for me and for my study, in order to understand how the difference in the course of the implementation of the RPI can be explained. Hence, Mungu and Kabweza proved to be suitable locations to study social interface.



Figure 1: Impression of Kabweza.

2.2 Informants

The host family with whom I stayed in the villages was the family of the contact farmer of IDE in the village. The contact farmer is recruited in order to spread the news about IDE to fellow farmers in the village, to inform farmers about meetings, and also be a source of information or a means to reach IDE staff in case somebody needs information or is seeking knowledge⁷. These contact farmers, Mr. Hamweene in Mungu and Anita Mweemba in Kabweza, are acquainted with the local farmers involved with IDE. They were thus able to direct me to informants. Anita Mweemba is very involved in a lot of community work and is therefore well-known in the village, so via her it was easy to approach also farmers that did not participate in the Rural Prosperity Initiative. In Mungu, I soon found out that Mr. Hamweene is not acquainted with many people in the village. I found informants who were not involved with IDE in Mungu therefore through different means. This happened often by coincidence. For example, parents of some of the children that often came to my home in the village to play happened to have a garden. On another occasion I was cycling alone on the main road – quite notable in a rural area where white people only occasionally appear in big four wheel drives – and started talking with another man on a bicycle, going in the same direction as I did. While chatting, I discovered that he maintains a

⁷ Conversation with IDE’s field officer Jairos Simukoko on 28 November 2011.

garden together with his wife, so I asked him to be an informant in my study. Hence, I found participants for my research both through the network of IDE's contact farmers, and through social skills and by coincidence. The selection of informants thus took place according to snowball sampling (Boeije 2005).

When I first approached informants, I generally went to visit them in their home and in their – often nearby – garden. I asked general questions about the crops, the irrigation technologies used, and the work division.⁸ In Kabweza, on the election day when everybody enjoyed the public holiday and the company of fellow villagers, I took the opportunity to take, with the help of the contact farmer Anita Mweemba, some of the individual farmers apart and have a semi-structured interview guided by a list of questions. I tried to transform the interview into an informal conversation rather than an interview. For example, I tried to talk about daily topics like the weather or the upcoming elections, or I would tell them a bit about how I lived in the village.⁹ I did this to make the context less official, and to make the farmers understand that I was not there to investigate them, but rather to learn from them and to understand their decisions, experiences and struggles with irrigated agriculture and livelihood opportunities. Hence, I tried to make them feel comfortable with me, be clear about my intentions, and thereby lower the chance that they give answers that they anticipated I wanted to hear.

From these interviews/conversations, I could understand the basics concerning irrigated agriculture: which types of irrigation technologies were being used, how the users assessed these, how the farmers relate to IDE, how the labor tasks are distributed among household members (and sometimes outsiders), and who is the decision maker in the household. From the people that I interviewed initially, I selected farmers that I regarded interesting to visit more often than once, and to have more in-depth conversations with. My host families were most accessible and were therefore almost automatically part of my research. Moreover, I tried to select farmers using a variety of irrigation technologies (bucket irrigation, treadle pump, motorized pump, rope and washer pump and drip irrigation) with the aim to understand differences between households using different technologies. I also involved both men and women in the study, and both participants and non-participants in the Rural Prosperity Initiative. I also tried to include farmers that showed to have a story that was different from most of the farmers, for example a tragic story of a woman that had to maintain a garden to support her children in going to school, while her husband worked and earned money as a carpenter, but did not share his money with his family.

In total, I interacted with 37 farmers at least once or twice about irrigation and irrigation technologies. Nine of those I have visited more often and worked with more closely.

2.3 Research methods

I used both participant observation and interviews in my study. In this section I will discuss the advantages and disadvantages of these methods for me personally and, related to this, for the quality and quantity of the data.

⁸ See the list of questions in appendix I and a topic list in appendix II.

⁹ Villagers were generally very interested in the ways in which I showed to adapt to village life. They were very curious to what I ate, where I slept, and whether I learned cooking. When they found out that I tried to live like any other woman in the village, they seemed surprised and impressed. This behavior of mine and the interaction about it with villagers was, I believe, very important for building rapport.

I will give an impression of how these research methods took shape and explain the reasons for the choices which I made with respect to the methods.

2.3.1 Participant observation

Participant observation was the main research method that I applied in this study. Participant observation is “a method in which a researcher takes part in the daily activities, rituals, interactions, and events of a group of people as one of the means of learning the explicit and tacit aspects of their life routines and their culture” (DeWalt & DeWalt 2002: 1). I firstly did this by living in a host family and involving myself as much as possible in their daily activities. For example, I helped cutting vegetables and cooking, I washed the plates alone, I swept the floors, I assisted in the jobs that had to be done in the garden and I helped planting maize when the rains arrived. Secondly, when I visited a farmer, I always showed my interest in learning about gardening and my respect for the work they do, for example by lifting buckets to irrigate the crops or by learning how to plough with oxen. Third, in general I tried to adapt as much as possible to the village life by doing what the locals do. I wore a *chitenge*, the colorfully printed wrap that Zambia is famous for. I cycled around the village to visit farmers, and when visiting people I participated in activities like shelling groundnuts, as I noticed that visitors easily engage in the domestic activities of the people they visit.



Figure 2: The researcher trying to 'fit in'.

This method had obvious advantages, both personally and for the research. Personally, it was an enrichment and source of energy to adapt to village life and to see people appreciating my effort. People felt free to talk to me, to ask me questions, and I felt free to visit people and make jokes about things that I did that showed that I am not used to village life (like burning myself when I tried to cook *nshima*, the local staple food, or like losing my way in the village because I do not understand landmarks in villages the way that I do in cities). I can therefore say that I was able to develop social contacts and friendships, something that gave me confidence and positive energy. The reason I mention this personal advantage is that I believe it was important scientifically as well. Not only because I felt more capable and confident to carry out my research in a previously unknown environment, but also because it expanded my network and brought me in contact with farmers that I had not met before. Also, and in line with this, it helped me to build rapport. As DeWalt and DeWalt (2002: 11-13) report, “access to even more mundane and common events, activities, and knowledge may rest in large part on the development of trust from participant observation”.

Participant observation has also important advantages for the quality and quantity of the data, as it is well known that what people say they do and what they actually do is not always similar. Due to purposefully or accidentally hiding information, informants do not necessarily provide complete information in interviews (DeWalt & DeWalt 2002: 8-13). Observations are therefore a valuable source of information. With one of my informants, a woman, I had an interview in which she told me that the garden was her project, that her husband started to cultivate only when he saw that gardening was profitable, and that she still does most of

the work in the garden. However, while observing the work done in the garden, I noticed that it is actually her husband that carries out most jobs in the garden. This example shows that observations can add a lot to interviews. Furthermore, participant observation allows the researcher to ask questions and clarifications in an informal manner. Much information can thus be collected without having formal interviews. This saves time and also allows for more accurate questions and answers. At one morning I had an appointment with a farmer in Mungu that wanted to teach me how to plough. While observing his brother ploughing, we chatted a lot about village life, about rain-fed agriculture, and about cooperation with his family. After he taught me how to plough and I managed to make some completely crooked lines in the field, we walked to his home together to fetch my camera and make some tangible memories of the morning. During this walk, I asked him questions about his garden, to collect data that I needed for my study.

Thus, the advantages of participant observation which showed in my research were that it allowed me to gain trust with the villagers and thus build rapport and expand my network, and it increased the quality and quantity of the data, because it allows for informal data-collection and new insights on what people had previously told me.

2.3.2 Interviews

I have used a variety of types of interviews in this study, and most of the interviews I had were informal in character.¹⁰ They took place for example with my host family while preparing or having food, with farmers while plucking tomatoes or irrigating rape¹¹, or in the car with the field officer that brought me to and from the villages. This was suitable considering the context, for several reasons. First of all, my informants were often busy with a variety of activities, and I did not want to take much of their time to have an interview. Second, it is a good way to participate in jobs that are carried out and at the same time ask for clarifications on the things happenings. Third, as mentioned before, it creates a situation of mutual trust which I deem important for collecting rich qualitative data. It also has disadvantages. First, the interviews I did were not standardized and often depended on the context and the subject that were discussed in general. However, since this research is an in-depth qualitative study, rather than a collection of statistical or comparative information, this drawback does in my opinion not have consequences for the quality of the data. The second disadvantage of informal interviewing is that I often did not have the opportunity to write down the information that I received. I decided not to use a voice recorder, because in most cases it was impossible to use one, and because I tried to adapt as much as possible to the locals and I expected that showing up with expensive gadgets would not help me in this. In order to limit the loss of information by not writing it down immediately, I always made sure that I reported on the interview or the observations that I did as soon as I came back home in the host family. This was often directly after concluding an interview or a visit, which means usually within an hour.

Along with informal interviews, I also conducted semi-structured interviews.¹² These took place during the initial contact I had with farmers, as an exploration. I prepared a list of questions that I wanted to have an

¹⁰ See DeWalt & DeWalt 2002: 122

¹¹ Local term for collard greens.

¹² See DeWalt & DeWalt 2002: 122

answer to in the interview, as well as a topic list¹³, but I also made use of the freedom that informants used to talk about topics that they found important, which they wanted to emphasize. At the beginning, I conducted the interviews with the list of questions, and pen and paper, whereas later on I got very familiar with the questions and preferred a less formal way of interviewing and did not use pen and paper anymore. Assisted by the list, I made sure that I got answers to all my questions, but most often this happened in a different order than planned, and the questions often showed to be a means of opening conversation and creating space for talking about topics related to irrigated agriculture which were not necessarily listed among my questions. This way of interviewing had the first advantage that I could get an impression of the topics that were important for the farmers. Second, it opened up the opportunity to talk about topics that I had not anticipated to be of importance. For example, at the beginning of my research I had not considered that community work might be an important activity for some villagers. One of my informants brought up how busy he was with his work for three different community programs, which was why he wants to invest in drip irrigation. Drip irrigation allows him to save time on irrigation. It was the first time I realized that volunteer work could possibly be an important occupation for villagers. After this interview, I more frequently asked farmers whether they were involved in other activities like community development.

Hence, I had mostly informal interviews, which suited the context and allowed me to ask for clarifications during work or observations. Semi-structured interviews were part of the exploration-phase, and allowed for space for the farmers to talk about topics of their interest.

2.4 Limitations

The context and shape of my research has several limitations. The first has to do with the quality of data resulting from interviews because of the length of the answers. The second is related to the fact that I was connected to IDE. The third limitation is related to language and interpretation.

In many of the interviews, it seemed that answers to questions which I posed were as short as possible. In these cases, the informants did not take the opportunity to elaborate on the topic. I found several explanations for this behavior. First, I suppose that the farmers are not used to answering questions, to give explanations and to express opinions. This might be related to a lack of education, or to the fact that they are not often being interviewed about their farming activities. Another part of the explanation is perhaps the unease that the informants had with me when I was still new in the village. I remember well an example from Mrs. Violet, a female farmer that lived close to my host family. I went to visit and interview her during my first visit in the village, and at that time she was not very open. She provided brief answers and seemed relieved when I declared that I had no more questions for her. However, during my last stay in that village, I visited her again. When I first came, she said she was busy, but she would be waiting for me from 3 pm onwards. As I arrived again later in the afternoon, she had a totally different attitude towards me than before. We chatted about her son's wedding and the preparations that she was occupied with at the time, and explained the progress of the construction of their new house. The questions that I asked for my research were for a large part similar to those that I had asked before in my first visit, but this time she took time to answer more extensively. For me

¹³ See appendix I and II.

this proved the value of staying in a village for a longer time, and the importance of trying to build rapport with informants. And also that another potential explanation for brief answers is the unfamiliarity that informants have with me as a person.

A second limitation that I consider in my results is the possibility of desirable answers. When introducing myself to informants, I explained that I am a student and that I wanted to learn about irrigation and how people make decisions and divide the work related to irrigation. I did not usually tell that I came there through IDE, because I was afraid that by knowing this they would make sure they provide answers that they expect IDE wants to hear. However, I often came with a translator, and the translator often happened to be the contact farmer that I stayed with. It repeatedly happened that the host mother or father that I came with introduced me in the vernacular language before I had the chance to introduce myself. In those instance I often heard that he or she used the abbreviation IDE. Apparently, they did introduce me as coming with IDE. Though I still tried to explain my reasons for being there and asking questions, it is still a possibility that the farmers were cautious in giving honest answers because they knew I was connected to IDE.

The third limitation is a well known limitation of research in a context with an unfamiliar language. The local languages in Mungu and Kabweza are Tonga and Nyanja. I did not have enough time to learn much more of these languages than the traditional greetings. I was surprised to see how many people were able to communicate in English. The level was very diverse, and some people appeared to be very advanced while other possessed only basic language skills. In general, men speak better English than women. When possible, I conducted the interviews by myself. In most cases I think that the lower level of English of the informants did not result in wrong data, though I must admit that the data could have been richer if the informant was more fluent in English. However, in some cases it was necessary for me to come with an interpreter. This was limiting in some ways. First, because participant observation and informal conversations as a source of information were almost impossible. By means of a translator it is very difficult to chat and exchange information while carrying out a job or activity. Second, there are several issues related to using an interpreter. Information might get lost, or get enriched, by the interference of an interpreter. It is not always clear which words are those of the interpreter and which are the words of the informant. Moreover, it is possible that the interpreter does not translate everything the informant says. Nuances for example easily get lost in translation. Third, as I did not have a professional interpreter, I often visited farmers for interviews with my host father or host mother, who were both related to IDE. Especially Anita Mweemba is very familiar amongst villagers of Kabweza, and most people are aware of her extensive cooperation with IDE. It is therefore possible that the answers in the interviews in which she interpreted were somewhat flawed towards what informants expected would be desirable information.

2.5 The role of the researcher

Before reading further, I would like to shed light on the way in which I wrote this thesis. While I was in the field, I more and more realized how much of my data collection depended on my behavior as a researcher, on fortunate or unfortunate conditions in the village, and on the season in which I visited the field. A large part of the data collected therefore was found by coincidence and is time specific. Moreover, if another researcher instead of me had visited the field, he or she might have worked with other farmers, and might have found

different stories.

This is not to say that the quality of the research should be questioned. However, it does call for a presentation in which my role as a researcher is made explicit. I have played a large role in the ways in which the data have been collected, how they are analyzed and selected for presentation. It is therefore suitable to present myself as part of the research process, along with the informants who have helped me to understand life, gender roles and irrigation in the villages where I stayed. You will find in the thesis that I write from my own perspective, and that I include interactions and situations that I had in the village, with farmers. This thesis is meant to show my interpretation of the meanings of irrigation technologies and irrigated agriculture for some of the villagers in Mungu and Kabweza, and cannot be anything but fragmented and incomplete.

Being in the field for me was an adventure and a challenge, and a process of development, both scientifically and personally. I built up relationships with the members of my host families and made friendship with youngsters in the village. The ways in which I was accepted and seen by the villagers has undoubtedly had an impact on the research that I carried out. My aim is to show this in the thesis, and hence this work shows not only the data that I collected, but also my role as a researcher in the process (see also Arce & Long 2000).

Chapter 3 – IDE’s discourse on low-cost irrigation technologies

1.2 billion people earn less than a dollar-a-day, and 800 million continue to go hungry. The United Nations’ millennium development goals for 1990–2015 aim to cut in half the proportion of these poor and hungry people by the year 2015. But with business as usual, the millennium goals for hunger and poverty have little hope of being accomplished. This is especially true for those living in the semi-arid tropics. In 1999, 37% of the population in South Asia lived in extreme poverty, compared with 44% in 1990, not much progress toward the 22% millennium target. The situation in Sub-Saharan Africa is even worse, with 47% of the population living in extreme poverty in 1999, compared with 48% in 1990. The prevalence of underweight children in South Asia and Sub-Saharan Africa in 1990 and 2000 follows the same pattern. Nothing less than a revolution in development theory and practice is required if we are to have any hope of reaching the millennium poverty and hunger targets.¹⁴

This chapter forms an introduction to the organization International Development Enterprises (IDE) as well as to IDE’s discourse on low-cost irrigation technologies and its assumptions about rural poverty alleviation. I will discuss the Rural Prosperity Initiative, an intervention implemented by IDE in Zambia. I will also explore some of the working methods of IDE’s field officers.

3.1 IDE’s discourse: low-cost irrigation technologies in a market-based approach

The quote presented above is from Paul Polak, the founder of the INGO International Development Enterprises. Polak claims that water is the key element to play a role in reaching the millennium development goals of halving the proportion of poor and hungry people by the year 2015. To achieve this, water needs to undergo a revolution, which implies creating access for smallholder farmers to affordable irrigation technologies. Irrigation technologies are a key factor in increasing a farm's net income by improving its profitability, and can thereby form the “path out of poverty” (Polak 2005: 134). Implementing a strategy that opens up access to low-cost irrigation technologies, along with other market-driven strategies, can potentially increase the income of poor farmers from one to three or more dollars per day (Polak 2005). Basically, with the help of irrigation technologies, smallholder farmers will be able to grow (more) vegetables, and sell these at the market in order to increase their cash income.

Literature suggests that Polak does not stand alone with his ideas about irrigation. According to Namara et al. (no date) there is “reasonable though not conclusive” evidence that agricultural water management technologies lead to significant improvements in both household food security and household income. The

¹⁴ Polak 2005: 133.

treadle pump¹⁵ in particular has proven to be capable of increasing households' incomes. Evidence for example is given by Shah et al. (2000), who found that in certain areas in Bangladesh, Nepal and India, the annual net income of adopters of the treadle pump is likely to increase with an amount between 50 and 500 US dollars, with a 100 US dollar increase as estimated average.

Literature suggests, with or without evidence, that low-cost irrigation technologies potentially play a large role in increasing farm households' income and food security. However, many authors show their doubts about this statement. First, it is suggested by De Lange (2006) that in certain areas the better-off households rather than the poorer households benefit from the introduction of new irrigation technologies. In Gujarat and Maharashtra, two states in India, the largest proportion of adopters of low-cost irrigation technologies comes from the group of richest farmers, leaving most of the poorest farmers without the benefits of micro-irrigation. Other studies have shown, however, that it is the richer who adopt innovations more rapidly, and the poorer that adopt innovation less rapidly. The poorer households are thus expected to follow the richer, though at a later point in time. This is an interesting critique on the discourse on low-cost irrigation technologies, as my research also suggests that the poorest people and households in the village do not benefit from IDE's Rural Prosperity Initiative. This is for most of the people a consequence of lack of cash, and strongly related to gender relations. Within households, women are likely to be the poorer family member. A husband who is employed or otherwise earns money does not necessarily share his income with his wife. The wife is generally the person in the household that takes care of school fees of children and for household needs like soap and cooking oil. In order to access cash to cover these expenses, she has the option to cultivate vegetables. With a lack of power to allocate labor, she will not be able to grow and sell a large amount of vegetables, hence she is likely not to have spare money for inputs like irrigation technologies.

Second, De Lange (Ibid.) argues that for low-cost irrigation technologies to be of use to (especially the poorer) farmers, farmers need to apply some creativity in order to adapt the technology so that it fits their expectations, to make them "their own" (de Lange 2006: 16). The technology that is introduced therefore needs to allow room for experimenting, for innovations and adjustments. Not only does this allow a farmer to fit the technology in his or her usual ways of working, it also creates farmer engagement with the technology that comes from outside. A technology which is designed by externals is not likely to be accepted in the way in which it is presented, but needs to undergo some adaptation by the potential users instead. I have observed this dynamic in Zambia especially with users of drip irrigation. Most farmers who adopted the drip kit have adjusted its material or size.¹⁶

A third critique on the ability of micro-irrigation to solve hunger and poverty, is illustrated by Namara (no date). An example of Ethiopia is given, where the diversity in conditions in the field is so large that not everybody easily benefits from new irrigation technologies. Factors that influence the adoption, adaptation or rejection of new technologies are among others lack of information or access, lack of fit between the technologies on offer and the capacities and needs of household, inefficient promotion strategies, flawed assumptions about households' needs and capacities, and also the real costs and benefits from the households' perspectives. De Lange's (2006) argument that for the implementation of a technology, training and capacity building of

¹⁵ See Chapter 4 for more information on different irrigation technologies.

¹⁶ For more information on drip kits and the adjustments made by farmers I refer to Obed Tuabu's thesis (forthcoming).

potential users is required, can be added to this list. As Merrey et al. (2006: 9) put it: “Micro-AWM technologies by themselves are not a panacea for a complex and deeply rooted problem like rural poverty and malnutrition. This is why relief-oriented micro-AWM programs implemented by NGOs often have limited impact”.

Hence, what I call IDE’s discourse on low-cost, individual, irrigation technologies, is a consensus, supported by IDE and found evidence for in researches like those of Shah et al (2000), suggesting that low-cost irrigation technologies can form the solution to rural hunger and poverty. Several critiques have been stated to put this suggestion into perspective, and these three critiques can all be identified in the areas where my research took place, as I will show later on. But first I will present IDE Zambia and the Rural Prosperity Initiative, an expression of the discourse on low-cost irrigation technologies.

3.2 IDE Zambia and the Rural Prosperity Initiative

The INGO International Development Enterprises has been active in Zambia since 1997 (IDE 2012). At present, IDE Zambia has an office with around twenty staff members in the capital city of Lusaka, and throughout the country there are several field offices. The field officers are responsible for selling irrigation technologies to farmers in the field. In the head office in Lusaka, staff members are concerned with, among others, market coordination, technology design and development, monitoring and evaluation, and financial administration.

IDE has an interesting history, which started in 1982 in a Somalian refugee camp. Paul Polak, the founder of IDE, was there, and saw how people were struggling with carrying and transporting heavy loads. He re-designed the local donkey cart with used car parts. He taught local artisans how to manufacture the newly designed donkey cart, and they eventually sold more than 500 of them. This experience lay the basis for IDE’s belief in the potential role of technologies in poverty alleviation. It was in Bangladesh that IDE first started promoting irrigation technologies, an intervention which proved to be so successful that nowadays 1,5 million of these have been sold (IDE 2012).

Currently, IDE works in Africa, Latin America and in Asia. IDE’s principle is that “simple, affordable technologies enable the rural poor to become micro-entrepreneurs, creating a path out of poverty that is both sustainable and applicable” (IDE 2012). Thereby, IDE tries to create income and livelihood opportunities for poor rural households. Instead of giving handouts, IDE intends to help families in accessing tools and knowledge which are needed to increase their income. IDE’s working method is market-oriented and country specific. Until now, IDE has helped 19 million people permanently out of poverty (IDE 2012).

In January 2007, IDE launched a project named the Rural Prosperity Initiative (RPI). The project had an intended duration of four years, and has two main goals: the development of low-cost water control technologies, affordable for poor farmers and suitable for small plots of land; and the development of sustainable local supply chains, for the manufacturing and distribution of the technologies, and the development of value chains in order to increase the returns to the smallholder.¹⁷ The RPI is launched in four countries, which are Myanmar, Nepal, Ethiopia and Zambia. In all four countries together, the objective is to increase the income of 40,000

¹⁷ In this research I have focused on the part of the RPI that is concerned with irrigated agriculture, not on value and supply chains.

household with at least 200 US Dollars annually. In Zambia, the target is set on 14,000 households. It is found that the sales made to RPI participants stimulates non-participants to also purchase micro-irrigation technologies. In 2009, under the Rural Prosperity Initiative, IDE Zambia developed the so-called Mosi-O-Tunya treadle pump. This is a low-cost version of the pressure pump, affordable for many more farmers than the previously available, more expensive pressure pump.

The annual progress reports are not clear on the amount of households actually involved in the RPI – whether through selling technologies, training sessions, or through market linkages – as the 2008 annual report speaks of 13,190 household whereas the 2009 annual report claims IDE Zambia to have 11,271 RPI clients. In 2008, more than 798 treadle pumps were sold, and more than 1442 drip kits were purchased by RPI farmers.¹⁸ In 2009, IDE has found an expansion of small farmers' production area by 300ha. Also, IDE field staff have found important changes in the livelihoods of smallholders. Farmers were, after adopting irrigation technologies, for example able to pay for school fees and medical expenses, to invest in new irrigation technologies, to build a new house and to purchase other goods like television, radio, solar panel or bicycle (IDE no date).

IDE's belief in the potential of individual, low-cost irrigation technologies to alleviate rural hunger and poverty, suggests the assumption that the individual or the household is the key unit which forms the starting point of rural development. This idea fits well with the market-based approach, which IDE calls PRiSM, Prosperity Realized through Irrigation and Smallholder Markets (IDE 2012). In this approach, IDE views rural smallholders as entrepreneurs, producers, and customers. A key aspect of this approach entails the assumption that small holder farmers are able to recoup the money they invested in the technology, and multiply it in order to invest in more profitable irrigation technologies. After investing in a treadle pump, farmers should be able to invest in a motorized pump. And after investing in a drip kit that covers 200 square meters, they are expected to raise enough money to invest in a drip kit covering 500 square meters. Hence, IDE views rural small holders as business-oriented people, who increase their income by continuous investments in more profitable irrigation technologies.

Moreover, IDE has a special focus on gender. The organization recognizes that women play a central role in agriculture. They generally conduct most of the work, but lack the access to resources and control over outputs which men do have. Women, however, tend to contribute more than men to children's food intake, health, and education, when their income increases. Therefore, IDE strives to an equal benefit from program interventions between men and women (IDE 2012). Moreover, in its 'gender statement' (IDE 2008), IDE argues that households, communities and society as a whole will become stronger as long as gender equality is ensured in income, education, health, asset ownership, and economic rights and influence. Hence, IDE supports the 'value of gender equality' (IDE 2008).

¹⁸ This is surprising, though not necessarily unlikely, as in the field I encountered many more treadle pumps than drip kits. For a review on the consistency and updating of IDE's databases, I refer to Kudzai Magwenzi's thesis (2011).

3.3 IDE in the field

IDE's field staff is responsible for selling low-cost irrigation technologies to farmers. On several instances, I have observed how Jairos Simukoko, IDE's field officer for Kafue, practices this task. A central activity in his daily work is to visit rural communities to demonstrate a particular irrigation technology. He first arranges a meeting, and assigns a local person to gather people to attend the meeting. Social capital is important in this. For example, Jairos uses the network of his friend and Kabweza's contact farmer Anita Mweemba's network in order to find farmers in Chikankata, an area which is unfamiliar to him. Anita's sister, who lives in Chikankata, assembled farmers who were interested in improved irrigation technologies, enabling him to find potential clients.

IDE's field officers have an annual target. The target quantifies the number of irrigation technologies which a single field officer is supposed to sell in a year's time. In my conversations with Kafue's field officer and during my meeting with the field officer in Kabwe, I have come to realize that reaching this target is a primary concern of IDE's field staff. On the first and only instance in which I talked to one of Kabwe's field officers, she almost immediately asked me about Jairos' – Kafue's field officer – performance and whether he was likely to reach his target or not. She was able to tell me exactly how many technologies she was supposed to sell annually, and how this differed from Jairos' target.¹⁹ Apparently, the target is a main concern in the field officers' work. This working method is related to IDE's market-based approach and has as a consequence that field officers' primary aim is to sell irrigation technologies, rather than to focus on rural poverty alleviation. Rather than, for example, going into the field to signal challenges which farmers face in their vegetable production, and providing assistance in these, field officers spend their days selling as many pumps and drip kits as they can. Their experience has shown that selling pumps is easier than selling drip kits. Drip irrigation is a new type of irrigation as it does not involve flood irrigation, which farmers are used to apply. Moreover, it requires explanation and guidance in installing the system. The adoption of drip irrigation is thus a more complex process than the adoption of a motorized pump, which is a technology that involves making the work of flood irrigation lighter rather than changing farmers' established irrigation practices. In short, the annual target that field officers need to achieve, urges them to work in a way that prioritizes increasing their sales rather than in a way which gives space for addressing social dynamics and practical constraints prevailing in the field.



Figure 3: Preparing a demonstration of sprinkler irrigation.

3.4 Conclusion

IDE's discourse on low-cost irrigation technologies can be characterized as market-based, with a perception of rural farmers as entrepreneurs. IDE assumes that rural small holders will invest in low-cost irrigation

¹⁹ Field work in Kabwe on 16 November 2011.

technologies, and will be able to recoup the money they invested by increasing their yields and their income. Part of IDE's discourse involves gender, and IDE intends to contribute to gender equality. An exploration of the working method of IDE's field officers reveals that the market-based approach leaves little space for addressing local needs and responding to local dynamics. In the next chapters, I will broaden this argument by exploring farmers' discourses on irrigation. But first, I will turn to introducing the villages where my study has taken place.

Chapter 4 – Irrigation and livelihoods in the village

“Are you sure Mr. Gibson is home by now?” I ask my host mother Anita as we are leaving her house. “Yes, I asked one of the chaps to see if he is home.” We are on the way to visit the village headman, Mr. Gibson. He lives not far from Anita; we only have to cross her mother’s home and continue slightly uphill. Gibson is employed in the commercial farm owned by a mzungu²⁰. Every morning until 14:00 hrs he works as a driver and mechanic, for a monthly salary of 400,000 Zambian Kwacha²¹. When we arrive at his home, he is sleeping in the shade in front of his house. He is tired from a morning of work but wakes up to talk to me and Anita. In 2007, IDE came to his village Kabweza in order to promote vegetable farming, and Mr. Gibson decided to start gardening. “I told the madam²² to participate. She had no interest initially, but I forced her. I am busy with my job so she has to do most of the work in the garden”. However, he does not allow her to do the hard work. Land preparation for example is a job for him, the lighter job of planting is a woman’s job. The children also assist their parents in the garden. Mr. Gibson shows me his garden, currently fallow. It is a large portion of land, almost a hectare. “I am very interested in gardening because it brings in a lot of money. I hope that in two years I can stop my work at the commercial farm and become a full time gardener. Last year I grew very good yellow maize and I earned a lot of money with it. We decided to spend the money on a diesel pump. My plan is to buy sprinklers to connect to the diesel pump, because with the sprinklers I will be able to make a lot of money. I also want to buy a bigger drip kit, and a van for transportation of the crops.” Currently, his wife goes to the market with the ox cart to sell the crops. The yellow maize was collected by a trader, but the other crops like tomatoes and cabbages are brought to the market by the madam. “We divide the jobs like this because financial management is for women,” Mr. Gibson tells me. Anita eagerly jumps in to the conversation, adding that “he would chew all the money in the market and come back empty handed.”²³

As mentioned briefly in the previous chapter, my research has taken place in the villages, or more correct ‘wards’, Kabweza, Mungu and Chikupi, in Kafue district. Kafue Estates and Kafue Town are located approximately sixty kilometers south of Lusaka and form respectively the industrial and commercial center of the region. Around five kilometers north-west of Kafue Estates, alongside a dirt-road, lies Mungu. Another eight kilometers down the same road one can find Chikupi. Ten kilometers from both Mungu and Chikupi, on sandy roads leading to the west, there is Kabweza. Most of my field work took place in Kabweza and Mungu.

Kabweza and Mungu are so-called wards, each containing a number of villages. Kabweza consists of fourteen separate villages, Mungu has more. Each village has a headman, based in the village itself, who acts as mediator in family conflicts or other types of disputes. The chief, who lives elsewhere, is consulted about land issues and when a newcomer wants to occupy land in the ward. This makes the land tenure system ‘traditional’. In Mungu, the land is titled and thus privately owned.

²⁰ Mzungu is a common word used to refer to white people.

²¹ 400,000 Kwacha is approximately sixty Euros.

²² Male farmers usually refer to their wife as ‘the madam’.

²³ Interview with Mr. Gibson on 21 September 2011.

Kabweza does not have an improved road, though it can be reached by 2x4 vehicles and trucks in the dry season. There is a clinic and a school, and at the time of my presence, electricity poles were erected. By the time I left, there was still no electricity, but the staff from the school and the clinic were happily expecting electricity in the near future. Mungu is located beside the dirt road which leads from Kafue Estates, along large commercial farms and businesses, to a road junction just south of Lusaka. Mungu does not have a clinic, but there is a school. The school, the shops and also the tavern located beside the road have electricity.

Both villages have a variety of churches, among which the Church of Christ, Seventh Day Adventists, Jehova's Witnesses, Old Apostolic Church and Methodist Church. Several occasions revealed to me that religion is an important aspect of life for many villagers. Meetings and discussions as well as lunch and dinner are often started with a joint prayer. Most villagers go to church at least weekly – some on Saturdays, some on Sundays, some on both days of the weekend. Anita, IDE's contact farmer in Kabweza and responsible for informing fellow villagers about meetings organized by IDE, claims that she spreads the news through the church. Messages passed on during church services are likely to reach most of the villagers.

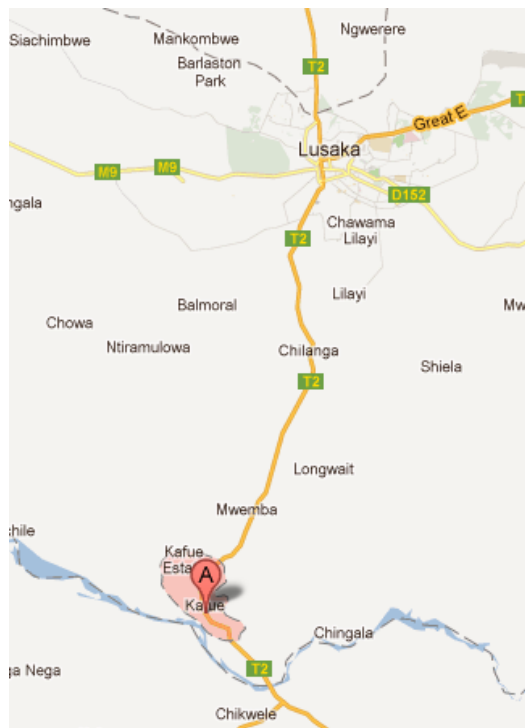


Figure 4: Kafue and Lusaka. Source: maps.google.com



Figure 5: Impression of Mungu.

I was involved in a small conflict which indicates the importance of religion for villagers. In Mungu, I stayed with the Hamweene family, who are Jehova's Witnesses. During one weekend, I joined them both days to the church. Young friends of mine, the brother and sister Carried and Getrude, invited me to join them to their church the next weekend I was around. They live just across the sandy road passing by Mr. Hamweene's house and belong to the Old Apostolic Church. I was pleased to be invited and also interested in experiencing their church service, so I accepted the invitation. A while later, I had not yet had the opportunity to join them to their church service, I was at Mr. Hamweene's place washing the plates after lunch. A neighbor girl came to me with a short note, which said that Carried wanted to meet me and I should thus come to visit him. I did not understand why he would not come to see me at my home, Mr. Hamweene's place. When I visited Carried, he could not give me any explanation for this and avoided the subject. He said there was no problem for him to come to the Hamweene family. Still, I did not understand why he refused to meet me there. When I asked Mr. Hamweene about it, he said there was no reason for Carried not to visit his

house. However, Getrude explained me later her suspicion. One of Mr. Hamweene's granddaughters, who lives next to Getrude and Carried, had informed Mr. and Mrs. Hamweene that I would join the youngsters to the church. My host parents had commented that they did not like me to go to the Old Apostolic Church with the siblings. According to Carried, Mr. and Mrs. Hamweene are 'too talkative' (a description often used for people who voice their opinion and show their disapproval of behavior of other people), which is for him a reason not to come to their home anymore.

This was an interesting conflict, because it revealed a lot of social dynamics prevailing in the village. First, it showed the aversion towards people who tend to have and voice strong opinions. Second, it revealed a certain power struggle over me, the white researcher, about which person would have the right to involve me in their activities. And third, it was a strong indication that religion is a significant aspect of life, worth arguing about. To compare, I have never found my host family opposing me to help other farmers in their garden or in rain-fed farming, and neither have they objected against me eating lunch or dinner with other families.

In the remaining part of this chapter, I will further introduce some aspects of social life in the villages, focusing on agricultural practices, irrigation and livelihood diversification.

4.1 Farming and gardening

Not surprisingly, most inhabitants of the villages engage in agriculture. Though some people have been raised as farmers, others have migrated from urban areas where they were employed. For example after retirement, after losing their job, or simply with the assumption that vegetable production is more profitable and provides more freedom than being employed.

4.1.1 Rain-fed farming

Some villagers have other primary occupations, for example those who are shop-owners or teachers, yet most of them still engage in rain-fed farming. In the rainy season, the villagers cultivate primarily maize. Maize, in the form of *nshima*²⁴, is the staple food, and the maize production in the rainy season is intended to provide enough maize for a family to survive for a year. Other crops usually grown in the rainy season are groundnuts, soy beans, and cotton. Though groundnuts are also part of a family's food provision, soy beans and cotton are grown for commercial purposes and generate cash income. Surplus of maize is usually sold to the governments' Food Reserve Agency, and can thus also provide cash. The work in rain-fed farming is often carried out by extended families. Brothers, sisters and cousins work together with their children and take turns on the fields of different family members. For some people, this is the only way to organize a plough without paying for it. A plough owned by one member is thus used by the whole family. Moreover, the individual workload is lighter when the job is shared. Seur (1992) has found in Serenje district, Zambia, that 'the disregard of these traditional obligations towards close kinsmen has become common practice, since an increasing number of people no longer consider that kinship ties grant a person the right to assistance' (Seur 1992: 312). Seur assigns

²⁴ A firm, dough-like porridge made from dried, grounded maize boiled with water.

these changes to the shift to cash crop cultivation, a new way of farming with economic, rather than subsistence, goals which are regarded as the responsibility of the individual or household. In the past, farming was still aimed at subsistence, and cooperation between kin enabled everyone to have a comfortable existence with sufficient food supplies. Indeed, the cases in which I witnessed family cooperation in rain fed farming, the planted crop was maize, the primary subsistence crop. Perhaps when the farmers in Kafue district shift to cultivating primarily cash crops, family assistance would decline as well. I know of one farmer who paid for receiving assistance from a fellow villager. Mr. Sikate had agreed with the owner of a plough to prepare the land for the monetary exchange of 90,000 Kwacha per 200 square meters. Mr. Sikate does not have a plough, nor does he have family members in the village.

4.1.2 Irrigated agriculture

Apart from rain-fed farming, many villagers engage in vegetable production. They have learned the necessary skills from a variety of sources: some have pursued courses in agriculture in school, some have learned by experience from their work in commercial farms, some have learned it from their parents while growing up, and others have acquired their skills through IDE's trainings and workshops. Vegetable gardens are often located next to the house of the farmer, and are surrounded by a fence of dried grass in order to protect the crops from hungry roaming animals like cows and goats. For the same reason, some farmers have their garden further away from home, for example on the other side of a stream, where animals cannot disturb the crops either. The variation in sizes of the gardens is considerable: some gardens are really small and cover only fifteen to twenty square meters, whereas big gardens can measure up to a hectare. All possible sizes in between are common.



Figure 6: Part of a vegetable garden next to the house and surrounded by a fence.

For certain farmers, it can be said that IDE has opened their eyes and convinced them to start vegetable production in order to “make money all year round.”²⁵ Not only do farmers see the benefits of generating income continuously – as Anita Mweemba puts it: “with irrigation, you never get broke”²⁶ – they also generally consider gardening as the most profitable income generating activity they engage in. Moreover, it creates space for a certain freedom in time-planning which being employed lacks. Both men and women can be in charge of vegetable production: if the man is the head of the garden, he is assisted by his wife and children, whereas if the head of the garden is a woman, she is usually assisted only by her children. Her husband is either engaged in other income generating activities, or not present because he died or the couple separated. In some cases, men and women in the same household cultivate their own garden with cash crops (see also Seur 1992). Mr. Mwaanza and his wife, for example, have separate gardens, right next to each other. Other couples grow their own crops on the same piece of land. When necessary, they assist each other in their jobs, but primarily each person takes care of his

²⁵ Mr. Gibson on 21 September 2011.

²⁶ Interview with Anita Mweemba on 19 September 2011.

or her own crops, and therefore has his or her own sum of money to dispose of after selling the vegetables. Esther, however, refuses to assist her husband Michael with irrigating his crops. One afternoon, I helped her watering her rape with buckets. She lifted water from the well and poured it in a dish, from which I – as instructed – scooped my bucket full of water, which I carried to the crops and emptied on the bed. After finishing irrigating the rape, I continued to water the maize plants which were located at the back of the garden. Esther warned me not to do so, because those were her husband's maize plants. It was his responsibility to water his maize. Some weeks later when I met her husband, I asked him why he thinks his wife refused to assist him in irrigating his crops. He commented that Esther thinks he does not work hard enough for the family. Though he works six days per week at a commercial farm, she thinks he wastes too much of his salary on alcohol and marihuana. As a consequence, she expects him to work harder and is unwilling to assist him in his work. Hence, though a person's labor is not necessarily restricted to his or her own vegetables, there is a strong sense of ownership and responsibility from an individual to particular crops in the garden. This is not only true for husband and wife, but also for older children. In several families, the older sons have their own garden or portion of land in the parents' garden on which they cultivate vegetables (see also Long 1968).

4.1.3 Irrigation technologies

The farmers involved in vegetable production use a variety of irrigation technologies. Traditionally, irrigation is done with buckets. What is referred to as buckets are usually containers with a content of twenty liters with a small opening on the top, but can also be like the buckets we are familiar with, with an open top and a bail. A bucket can be used to scoop water directly from a well, lift it and apply it on the crops. Also, it is often used in addition to a treadle pump. In these cases, farmers lift water from the well with the pump, and lead it through a pipe in a dish. With a bucket, water is scooped from the dish and applied.

I will give a brief description of each of the technologies that I encountered during my field work. These are the treadle pump, motorized pump, rope-and-washer pump, sprinklers, and the drip kit. Since my research has an ethnographic character and is anthropological in nature, I have not informed myself in-depth about the technical details of the irrigation technologies that were part of the research. The research is a qualitative research of social relations, hence understanding the following section does not require any technical expertise.²⁷ All mentioned irrigation technologies, except for the drip kit and sprinkler irrigation, are applied for flood irrigation.

Treadle pump

The treadle pump is the low-cost irrigation technology that is most often researched and that one is most likely to encounter in the literature. The pump is operated by a person's feet, as it has two pedals that one should stand on and move up and down. The potential discharge of water ranges from 0.2 up to 1.3 liters per second. The discharge depends on the size of the pump's cylinders, on the depth from which the water is pumped, and

27 For more technical details on the treadle pump, I refer to Kay & Brabben (2000); technical details on drip irrigation can be found in Belder et al. (2007).

on the strength of the person operating the pump: a child is likely to pump less water per second than an adult man (NBTDP 1996, in Shah et al. 2000). There are two types of treadle pumps: the suction pump and the pressure pump. The suction pump can lift water from a depth of about seven meters up to the height of the pump. The pressure pump can lift water from the same depth, but to a greater height than the pump's (Merrey et al 2008).

As the treadle pump requires physical effort, it is a tiring undertaking to operate the pump. Though according to Shah et al. (2000) no significant health impacts of the treadle pump have been recorded, a research in Bangladesh suggests that operating the pump can seriously influence a person's physical well-being (Palmer-Jones & Jackson 1997). However, the greatest benefits of treadle pumps are that they are relatively to motorized pumps cheap to purchase, and also cheap to operate since they require little maintenance and no fuel (Merrey et al 2008).

According to the Food and Agriculture Organization (FAO), the introduction of the treadle pump in Africa has been less successful than in Asia. This difference is assigned to the differences between the contexts of the continents. In Africa, in general, the groundwater level is lower, and the land to be irrigated is more hilly, which makes the use of the treadle pump for flood irrigation less suitable. It is also suggested that along with the introduction of the treadle pump, attention should be given to the local supply chains, the possibilities for farmers to obtain spare parts or seek maintenance of the pump, and in addition the social and cultural context (Kay & Brabben 2000). Different from FAO's finding, I have seen many farmers using a treadle pump.



Figure 7: Woman operating treadle pump.

Motorized pump



Figure 8: Motorized pump.

Motorized pumps lift water on fuel. They are relatively small and hence portable. The advantage over the treadle pump is that it does not require human energy to lift water. However, motorized pumps do require fuel, which means that using a motorized pump requires continuous financial investment in irrigation. Another disadvantage of the motorized pump is that local expertise is not generally available, which limits the possibilities of reparation (Merrey et al. 2006).

Apart from in West Africa, particularly in Nigeria, the use of low-cost motorized pump has not become widespread throughout Africa. In Asia, however, they have shown to have had a big impact (Namara et al. no date). As was the case with the treadle pump, I have actually found a different situation in the field, where many farmer were using a motorized pump.

Rope and washer pump



A rope and washer pump, or simply rope pump, is operated manually and can lift water from a depth of up to 36 meters. It is a system in which a rope with many washers attached to it is pulled through a tube, which allows the water to be pushed up to the ground surface (IDE 2012). There is not much research done on the rope and washer pump, and this goes well with my observation in the field. I have found two farmers owning a rope and washer pump, and only one farmer was actually using it. Not for irrigation, however, his wife used it to lift water for domestic purposes.

Figure 9: Farmer with his rope and washer pump.

Sprinklers

Sprinkle irrigation is a water application method by which water is sprayed on the land surface or on the crops, imitating rainfall. Sprinklers are connected to motorized pumps. Though I have never encountered a farmer owning or using sprinkler irrigation in the field, IDE's field officer in Kafue was actively promoting the use of sprinklers in his demonstrations of low-cost irrigation technologies. Also, many farmers expressed their intentions to purchase sprinklers in the future.



Figure 10: Farmers setting up sprinkler irrigation for a demonstration.

Drip irrigation

Drip irrigation is a water application method, in which the crop receives drops of water from a system of pipes, emitters and a tank. It is a system that works under low pressure, in which an elevated tank releases water in pipes, which in turn have dripper laterals connected directly to the crops. From these laterals, the water literally drops on the plant (Belder et al. 2007).

Drip irrigation has several advantages. Not only are the yields under drip irrigation better both in quality and in quantity, the system is also labor and water saving. With drip irrigation, the water is directed only at the plant and does not spread on the ground. The growth of weeds is therefore limited, which reduces the required labor time for weeding. Fertilizers can be added to the water in the drum, which allows a farmer to skip a separate fertilizer application round. Drip irrigation also reduces water use. As the water does not run off or evaporate, the water requirement is much lower than with other irrigation systems (Ibid.)



Figure 11: Lines of carrots under drip irrigation.

However, the drip system has also some disadvantages. For example in maintenance; the emitters can clog easily when the water has not the right quality. Also the cash investment needed to purchase a drip kit is relatively high. Moreover, the area under drip irrigation cannot easily be extended, because the drip kit has a fixed size. In order to have more land under drip irrigation, a farmer is required to procure another drip kit (ibid.).

According to Namara et al. (no date), various individual African farmers have been reported to have benefited from drip kits. However, there is no proof of a thriving implementation and adoption of drip system on a larger scale on the continent. In South Asia, however, there is evidence of considerable accomplishments in adoption of drip irrigation by both poor and better-off farmers. In Kafue district, I have rarely encountered farmers who adopted the drip kit.

4.2 Livelihood diversification

Vegetable cultivation is a popular livelihood strategy in Mungu and Kabweza. Many farmers agree that gardening is much more profitable than being employed and it also allows for more freedom in choosing how to spend time and effort in the daily work. As farmer Mayfield explains: “A month work in a commercial farm could generate about 600,000 Kwacha, but with crops one can earn that in only two weeks. Also, with gardening there is time left to do other jobs.”²⁸ However, vegetable cultivation is never the only livelihood strategy of a person or household, but rather one of a diverse range of livelihood strategies. I will not claim that I have mapped all livelihood activities the villagers. As Chambers (2000) explains, livelihoods are often very complex and difficult to fully reveal. Livelihood activities are dynamic and subject to change, which is why certain activities which are important for a livelihood are easily overlooked. Gathered food, firewood and herbal medicines are examples of these.

Most of the farmers in Mungu and Kabweza deploy a variety of livelihood strategies. As mentioned before, all of them are involved in maize cultivation during the rainy season. My informants are also involved in irrigated agriculture, which gives them the opportunity to earn money throughout the year - also in the dry season. Some of the farmers with a garden, or their spouse, also work in one of the commercial farms that surround the villages. In the nearby town Kafue some ministries are situated, where villagers can find employment, for example as a guard. Other income generating activities that the villagers engage in are small businesses of which fish trade is the most common. Some have a small grocery shop or a barber shop, whereas others do piecework – wage labor in construction - or sell homemade crafts like handbags. Livestock, rearing goats, chicken, cattle or pigs, is also considered an important asset. Chicken lay eggs and can be eaten themselves, whereas cattle can be useful for milking, for land preparation or for transportation by ox cart. In general, livestock can be considered as a bank where money can be stored, and by selling the animal the money can be used in times when highly needed or desired.

²⁸ Interview with Mayfield on 5 September 2011.

Some activities that people engage in are not important for the instant return on the effort, but rather for benefits or possibilities later in time. Chambers (2000), for example, suggests that employment is often considered as an additional rather than a primary livelihood activity. Mr. Mweemba works in the ministry of agriculture in Kafue. Each month he serves as a night guard for two weeks in a row. His salary is very low, especially compared to the money he earns with his garden. However, the advantage of this job is related to the benefits he has. He will receive a pension, which guarantees a regular income even after he stops working. At present there are also benefits, for example the funeral grant which he received when his baby daughter died. For other families who lose a member, the



Figure 12: Running a shop at home.

costs of a coffin, the transportation of the body and the food of the ceremony are almost unaffordable expenses.²⁹ Mrs. Mwanza works at Kabweza's clinic, sweeping and mopping the building to keep it clean. She also carries out light administrative tasks like writing patient cards. Her work is unpaid. However, Mr. Kalenga also volunteered in the clinic for years without receiving any payment. When the Zambian NGO CIDRZ (Center for Infectious Disease Research in Zambia) sought a local employee to be involved in a research project on tuberculosis, they readily selected Mr. Kalenga since he had proved his willingness and effort to engage in community in the previous years. Now, Mr. Kalenga receives a monthly income for his work in the research project. Mrs. Mwanza also hopes for such an opportunity.³⁰ Her voluntary work in the clinic can thus be interpreted as a strategic step in livelihood diversification. Mr. Sikate suggests that there is another reason to engage in voluntary community work: it creates the opportunity to receive material benefits. He is a volunteer for the Christian Child Fund (CCF), an NGO which links people from rich countries to children in developing countries. Mr. Sikate's job is to translate and write the correspondence between the people involved. In order to visit rural families scattered around Mungu, CCF provided him a bicycle. He now strategically deploys the use of this bicycle, in order to ease the job of fetching water from the pump, or to ride to his classes in Kafue Estates.

Livelihoods and livelihood diversification are not merely economic but also social processes. Engaging in and nurturing kin and community networks are social activities that can be important in securing a livelihood, since access to activities and assets is mediated by social relations (see Ellis 2000). For example, Mr. Friday in Kabweza does not have land with access to water, so he used to be unable to cultivate vegetables. For some time, he helped his cousin Mr. Kalenga with jobs in his garden. Mr. Kalenga has a large piece of land and he uses a large plot for vegetable cultivation. In return for Friday's work in his garden, Mr. Kalenga decided to assign a part of his garden to Friday, so that he could engage in gardening independently as well.³¹ Hence, investing in social relations can be an important livelihood strategy.

²⁹ Interview with Anita Mweemba on 19 September 2011.

³⁰ Interviews with Mr. Kalenga on 20 and 29 November 2011, interview with Mr. Makuloni on 29 November 2011.

³¹ Interview with Mr. Friday on 20 September 2011, interview with Mr. Kalenga on 19 October 2011.

4.3 Conclusion

With this chapter, I attempted to create an image of the villages Mungu, Kabweza and Chikupi. I have illustrated farming activities, both rain-fed and irrigated agriculture. I have also illustrated the dynamics of livelihood diversification for villagers. In chapter 6 I will return to livelihood diversification in the perspective of risks and investments in vegetable production. The following chapter is meant to explore gender relations in the villages.

Chapter 5 - Gender in the village

Today is a good day to go into the fields: it is cloudy and cool, and my friend Carried has just finished his last exams and is therefore free to escort me and assist me, when necessary, as a translator in my conversations with farmers. As we walk through the dirt with our gumboots, I ask him why he told me earlier that his father does not support him in his education. His father is a carpenter and receives assignments and therefore sums of money regularly. "I don't know why, maybe my father doesn't love me. But he doesn't help me to go to school." Until 2005, when he started going to church regularly, his father drank beer. However, even though he does no longer spend his money on alcohol, he still prefers to enjoy his money himself rather than to spend it on his children's education. Carried's sister Getrude had to take the annual school exams recently, but her father was not willing to pay the 40,000 Kwacha³² examination fees required. Their niece Faustina, who lives with them, is young enough to go to school for free: up to grade eight children are not expected to pay for school fees. However, she has no shoes and is therefore not allowed to go to school. Carried's family is large: he has several brothers and sisters, his eldest sister has died and left four children, and two of his cousins from Lusaka are also staying in his family. With all those mouths to feed and children to send to school, and without her husband supporting the family, his mother decided to grow and sell vegetables. She does not manage to cultivate a large portion of land, and does not have any technology to irrigate other than buckets, but she has managed to save money for Carried's school fees.³³

When I asked villagers what they understand by the word 'gender', they generally replied that gender means that men and women can carry out the same jobs. For example, women can assist their husbands on the land, and men can help their wives in cooking. It seems that people are proud that "now, we have gender."³⁴ When I walked through the fields in Chikupi with my host father Mr. Mulilo and we passed a vegetable garden, he told me "come Vera, here you can see gender working." He took me to meet the farmers, husband and wife, who were working together to irrigate their rape: the husband was operating the treadle pump, and the wife poured buckets of water on the crops.³⁵ On another day in Mungu, I went to visit Mr. Sikate. As I approached his house, he was just leaving with two empty buckets on his bicycle. He was on his way to the borehole at the school to fetch water. On the fact that he was going to fetch water instead of his wife, he commented "this is gender balance."³⁶

Most villager thus seem to be aware of gender relations and differences between the roles and responsibilities of men and women. However, much more can be observed and said about gender relations in Chikupi, Mungu and Kabweza.

³² Less than ten euros.

³³ Fieldwork in Mungu on 24 November 2011.

³⁴ Conversation with Mrs. Chipoma on 5 September 2011.

³⁵ Field work in Chikupi on 4 October 2011.

³⁶ Conversation with Mr. Sikate on 23 November 2011.

5.1 Spatial separation

In the village, I quickly noticed a spatial separation (see Seur 1992) between men and women. The most obvious indication of this was when I joined the annual general meeting of the irrigation farmers cooperative in Chikupi. The women sat together, and the men sat together, on opposite sides of the field. While the men were facing the speaker, and the speaker was facing the men, the women were often looking in a different direction or were merely occupied with the craftwork they brought along. Later, when there was room for discussion, some men asked questions and commented on the reviewed budget, whereas the women remained silent. This meeting was not the only occasion on which I encountered spatial separation between men and women. Other meetings which I attended revealed the same dynamic, and also on a funeral I observed the same separation between men and women, though less strict than in the meeting shown on the picture. Seur



Figure 13: Spatial separation on an AGM in Chikupi.

(1992) argues that while spatial separation is persistent, this does not undermine the changes in gender relations which have occurred in the recent history. According to Seur, the mere fact that women attend these meetings and have the opportunity to voice their opinion, as well as the fact that spatial separation on gatherings like funerals and meetings is still observed but less clear-cut than it used to be, suggests that women have gained a lot of power in relation to men. And their presence and intermingling with men will continue to change gender relations in the future.

5.2 Changing gender relations

Hence, changes in gender relations are not easily observed (see Chambers 2000). Some villagers, however, have shown to agree that gender relations have changed in recent times. They assign this to changes in the government's policy and by globalization. Farmer Mayfield in Chikupi explained to me that previously, the government only allowed men to join farmers cooperatives. But the government, he continued, realized that women should be empowered, hence they created women's groups which would allow women to develop their selves. As a result, men have come to realize that women can contribute in work and in decision making, which is why women are now more empowered than before.³⁷ Anita Mweemba and the teachers of Kabweza think that these changes can also be assigned to people's desires to become modern, wishes which have come into existence along with globalization. Now that NGOs have come into the country and into the rural areas, people are trying to copy the lifestyle of NGO staff. Generally, Zambians want to become modern and therefore gender roles have changed.³⁸ The farmers' suggestion that external changes influence intra-

³⁷ Conversation with Mayfield on 6 September 2011.

³⁸ Conversation with Anita Mweemba on 18 and 19 September, discussion with teachers from Kabweza basic school on 19 October 2011.

household gender relations is reflected in academic writings on gender relations. Agarwal (1997), for example, argues that individuals in a household have different degrees of bargaining power, which can be exercised in power struggles and decision making. Bargaining power does not exist in isolation but is rather related to extra-household institutions. Socio-economic and legal institutions, like the market, the community, and the state, affect the bargaining power of individuals within a household. Changes in gender relations on a small scale, in the domestic sphere, are thus related to larger scale dynamics (see also Doss 2001 and Guyer 1981).

According to Seur (1992), changes in gender relations can be observed in power struggles between men and women, which take place both on and off farm, as such in the domestic and in the public sphere. Public discussions or conversations on gatherings between men and women, Seur argues, reveal processes of change. Anita Mweemba confirms this when I ask her about the changes in gender relations which she has witnessed. Although Anita is convinced that “a man is a man”, gender relations will never become equal and there will never be a female president in Africa, she does confirm that gender relations have changed. Women, she says, can now also voice their opinion. To illustrate her point, she reminds me of the meeting we attended the day before. In Kafue Estates, there was a preparation meeting for villagers who will assist in monitoring the elections. There was a long discussion going on, about the monetary compensation villagers were supposed to receive for their effort, a discussion which seemed to last the whole afternoon. Anita was not actively participating in the discussion: mostly men were sharing their opinions, but no consensus was reached. Until Anita was fed-up with waiting, stood up, and told the men that they are wasting their time. The monitors should stop complaining about the amount of money they receive, but rather be happy with the money they get for their effort. She urged them to make a decision so that everybody could return to their village before dark. This instance, Anita tells me, was remarkable. A woman made the men stop talking!

Another occasion which Anita proudly reports, was when she and other farmers met a staff member of the ministry of agriculture about receiving fertilizers. The staff member was rude to Anita, she tells me, but she did not accept his behavior. Instead, she told him that he might think that he is more important than local farmers are, but he should not forget that he actually works for her, because she is a farmer, and without farmers the ministry would not exist. So, she concluded, she deserves some respect from him. Everybody present at the meeting where the dispute took place, started laughing and said to each other: “Ish, Mr. Mweemba will be in trouble at home with such a wife!”³⁹ Anita left the ministry’s office with her fertilizer.

Public power struggles between men and women, according to Seur, indicate changing gender relations. Seur also observes that men are increasingly taking up domestic chores which were previously merely carried out by women. My conversations with farmers suggest that nowadays, different than before, men can cook and assist their wives in household tasks. However, I have never witnessed a man cooking. Anita Mweemba tells me that she has a good husband, who is willing to help her ironing the clothes. Yet he can easily get bored of his job and leave it after ironing five shirts. Despite changes in work division by sex and in relative power between men and women, I have observed that differences in roles and responsibilities between men and women persist.

³⁹ Conversation with Anita Mweemba on 28 November 2011.

5.3 Men's and women's roles and responsibilities

I came across gendered stereotypes on a daily basis, and the ideas about men and women seem to be strong and differential. It is generally accepted that it is an African tradition that women carry out domestic works like washing, cleaning, cooking, and nurturing children, whereas men's responsibility is to conduct hard, physical work. Or, as Seur puts it, women are responsible for high frequency domestic work, that is daily household chores, whereas men carry out low frequency domestic work, like construction and maintenance of equipment (Seur 1992). Mrs. Violet explains that her responsibility for the household is different from her husband's: "Me I am the head of the garden. Most of the problems in the household are facing me, like buying relish, soap, salt, paying the mill for pounding maize. All these are women's jobs, so I have to find a solution for these problems. It is not the problem of the man, because he is not the one who sees what is needed."⁴⁰ Mrs. Hamweene really appreciates her husband's efforts in construction work and land preparation and is happy to spend some more time on cooking and preparing his bath water to compensate for his work. However, many other women complain that they actually work much harder than men. Mrs. Chipoma, for example, stressed that women work in the home and on the land, even when they are pregnant or carrying a baby on their backs.⁴¹ When I visited Mrs. Judith Mweenga with Anita, and asked questions about labor division in the household, Anita pointed at Judith's sons to confirm her statement that women do much more work than men. "Look at those chaps, they are just sitting, while the madam and her daughter are washing plates and clothes." The boys quickly commented that jobs like washing are easy jobs, for which women qualify. Men can do the hard work.⁴²

In a research in Zambia, Skjønberg calculated that women work many hours more than men. One of Skjønberg's findings is that men on average spend 6,5 hours per day socializing and relaxing, whereas women have less than 3,25 hours for this (Skjønberg 1995). Though a little outdated, these findings suggest that indeed women spend more hours on work than men. Mr. Sikate, a farmer in Mungu, also agrees with the notion that men are less busy than women. According to him, "men are too movious"⁴³, by which he means that men often go around the village to visit people or drink beers, whereas women stay at home and take care of the household and children (see also Seur 1992: 306). Some male farmers admitted that they know how to do a variety of domestic chores, but they will not engage in these because they think that their friends or neighbors will say that they are unable to dominate or control their wives. Apparently, cooking and cleaning are still perceived as women's jobs, and when a man carries out these jobs, it is suggested that his wife is the dominant person in the household. Men seem to be afraid of losing their status when they involve in household chores.

In a joint discussion with several teachers from Kabweza basic school, I came to understand how strong the beliefs in work division based on gender are. I started the discussion while I was sitting with a group of teachers near the school, eating mangoes from the trees. A male teacher ordered a girl to fetch some water for me to clean my hands, which were bright yellow, smeared with mango juice. The male teachers supported the view that this would be a girls' job, like all jobs related to food and cleaning. They claimed that women enjoy this division, because when the men try to help their wives with household chores, they often find resistance.

⁴⁰ Interview with Mrs. Violet on 29 November 2011.

⁴¹ Conversation with Mrs. Chipoma on 5 September 2011.

⁴² Interview with Mrs. Judith Mweenga on 21 September 2011.

⁴³ Interview with Mr. Sikate on 9 November 2011.

Interestingly, the women in the discussion did not share their opinion without me asking for it. One of the ladies replied to my question whether her colleagues' statement is true, that "it's ok, it is tradition, we cannot do everything". Another male teacher explained that when he goes to the field with his wife, they both work equally hard. But when they come home, both sweating and tired, he will rest while his wife is preparing food. After lunch, he will go out, see his friends and perhaps drink, and when he comes back home, he expects his wife to have dinner ready. I tried to provoke some reaction when I said that I would not do this for my husband. Instead, I would ask him to divide the work among us, also the work in the kitchen, and if he refuses, I would not cook for him. The ladies replied immediately: "You cannot do that! That means you are a bad woman who has no respect for her husband." And the man added, "it will break your marriage."⁴⁴ Interestingly, Seur (1992) argues that women strategically use their role as food provider in order to manipulate their husbands. As a form of blackmail they can request some sort of work from their husbands, and deny to cook food when they refuse. I have not encountered such instances in my fieldwork, and the above data suggest that they are unlikely to happen, since people expect this to destroy the marriage.

5.4 Decision making

Though some farmers state that they make decisions with respect to the household, to vegetable gardening, and how to spend money together as husband and wife, it seems that mostly men are the decision makers. Some couples tell me that when they receive a sum of money from selling their vegetables, they sit together, find priorities and make a budget. However, when there is disagreement between husband and wife, most often the man has the final say. Male farmers, for example, report to me that when their wives disagree, they know how to convince them. Or, they simply spend their money according to their wish. Anita once complained to me that her husband spent all the money they had on a new hose for their motorized pump. She wanted to have an entertainment set for in the living room, where she could display their television and DVD set.⁴⁵ During another evening, Anita explained that men in Africa are the head of the household. "But I also have the right to talk, it's human rights!" Last month, she told me, her husband wanted to plant okra. Together, they prepared the land and applied manure, purchased fertilizer and petrol for the motorized pump. Anita advised her husband to first put the small plants in plastic, and only to put them in the soil after germination has taken place. Her husband, however, refused to follow her advice and sowed the seeds directly into the soil. The okra did not germinate. "Sometimes it is very difficult to convince my husband," Anita reflects. However, she has also told me of instances where she was able to change her husband's mind. A while ago, her husband was using the petrol pump to irrigate just a small portion of land. Anita considered this a waste of petrol, because he did not manage to improve the garden. A small piece of land can easily be irrigated with buckets or with the treadle pump. Instead, he should plant more crops and take advantage of the petrol pump. Mr. Mweemba was upset, because he does not like her to give him advice. However, he did plant a lot of tomato plants in the end, and is now very happy with the money they raise.⁴⁶

Whereas Anita seems to have a relatively strong position in the power struggles with her husband, Mrs. Chizunga finds herself in a very different situation. One day, when we were in her garden and she showed me

⁴⁴ Discussion with teachers of Kabweza basic school on 19 October 2011.

⁴⁵ Conversation with Anita Mweemba on 18 October 2011.

⁴⁶ Interview with Anita Mweemba on 19 September 2011, conversation with Anita Mweemba on 28 November 2011.

all the work that needs to be done but she does not find the time for, I informed whether she ever asks her husband to assist her. “No,” she told me, “because I have fear.” She refused to comment more on this, and even told me later on that there is actually nothing to fear. I got the impression that she judged that she had spoken too much and did not want to tell me anything else. Her son, Carried, later explained to me that in African society, the man is the one who can ask his wife to do something. As a woman, you cannot ask your husband to do something.⁴⁷ Hence, whereas women have room to voice their opinion to different extents, men are still the final decision makers in most cases.

5.5 Money matters

Ellis’ (2000) argues that rural men and women have different patterns of expenditure, a suggestion which is confirmed in Seur’s study of farmers in Serenje district in Zambia. In my study, it shows that farmers seemingly have clear ideas about the abilities of men and women to handle finances. I have seen this in two domains: in selling crops on the market, and in spending cash. When I ask any farmer who is assisted in vegetable production by his wife which one of them goes to the market to sell the crops, he will say that that is the job of the woman. Some people have their vegetables collected by traders at their farm, but in other cases the vegetables are sold on the physical market in Kafue. In these cases, the woman will be the one carrying out the job, staying on the market for the full day. There are strong ideas about why women are better capable of selling crops at the market than men. “Financial management is for women”⁴⁸ and “going to the market is for ladies, men don’t know how to handle money”⁴⁹ are common remarks when talking about which person is supposed to go to the market. As my host father in Mungu Mr. Hamweene explained to me, women are good in business, because they are consistent, whereas men do not know how to do business and can better stay at home doing jobs in the garden.⁵⁰ Anita, my host mother in Kabweza, is convinced that men ‘chew’ the money they earn immediately, spending it on something that they would like to have rather than on something that the household or garden is in need of.⁵¹

The views on how men and women spend their money is also confirmed in a perspective different than related to the market. Already on my first arrival in Chikupi - the first village I stayed in - Jairos, IDE’s field officer for Kafue, told me that women work harder than men. He said that men like to earn money and drink it, whereas women work harder and spend their money wisely.⁵² During a meeting organized by the ministry of agriculture concerning the formation and regulation of farmer’s cooperatives, Anita explained to me why she thinks that more women than men were present. Women, Anita said, are more responsible than men and put more effort in taking care of their family, and therefore take their time to understand the benefits of a farmers’ cooperative.⁵³ I have also spoken to women who are member of women’s associations. These are clubs, initiated by the government or by an individual female farmer, with only women as members, which engage in

⁴⁷ Conversation with Mrs. Chizunga and Carried on 24 November 2011.

⁴⁸ Interview with Mr. Gibson on 21 September 2011.

⁴⁹ Interview with Mrs. Mwaanza on 9 November 2011.

⁵⁰ Conversation with Mr. Hamweene on 3 October 2011.

⁵¹ Conversation with Anita Mweemba on 21 September 2011.

⁵² Conversation with Jairos on 4 September 2011.

⁵³ Conversation with Anita Mweemba on 20 October 2011.

a variety of income generating activities: gardening, crafts, livestock, etc. When I ask women why they need a club with only women, the general answer is that men cannot handle money. You cannot trust men with a sum of money because before you know it, they have spent it on beers.

These are only a few examples of observations and conversations that I had in the field which suggest that it is widely understood, both by men and women, that men are not capable of handling money in a responsible way. Men tend to spend their money on items or consumption goods of personal interest, whereas women are more likely to allocate their income to household items or for the benefit of their children. This corresponds with Ellis' (2000) suggestion that there is a significant difference between the patterns of expenditure of men and women, with women being more likely to spend their cash on family needs, and men to spend it on personal consumption.

5.6 Labor mobilization

Also the suggestions made by Ellis (2000) with respect to labor mobilization are confirmed in my field work. I was first introduced to gender relations in vegetable production on my first day in the field, attending a small meeting of farmers that got together to prepare the annual general meeting of their irrigation farming's cooperative, taking place the following day. They were willing to assist me in visiting farmers and asked me about my expectations. When I told the men – their wives also came to the field where the get-together took place but sat together on a distance from the men – that I was interested in meeting both male and female farmers, my host father's comment was: "Well, the female farmers that you can meet are either widow, or working alone while their husband is doing some other business. If both man and woman work together in the garden, you deal with a male farmer."⁵⁴ Hence, in a family where both the husband and the wife are engaged in irrigated agriculture, the man rather than the woman is the person in charge. A woman is only the supervisor of her work in cases where her husband is not present, or not engaged in vegetable production.

In all cases where the husband of a married couple maintains a garden, he is assisted by his wife. It is not easy to determine whether she assists him voluntarily. Mr. Gibson, however, admitted that he forced his wife to work on his garden, even though she showed no interest.⁵⁵ Mr. Kalenga is also assisted by his wife, but when he has a lot of hard work to do in the garden and he has money, he hires women from the community to work in the garden. He and his wife are not young anymore and his kidney problem makes it difficult for him to do hard work.⁵⁶ Hence, as Ellis (2000) suggests, a man can mobilize labor, including the labor of his wife. Women, on the other hand, cannot request the labor of their husbands. Therefore, in the cases in which the woman is in charge of the garden, the husband has passed away or is employed elsewhere. And when the woman is employed, for example in a commercial farm, she will still assist her husband in the garden in her free time. There is an obvious difference in possibilities to mobilize labor between men and women. And, as Mrs. Rosemary says, "gardening is for men."⁵⁷

⁵⁴ Meeting in Chikupi on 5 September 2011.

⁵⁵ Interview with Mr. Gibson on 21 September 2011.

⁵⁶ Interview with Mr. Kalenga on 30 November 2011.

⁵⁷ Interview with Mrs. Rosemary on 8 September 2011.

5.7 Conclusion

In this chapter I have illustrated gender relations in different domains. Differential ideas about men and women are part of everyday social life in the village, and involve perceptions about capabilities (for example related to financial management and to work) as well as power (to make decisions or to request labor). Gender struggles are expressed in conversations and conflicts between men and women. I have suggested that gender relations have changed, due to outside influences from ex-pats and NGOs, and that individuals have the agency to strategically maneuver within existing social structures. This confirms Vijfhuizen's (1998) statement that women are not passive recipients and victims of patriarchal structures but rather strategic social actors with the potential to reproduce, manipulate and transform daily life. However, at the same time I argue that perceived differences between men and women form an essential part of social dynamics in rural Zambia.

Chapter 6 – Investments, risks and gender

“We have a cash box in which we put the cash that we get from selling crops. When anyone of us - also the children sometimes sell vegetables here on the farm - has cash because of selling crops from the garden, we put it in the box. After selling all the crops, we count the money and I decide together with my husband how we are going to spend the money. We buy for example meat, talk time⁵⁸, or a cell phone for the children. The rest of the money is invested in the garden.” Anita Mweemba is different from all the other farmers that I interviewed: she lies down comfortably on the sofa in her big house and takes her time to elaborate on her answers. “I started my garden many years ago, because I needed to pay my school fees to become a pre-school teacher. My husband was not interested in gardening at that time. Only after IDE came and taught us that we can make a lot of money with gardening, and he saw the miracles of irrigation, he started getting involved in vegetable production.” Anita is a business and money oriented lady, who takes vegetable production and her other businesses like selling fish very seriously. She shares with me her plans to have a bore hole next year, and purchase a new pump and sprinkler irrigation systems. While we are talking in the living room, her husband is still in the garden, irrigating his newly planted tomatoes with the help of the petrol pump. In the upcoming rainy season, most people do not grow tomatoes, which means that the price of tomatoes will rise. “My husband has planted a lot of tomatoes now, we are going to need a truck to transport the tomatoes to Kafue market.” Anita tells me that Mr. Mweemba is ‘the boss’. In Africa, she explains, traditionally the man is the head of the household. It is also written in the bible that the man is superior to the woman. But, she continues, when it comes to spending the money they earn with the garden, it is not only Mr. Mweemba that makes the decisions: “we now sit together and discuss to see which are the priorities. We decided that the first priority is a bore hole, then we want electricity in the house. We can then go for a fridge to store and sell soft drinks, because nobody else in the village has a fridge. And, Vera, if you come here after five years, you will find me in a big farmhouse. That is my dream.”⁵⁹

In this chapter, I will examine farmers’ discourses on irrigation as well as present a categorization of vegetable farmers on the basis of general characteristics of the vegetable production and irrigation technologies used. Thereby, I will show the heterogeneity of vegetable production in rural Zambia. I identify the willingness to take the risk of a loan and responsibility to pay back the loan including interest as a key factor in understanding the variety of discourses of vegetable farmers. In the remaining part of the chapter, I will explore the dynamics which can explain why some farmers are willing to take this risk, whereas other farmers refrain from obtaining loans. My observations and analysis lead me to conclude that IDE’s market-based approach includes only a selection of the poor farmers it intends to include in the Rural Prosperity Initiative, a selection which consists mainly of male farmers.

⁵⁸ Credit to make calls and send messages with a cell phone.

⁵⁹ Interview with Anita Mweemba on 19 September 2011.

6.1 Local discourses on irrigation

By examining the ways in which vegetable farmers speak about vegetable production, I have tried to understand irrigated agriculture from a local perspective. I have found that farmers vary in the ways in which they talk about gardening, about their future expectations and plans for the garden and irrigation technologies, and about potential investments. I will call these different ways of speaking about vegetable production local discourses on irrigation.

6.1.1 “Gardening is a business”

This is how Mr. Mutempa summarizes what IDE taught him. He used to be employed in Kafue Estates before he moved to Kabweza to start farming. When IDE came, he learned that with irrigation, you can grow crops the whole year round. Also, he realized that he could earn more money than when employed.⁶⁰ It is characteristic for Mr. Mutempa and some other farmers to speak about their gardens in terms of investments, future plans, and the developments which their gardens and vegetable production have gone through in the past years. These changes are usually related to shifting to new irrigation technologies. Most of these farmers use more advanced irrigation technologies, like the treadle pump, a motorized pump or drip irrigation. Changes which have occurred as a consequence of shifting to the use of a new technology are larger portions of land under cultivation, growing different types of crops, income increase and time saving.

Most farmers started irrigation with buckets, but under irrigation with the treadle pump or motorized pump, larger areas can be watered. They explain that each time they moved to the use of another irrigation technology, they were able to expand their garden. Some farmers now manage to cultivate up to a hectare of land. Most farmers also started growing a larger variety of crops. As Mr. Friday clarifies: “Under bucket irrigation, I grew only tomatoes and rape. Now, I also grow cabbages and green pepper.”⁶¹ He goes on to explain that due to the adoption of the motorized pump and the drip kit, his income has increased a lot. “I get a lot more money and can now also support my brother as well as the rest of my family.” When I ask Mr. Mutempa about the increase in his income, he replies: “I don’t have my records with me now, I left them at home. But roughly, I remember that with bucket irrigation, I earned less than 500,000 Kwacha⁶² in six months. With drip irrigation and the treadle pump, I can generate 1,7 million Kwacha⁶³ in the same amount of time.” Overall, farmers report big changes in their income and consequently a variety of new expenses. School fees for children and the construction of a new house are often mentioned as expenses after the increased income. Mr. Kalenga tells me: “I now earn a lot more money. It depends on the crops I grow how much I earn and I do not know the exact numbers right now, but I even opened a bank account where I put money now.”⁶⁴

Apart from a higher income, new irrigation technologies also often result in time savings. This is particularly

⁶⁰ Interview with Mr. Mutempa on 20 September 2011.

⁶¹ Interview with Mr. Friday on 20 September 2011.

⁶² Approximately 75 euros.

⁶³ Approximately 250 euros.

⁶⁴ Interview with Mr. Kalenga on 20 September 2011.

true in the case of the adoption of drip irrigation. As Mr. Friday explains: “The drip kit benefitted me a lot. When I used bucket irrigation, I used a lot of water, had to walk a lot and carry heavy containers. Now that I have the drip kit, I can just pump water in the tank and open the pipes. I don't lose water and pumping takes me only twenty to forty minutes. It means that I can do more works at the same time.” Mr. Mutempa tells a similar story: “The main change brought by using the drip kit and the treadle pump is the time I spend on gardening. When I still used the bucket, it took me five hours to irrigate just a small portion of land. Now with the drip kit and the treadle pump, I can irrigate a big portion of land in less than an hour.”

With respect to future plans and potential investments, these business-oriented farmers have a lot to say. Most of them intend to invest in sprinklers and a diesel pump, in order to expand the area they can irrigate. Eventually, they want to extend their area under vegetable cultivation, grow more and more different vegetables. Mr. Gibson comments: “We decided together to purchase a diesel pump with this money. My plan is to get sprinklers which I can use with this diesel pump. With a sprinkler, I will be able to make a lot of money. I also want to purchase a bigger drip, and a van for transportation.”⁶⁵ Mr. Kalenga is planning to construct a borehole in order to overcome the problem of a lack of water that he faces. He also intends to purchase a second drip kit. Moreover, he would like to find new ways of accessing loans or credits. Many farmers share this desire with him. During my interviews or conversations with farmers, they often expressed their wish to be further assisted by IDE in finding loans or other possibilities to obtain credits. These farmers have taken up loans already in the past. Anita Mweemba, for example, repeatedly has loans, to pay for her education, to construct a house for her parents, to invest in her fish business, and to purchase a treadle pump. Most of the irrigation technologies of business-oriented farmers have been funded with a loan. Loans are also taken for other purposes, as we have already seen with Anita. Mr. Trust explains to me that he wants to have a loan so that he can buy a drip kit, yet because he is still paying off his previous loan he cannot take up another loan now. Last year, he had a loan to buy fertilizer.⁶⁶

Hence, these farmers are used to reflect on the chronology of developments related to their irrigated agriculture, and also to envision future expansion and improvement of their garden. They are used to speaking in terms of loans, and appear to be eager to find opportunities to access credits.

6.1.2 “I can't find money”

This way of discussing loans and investments is particular for only a group of farmers. Other farmers seem to reflect on investments and loans in a very different way. Often, loans are perceived with negativity or fear. Mr. Mwaanza recalls his father's experiences: “I don't like loans, because the interests are too high. Once, my father almost lost his farm because of a loan. He got a loan to buy fertilizer, but he didn't manage to pay back the money including interest on time. So, he had to sell cattle and goats. Now, to buy a petrol pump, I don't want to have a loan. I just want to raise the money myself, by selling vegetables.”⁶⁷ One day, I visit some farmers with my host father in Mungu, Mr. Hamweene. One of the farmers explains that they are currently only using a treadle pump and would like to have a motorized pump to make the work lighter. However, they

⁶⁵ Interview with Mr. Gibson on 21 September 2011.

⁶⁶ Interview with Mr. Trust on 3 October 2011.

⁶⁷ Interview with Mr. Mwaanza on 25 November 2011.

are afraid of taking a loan, because they might not be able to pay back the money and interest. Later, I ask Mr. Hamweene for clarification, and he says: "They [the farmers in Mungu] are afraid of loans. [They have had a negative experience with a microcredit organization in the past.] The interest rate was high, and [the staff of the organization] threatened to take personal properties from people that were unable to pay. Now, many people fear loans because they might not be able to return the money and they are afraid even to end up in prison."⁶⁸ Mr. Bimu, in Kabweza, complains that he missed out on his opportunity to purchase a treadle pump when he was not present at IDE's meeting where vouchers were distributed. He cannot find money now to buy a treadle pump. Many other farmers in his village, however, have invested in a variety of irrigation technologies without vouchers, but with a loan.⁶⁹

Some farmers are in a difficult situation. Esther Cheelo, for example, explains that her husband is employed in a commercial farm. They use some of his salary to pay for food and school fees. However, she does not know what the rest of the money is spent on. When she asks her husband, he will reply that he is the one that earned the money and she has no right to ask where it goes. To earn money for herself, she started gardening about eight years ago. She started with a relatively small garden, but now that she has four children to raise, she needs more money, hence she has expanded her garden throughout the years. She still irrigates with buckets, and would like to have a treadle pump and pipes to make irrigation easier. However, each time she managed to save some money, a problem arises for the family on which all her money is spent.⁷⁰

Hence, these farmers might have the intention to develop their garden, expand their area under cultivation and grow more crops with a technology that makes the work lighter. However, they seem to be unwilling to take the risk of a loan. Mrs. Rosemary expresses this sentiment well in explaining the choice she makes for the crops she plants: "I always choose crops that require little inputs, so that I don't have to do too much work or buy fertilizers." She now uses bucket irrigation, but wants a treadle pump and later also a motorized pump. "So, now I am saving money for a treadle pump."⁷¹ Like many other farmers, Mrs. Rosemary wants the work in the garden to be lighter and to increase her yields, but she does not want to supply too many inputs.

Some female farmers, however, do express their wish to obtain a loan and invest in a new irrigation technology. Esther Cheelo, for example, tells me that she would like to receive assistance (meaning that she would like to receive a sum of money) or otherwise a loan in order to purchase a treadle pump. However, she does not know where she can find a loan. Mrs. Chipoma, who manages a kitchen garden, would also like to have a pump so that she can extend her garden. But, she says, she does not have the money and is unable to find a loan. "Tradition says that my husband is the boss, and I can only have a loan when my husband agrees with it."⁷² Also Winfrida appears to have been held back by her husband in developing her vegetable garden. In the past years, her husband used to drink and therefore spend a lot of money on alcohol. Winfrida used to manage the garden by herself. Since there was not much money left to invest in the garden, so she was bound to use buckets for irrigation and cultivate only a small portion of land. A year before I was in the field, Winfrida's husband had stopped drinking and started working in the garden. Since then, they have invested in a treadle pump and later

⁶⁸ Interview with Mr. Hamweene on 4 November 2011.

⁶⁹ Interview with Mr. Bimu on 21 October 2011.

⁷⁰ Interview with Esther Cheelo on 4 November 2011.

⁷¹ Interview with Mrs. Rosemary on 8 September 2011.

⁷² Conversation with Mrs. Chipoma on 5 September 2011.

in a motorized pump, and they have expanded the garden.⁷³

Hence, the farmers that do not manage to develop their garden like business-oriented farmers, lack the resources which a loan can provide. For some farmers, this is a choice, as they fear the risk of taking a loan and the responsibility to pay it back including interest. Other, female farmers, express the desire to obtain a loan but lack access.

6.1.3 A categorization of farmers

By trying to understand these two local discourses on irrigation, I have taken a local perspective. My intention was to understand vegetable production from an insider's point of view. I am not an insider, and I have not stayed in rural Zambia long enough to come close enough to insiders to be able to fully understand their perceptions. However, by listening to their stories, and the language they use, I have been able to explore villagers' discourses on vegetable production. There is another point of view, which I would call the outsider's perspective. An outsider is likely to categorize vegetable farmers in three groups: business-oriented farmers, farmers who produce for home consumption, and a group that falls in-between.

Business-oriented farmers can be characterized by a large garden and the use of advanced irrigation technologies like a treadle pump, motorized pump and/or drip irrigation. Most of these farmers, as mentioned before, have used loans to purchase irrigation technologies and expand their garden, increase their yields and increase their income. Moreover, they have clear plans for future investments for their garden. The farmers in this category are men. They are assisted by their wives and children, and often discuss their plans and decisions related to vegetable production and irrigation with their spouse. However, the men are in charge of the vegetable production.

Farmers who produce for home consumption, on the other hand, are women. Maintaining a garden for home consumption has the advantage that it reduces the amount of money needed to purchase food. Yet, when cash is urgently needed, some crops can be sold and generate some cash income. For income generation, however, these ladies depend on other sources, for example their husbands' employment or pension, or other businesses.

Then a large category of farmers remains, which is difficult to characterize specifically. They do produce vegetables for commercial purposes, but lack the investments and big ideas which characterize the business-oriented farmers. Some have purchased a treadle pump or even a motorized pump, but mainly after saving money and not with a loan. Farmers in this category



Figure 14: Flood irrigation with a motorized pump.

⁷³ Fieldwork in Chikupi on 7 and 8 September 2011.

or either men or women. When the man is in charge of the garden, he is assisted by his wife and children, whereas when the woman is the head of the vegetable production, she is unable to mobilize her husband's labor. She can however request the labor of her children. The female farmers in this category are either widow, or work independently in the garden because the husband has another source of income but refuses to share it with his wife and family.

Returning to the local discourses on irrigation, the discourse which involves investments, loans and future plans corresponds with the group of business-oriented farmers. The 'kitchen gardeners', producing vegetables for home consumption, and the remaining farmers, can be understood to hold the other discourse, which refrains from risks in order to invest in vegetable production. One of the farmers who would be classified as business-oriented, because he has a large garden with high yields and uses a motorized pump, has never taken a loan but rather saved money in order to expand his vegetable production. He shows that the overlap of the discourses and the categories is only partly. Some low-risk gardeners do manage to purchase more advanced irrigation technologies and increase the size of their garden and their yields. Loans and risks are thus not necessary in order to become a profit-making vegetable gardener.

6.1.4 Irrigation makes a difference

In the introduction, I have presented IDE's discourse on low-cost irrigation technologies. In short, in this discourse it is assumed that affordable, individual irrigation technologies can create possibilities for rural dwellers to escape poverty, by increasing their vegetable yields. In Mungu, Kabweza and Chikupi I have observed that low-cost irrigation technologies indeed make a difference. The farmers who have adopted irrigation technologies are the farmers who produce more crops, cultivate a large piece of land, and continue to invest in more advanced technologies. These farmers report that since they started investing in irrigation technologies for their garden, their income has increased and they can now for example afford school fees for their children and the construction of a new house. Hence, I have found that irrigation technologies make a difference in increasing the income of farmers and can serve as a catalyst to develop the garden into and as a business. This observation supports Polak's belief in irrigation technologies as a potential "path out of poverty" (Polak 2005: 134).

However, caution is needed when stating that affordable irrigation technologies are indeed the catalyst of poverty reduction. Irrigation technologies, even those that have been transformed into low-cost affordable versions, are not available to everybody. To begin with, farmers should already dispose of a sum of money in order to purchase a new technology. As Mr. Chelemu from IDE puts it: "The people that buy irrigation technologies are already better off than other people without money."⁷⁴ IDE assisted poor farmers by distributing vouchers which allowed them to purchase drip kits for a top-up of 30,000 ZK⁷⁵, but for most investments people had to find other ways to collect money. Even the voucher was not available to all farmers. Mr. Bimu, for example, due to circumstances, was not present at the meeting on which the vouchers were distributed. Attendance of the meeting was a requirement for receiving the voucher, and therefore he missed

⁷⁴ Conversation with Mr. Chelemu on 30 August 2011.

⁷⁵ Approximately 4.50 euro.

out on the opportunity to, despite his lack of cash, invest in a new irrigation technology.⁷⁶ This suggests a confirmation of De Lange's (2006) suggestion that the poorest do not, at least initially, benefit from the introduction of new low-cost irrigation technologies. Moreover, not all people who do not dispose of this sum of money initially are inclined to take a loan in order to be able to finance a new irrigation technology. This is related to social dynamics, which I will discuss now.

6.2 Risk taking as a social process

Understanding vegetable production from farmers' perspectives, or examining local discourses on vegetable farming, reveals a lot about the actual differences between business oriented farmers and farmers who invest to a much lesser extent in their garden. A person's inclination to take risks appears to be key in understanding the variety in farmers' choices in how to proceed the course of vegetable production. In the following section, I will show how processes related to livelihood diversification, labor availability and gender relations play a role in the choice for a loan in order to finance investments in irrigation technologies.

6.2.1 Risks and livelihood diversification

Livelihood diversification, people's or household's attempts to expand their assets, activities and access to these (Ellis 2000), potentially explains the ability to invest in irrigation technologies. Almost all farmers in Mungu and Kabweza deploy more than one livelihood strategy. Those farmers who engage in more than one other income generating activity next to vegetable production, are found only among business-oriented farmers, not among farmers who lack resources to invest in irrigation technologies. This finding suggests that those farmers who have a variety of income generating activities, and are thus diversifying their livelihood, are more likely to invest in irrigation technologies and turn their vegetable production into a profitable business. Chambers (2000) argues that a more complex and diverse livelihood enhances its security. With many sources or activities to rely on for a livelihood, the loss or failure of one of these activities has less impact on the well-being derived from a whole livelihood. Having a variety of sources of income is likely to leave farmers in a better financial position to take the risk of a loan and thus to invest in new irrigation technologies. Hence, livelihood diversification is likely to play a role in explaining different potentials of farmers.

6.2.2 The question of labor availability

Another difference which potentially explains why some farmers are business-oriented whereas others are not or less business-oriented, lies in the availability of labor. The ladies involved in my study who maintain a garden for home consumption have no possibility to mobilize labor, for example because their children are too young and they are not able to request labor from their husbands. Farmers who maintain their garden without often making investments and developing it as a business, generally have not much labor force to assist them. The

⁷⁶ Interview with Mr. Bimu on 21 October 2011.

female farmers in this category often have children who can assist them. However, the male farmers can mobilize the labor of their wives, but generally have less children to request labor from. For example, the children are either too small to help, or they are grown up and live somewhere else with their own family. Most business-oriented farmers have both a wife and children from which they can request labor. Again, there are several farmers in this category with small children who cannot assist in work in the garden, and also farmers whose children have migrated. The difference in labor availability does thus not fully explain the difference between the farmers from different discourses. However, the data do suggest that both differences in labor force and livelihood diversification can partly explain why some farmers manage to invest money in their garden and turn it into a profitable business, whereas others invest much less in their vegetable production. It should be noted that the relation between the size of the garden and the amount of labor needed to cultivate the land is not linear. Generally, more advanced irrigation technologies require less labor and result in the potential to cultivate a larger portion of land. However, the treadle pump requires at least two people to operate. And though drip irrigation requires very little labor, flood irrigation which is made easy with a motorized pump gives room for weed which require labor to be removed. This can explain why there is no clear conclusion to be drawn from the relation between labor availability and risk taking.

6.2.3 Gender relations

Many of the differences between vegetable farmers, appear to be related to gender struggles. As we have seen in the typology of vegetable farmers, primarily men rather than women deploy irrigation technologies. Whereas both men and women in charge of their garden use a treadle pump for irrigation, only men invest in and use more advanced technologies like a motorized pump or drip irrigation. Most of the irrigation done by buckets is carried out by women rather than men. What Boserup suggested already in 1970 is still confirmed in my research: women are involved in manual agricultural work, more focused on subsistence farming, while men produce cash crops with the help of a range of different technologies. Of course, the women in the second category produce cash crops, but gardening for home consumption, as I showed in the third category of farmers, is a woman's job. Hence, the first category of farmers, the business-oriented vegetable producers, involves almost exclusively men.

This can be explained by the gendered patterns in income expenditure and labor mobilization, as explained in chapter 5. I have shown that men are used not to spend their money on family expenses and have the potential to mobilize labor for jobs in the garden. As a consequence, they have the possibilities to allocate their money to irrigation technologies and to turn their vegetable production into a profitable business. Men are more likely than women to take the risk of obtaining a loan, return their debts and interests, and re-invest in new irrigation technologies. As such, they better fit the assumptions of IDE's market-based approach, which requires entrepreneurship and continuous investments. Women, on the other hand, are generally expected to spend money on family and household expenses rather than on productive assets. Hence, there is less space for women to accumulate the money required to pay back a loan and interest. In this perspective, it is understandable that men are more likely than women to invest in irrigation technologies for which they should take a risky loan.

6.3 Conclusion

In this chapter I have presented two local discourses on irrigation, by means of which I have tried to show how vegetable production can be understood from the perspective of farmers. We have seen that though some farmers have managed to run the garden as a business, and have managed to continuously invest in new irrigation technologies, most business-oriented farmers have relied on loans for the development of their vegetable production. Farmers who have not (yet) reached that level of commoditization, are mostly unwilling to take loans, out of fear. Some female farmers, who show to have the desire to take loans and envision higher yields and productivity, are prevented by their husband from doing so. I also presented a categorization of vegetable farmers on the basis of the size of their garden, the irrigation technologies used, and the future plans with respect to the garden. These categorizations seem to partly overlap with the local discourses. However, an understanding of both perspectives suggests that farmers who are unwilling to take the risk of a loan, have the potential to develop their garden as a profitable business.

Identifying the willingness to take risks to purchase irrigation technologies as a key in the development of irrigated agriculture, led me to explore the difference between farmers who are willing and those who are unwilling to take loans. I have suggested that livelihood diversification, the availability of and potential to mobilize labor, and gender relations play a role in these dynamics which characterize the differences between local discourses on irrigation technologies.

IDE and its market-based approach are aimed at individual farmers who are perceived as entrepreneurs. The assumption is that rural hunger and poverty can be solved when rural smallholders take a loan and invest in irrigation technologies. The yields of vegetable farming with the help of these technologies will enable these farmers to recoup the money of the loan and increase their income. However, the local discourses on irrigation which I examined suggest that the understandings of vegetable production by local farmers do not entirely fit IDE's discourse. Some farmers talk about their investments, the development their business has gone through during the past years, and speak in terms of future investments and expansions plans. These business-oriented farmers fit in IDE's intervention. The other farmers, who deploy a low-risk type of farming, however, are excluded from the Rural Prosperity Initiative. Chambers (2000) argues that development professionals tend to treat communities as homogeneous units, ignoring varieties in dynamics such as age, gender, ethnicity or social group and extend of poverty and deprivation. Also, different preferences and priorities of different groups are often overlooked. Similarly, IDE's discourse assumes a homogenous group of farmers, who are all potential entrepreneurs, whereas local discourses are more diverse. As a consequence, the Rural Prosperity by design includes only a selection of poor farmers.

Chapter 7 – Processes of implementation

I have passed Mr. Collins' house many times: his house is next to the road leading to Kafue, and every time I passed, by car or on the bicycle, I saw a bucket full of fritters⁷⁷ on the edge of his compound. I remembered the delicious, squishy, snack, but never realized that at the back of the house there is a big garden, full of rape and tomatoes. A few days ago, my host brother Andrew brought me here and instead of Mr. Collins I found his wife, who told me to come back later to talk to her husband, who is "the head of the household" and in charge of the vegetable production. Today, he shows me around his garden. "We used to have a treadle pump. But now we use a motorized pump and we can cultivate a bigger portion of land. We did not have a loan for the pump, we just managed to collect enough money by selling vegetables." Mr. Collins seems to have high expectations from my visit. Despite my explanation of the reason for my visit, he repeatedly asks me for advice on how to handle diseases, and for assistance to purchase a bigger pump. I ask him whether he knows about IDE. "Yes, I know IDE. They have promoted the treadle pump. But I got my treadle pump without IDE." When I ask Mr. Collins if he knows people in Mungu who are involved in IDE, he says "In Mungu, farmers do not talk. They greet each other, but they don't share anything about their garden. Maybe it's because they are selfish, maybe they are jealous. But even if there is a training or meeting organized by IDE, most people don't inform each other about the activity. Therefore, I never manage to attend IDE's trainings or meetings." I tell him about my experiences in Kabweza, where I have observed that most farmers are aware of their fellow farmers' activities and developments in the garden, and they seem to be much closer to each other as a group than the farmers in Mungu are. Mr. Collins confirms my suggestion: "Yes, Kabweza is very different. In Mungu farmers do not talk. I think they are more jealous."⁷⁸

In this chapter, I will discuss how the Rural Prosperity Initiative implemented by IDE is given shape in the social reality of vegetable farmers. As I mentioned earlier, there is a striking difference between the ways in which the Rural Prosperity Initiative unfolds in Kabweza as compared to Mungu. In Kabweza, the farmers involved in the Rural Prosperity Initiative are all familiar with each other and eager to show visitors their garden and share their stories. They are aware of the welfare of their fellow farmers' gardens and irrigation technologies. Also, in numbers, there are more farmers using drip irrigation than in Mungu. In Mungu, it was difficult to find vegetable farmers involved in IDE, there was obviously no connection between farmers as I found in Kabweza. Hence, the same intervention had in practice taken a different shape in two different villagers.

In the process of implementation of IDE's project, three factors seem to be of importance. The first is the contact farmer as a person, second are social dynamics on community level, and third is the role and the social contacts of the field officer. The contact farmer as a person matters for the course of the implementation in two perspectives: first, how he or she is related to the rest of the community, by personality and personal history, and second, how he or she understands and appreciates IDE and IDE's irrigation technologies. I will explore these dynamics and link them to Long's (1989) concept of social interface.

By explaining these dynamics, I aim to show how an externally designed intervention during its implementation

⁷⁷ Deep-fried dough balls, popular for breakfast or as snack.

⁷⁸ Interview with Mr. Collins on 5 November 2011.

phase enters an existing life world with established social relations and practices. In this existing social reality, the shape that the intervention takes is negotiated in the processes of interaction of different parties involved. This stands into contrast with IDE's approach, which is focused on the individual farmer and assumes that development takes place on the individual, family or household level rather than on community level. My data show, that community dynamics are important for the course of the implementation, and that an individual approach cannot bypass these social processes.

7.1 The contact farmer

As a key person in the process of implementation, I have identified the contact farmer. The contact farmer is a person in the village assigned by IDE the role of intermediary. When IDE, or IDE's field staff, is planning a training or workshop, the contact farmer is expected to assemble farmers interested in attending the meeting. Also, the contact farmer is supposed to be an exemplary farmer who can show the usefulness of new irrigation technologies to other villagers. Moreover, when a farmer needs assistance from IDE in any way, he or she can get in touch with the contact farmer, who can then inform IDE about the needs of the farmer.

7.1.1 The contact farmer as a person and the reputation in the community

The contact farmer in Kabweza is Anita Mweemba, a 36 year old woman with three children and many other kids (nieces, nephews, children of friends) to take care of, in varying numbers – I have seen up to seven children apart from her own three at the same time. Anita was born in Chikankata, but brought up in Kabweza – two villages separated by a two-hour drive. She pursued her first seven years of primary education in Kabweza, and then continued to study in Lusaka – Kabweza did not yet provide education for grade eight or higher. In Lusaka, she stayed with a friend of her parents, but the lady did not take care of fourteen year old Anita: she left her alone at home while she visited boyfriends, and hardly ever provided enough food. Anita decided that she could not study well in these conditions, and without informing her parents, she arranged a transfer to a school in Chikankata, the village where she was born and where her parents originated. After completing her education, she took up a study to become a nurse. However, she started to develop a strange disease: one night she dreamt that she ate goat meat as well as papaya, and when she woke up, she appeared to be sick. It took 21 days before she stopped vomiting continuously. The doctors could not find the reason for her illness and Anita decided to move back to her parents in Kabweza. She turned to traditional medicines, and after many days of taking these she vomited a piece of meat. Afterwards, she was 'cleansed' and healthy, but she refused to return to Chikankata. Anita is convinced that somebody in Chikankata was jealous and "played some miracles" on her. So, she decided to stay in Kabweza and pursue a one-year course in pre-school teaching. The school fees for this course were 1.8 million kwacha⁷⁹, and as she was already married and had her first baby, she had to arrange babysitters, and ask her husband for permission. Her mother and a friend of her in Mungu assisted her with taking care of the baby, and her husband agreed with her going to college, though he could not afford the school fees as he earned only 280.000 kwacha per month with his job in the agricultural

⁷⁹ Currently around 340 euros.

camp. Fortunately, the white commercial farmer in Kabweza was their friend and he agreed to lend them the money. Around that time, Anita started vegetable production in order to pay back the loan, “because there is money in the soil.”⁸⁰ She also brewed beer, and she managed to collect the required money. After finishing her education as a pre-school teacher she found a job in Kafue, and later she shifted to a school in Mungu. This school had to close in 2002 due to lack of funds, so Anita lost her job. Instead, she took on work in seed multiplication and met Jairos Simukoko, who was later to become the field officer of Kafue for IDE. Later she got involved a variety of community work activities and businesses. For a short impression of all her activities and involvements: she provides workshops for the conservation farming unit, aimed at improving farmers’ skills in rain-fed farming. Apart from being the contact farmer for IDE, she is the secretary of the irrigation farmers’ cooperative. She is member of a woman’s group, and works for the micro bankers trust, which gives loans to women. Anita is also involved in the Parent-Teacher Association of Kabweza basic school, and she played a role in facilitating the elections which took place early September. Moreover, she has just been accepted for a job with Room to Read, an NGO that promotes girl child education.

Mr. Hamweene, Mungu’s contact farmer, has a quite different history. He is 57 years old and moved to Mungu only seven years ago, after retiring from the Zambian National Service – a division of the Zambian Defense Force. He joined the ZNS in 1976 and was taught field crafts, fighting skills, and how to deal with arms, before teaching these skills to other militaries himself. Due to outbreaks of cholera, the ZNS decided not to continue with this work and instead Mr. Hamweene got involved in other military jobs. For example, he was part of the agricultural department, for which he followed a three week course in Lusaka to learn how to grow green paprika. Moreover, he was part of the military police. When he got the chance to retire in the year 2000, he decided to take it. He still had to wait some years before he received his retirement benefits of 30 million kwacha⁸¹ and used those years to further develop his gardening and farming skills. In 2004, he had collected the money and found a piece of land in Mungu which he could buy and settle on. He has been able to develop his pieces of land into rain-fed fields for maize cultivation, and a big garden with a pig pen and space to grow different crops. He still receives benefits from his time in the ZNS. It is a small monthly amount, but it enables his family at least to buy basic household needs like soap. Recently, his neighbor who sold him the land seven years ago, started a court case because he wants to reclaim his land. Though the court decided that the previous owner has to pay back all the money plus all the investments that Mr. Hamweene paid for his land and for his house and garden, and Mr. Hamweene does not expect him to be able to collect this money, it is a distressing time for him.

Hence, Anita and Mr. Hamweene are quite different personalities and have a very different connection to the people in the village in which they live. Anita is an independent, business-oriented woman, not afraid to take initiatives, who grew up and still lives in Kabweza. From her youth and through her wide involvement in community work, Anita is a well-known person in her village. Like most other people in the village, she and her husband are Tonga, and she is a member of the Seventh Day Adventist church: a church with a lot of members in Kabweza. Mr. Hamweene, on the other hand, is relatively new in his village Mungu. Though he is a member of Mungu basic school’s Parent-Teacher Association, and thus involved in community work, there are many other dynamics which partly set him apart from the community. He is one of the few Jehova’s Witnesses in Mungu. Perhaps, his religious conviction has led him to lead a more individualistic life-style, less involved with

⁸⁰ Conversation with Anita Mweemba on 28 November 2011.

⁸¹ Currently around 5700 euros.

other community members than most other people in the village. Jehova's Witnesses have individual achievement and self-discipline in high regard (see Long 1968). He is married to a Losi woman whereas he is a Tonga. Also, because of his previous employment in the ZNS, he seems not to feel connected with most of his fellow farmers. As he puts it: "many people don't know my complicated autobiography."⁸² I suggest that the personality and role of the contact person in the community are important factors in how the project unfolds in practice. A contact farmer is expected to reach and motivate farmers to attend IDE's meetings, so if the contact farmer is a person with many social contacts and an established position in the village, he or she is more likely to carry out that job effectively.

7.1.2 The contact farmer's appreciation of IDE and IDE's technologies

Another factor which is of great importance for the course of the intervention's implementation, is the contact farmer's understanding and appreciation of IDE and of the irrigation technology he or she is supposed to promote to fellow farmers in the village. Anita and Mr. Hamweene hold different opinions about IDE and about the irrigation technologies IDE promotes. Mr. Hamweene, to start with, appreciates the knowledge he has gained from IDE very much. Even though he developed farming skills and knowledge of vegetable cultivation during his time in the Zambian National Service, IDE's trainings have helped him a lot in expanding his knowledge about the use of herbicides and pesticides, and about irrigation. However, with respect to the irrigation technologies promoted by IDE, Mr. Hamweene is not always positive. He thinks the treadle pump involves hard work, too heavy for him and his wife who are relatively elderly people. The drip kit has some other challenges, for example the quality of the pipes. Not only do the pipes change shape because of the heat of the sun, another common difficulty are leakages in the pipes. Many people using IDE's drip kit share Mr. Hamweene's judgment of the technology.⁸³ My point is, however, that the opinion of the contact farmer, the person who is supposed to promote irrigation technologies to IDE's potential clients, is likely to have an impact on the promotion itself. In addition, Mr. Hamweene is not merely positive about IDE as an organization. On the one hand he does, as discussed, appreciate the knowledge he gained by attending meetings and trainings with IDE. On the other hand, he disapproves of IDE's lack of interaction with farmers. According to him, IDE's staff spend too much time in the head office instead of visiting farmers. He reflects the opinion of several farmers that have in the past worked with IDE; many gardeners suggest that the staff should be in the field more often, because that is the only way in which they can understand the problems which farmers are facing.⁸⁴ Rather than leaving Chikupi, Kabweza and Mungu and moving on to implement the Rural Prosperity Initiative in other villages, farmers would like IDE's staff to remain more involved in their villages. As such, Mr. Hamweene does not have a negative opinion about IDE in general, yet he is not fully optimistic about it either.

Anita Mweemba, on the other hand, has a very different approach towards IDE. I believe that her approach is very much connected to her personality. Her life history as well as her current dealings with people and organizations suggest that she is an ambitious person who knows how to strategically use the opportunities she has in order to create possibilities and to develop herself and her status. I have seen repeatedly how she uses her practical comprehension to arrange transportation for herself, other people, or goods. While I was

⁸² Interview with Mr. Hamweene on 24 November 2011.

⁸³ For more on the technical issues of drip irrigation I refer to Obed Tuabu's thesis (forthcoming).

⁸⁴ Interviews on 7 September, 20 September, and 4 November 2011.

staying at her home, she would always arrange interviews and meetings with other farmers for me, or when she was away for a day for her business or training activities, she would make sure that a friend of her would cook for me. And while she was still a child, she managed to be transferred to another school and move from Lusaka to Chikankata on her own. In other words, Anita has a well-developed practical insight and the potential to use her resources strategically. Apart from that, she is seemingly very concerned about her status and reputation. For example, she is always eager to share stories about her progress in the garden and development in other works that she does with me. She likes to parade around Kabweza with me, showing her white visitor to other farmers in the village. She proudly tells me repeatedly that she has had visitors from abroad many times before. And she is not shy to tell me how exceptional she is, taking care of many children while she is only 36 years old. Being a contact farmer for IDE I believe means for Anita an opportunity to enhance her status in the village, as well as a possibility for material benefits. An example of the extra material benefits that she receives as a contact farmer, is the fact that she was able to obtain two vouchers from MEDA's support, and therefore managed to purchase two drip kits.

The contact farmers in Kabweza and Mungu apparently have a different stance towards IDE and IDE's irrigation technologies. Whereas Anita is keen on her position in the organization, and knows how to strategically benefit from it, Mr. Hamweene appreciates the knowledge that he gained with IDE but does not have a positive overall opinion of the organization. Neither does he fully appreciate the technologies which he obtained through IDE. To analyze the difference between these farmers, I would like to return to the two discourses which I presented in the previous chapter. Anita's language and practice corresponds with the business-oriented discourse. She sees potential benefits of IDE's irrigation technologies and does not fear the risk to invest in these, even with a loan. Mr. Hamweene, however, does not have the same faith in the benefits of irrigation technologies and is not willing to take a risk in order to invest in these. As we have seen, IDE's discourse is linked to business-oriented farmers rather than farmers which engage in low-risk gardening. Hence, Mr. Hamweene does not hold the same discourse as IDE. A contact farmer like Anita, who does speak the same language as IDE, is more likely to be carry out the job of a contact farmer as intended by IDE.

7.2 Social dynamics in the village

"Jealousy" is an often discussed topic in Mungu and Kabweza. In a variety of circumstances I came across this sentiment. Perceived bad intentions from people as well as sicknesses without a clear cause are often explained by jealousy, and as well related to witchcraft. As I illustrated earlier, Anita explained the illness from which she suffered while she was studying to become a nurse by jealousy and spells. She presumed that somebody envied her successful studies and therefore tried to hold her back, though she does not suspect a particular person.⁸⁵ As a consequence, Anita decided to move back to her parents' village, Kabweza. Often, the choice for a place to settle is related to jealousy of other people. Mr. Mwaanza explained that his father originates from another village. He was employed in the government and found land in Mungu after his retirement. Usually, Mr. Mwaanza explains, people do not return to their place of origin, out of fear for jealousy and witchcraft.⁸⁶ Anita gives a similar explanation for her brother in law's move to a village of almost

⁸⁵ Witchcraft is not uncommon in Africa and is suggested to serve as a means to express power struggles over income or resources. For an example, I refer to Dolan (2002).

⁸⁶ Interview with Mr. Mwaanza on 25 November 2005.

1,5 hours by bicycle's distance from Kabweza. She says that for children it is better not to live near their parents, because parents are likely to hold their children back when they try to develop. She experienced this when she and her husband expanded the garden with a large portion of land: her mother commented at that time that she was exaggerating, and she tried to discourage her daughter in doing this.⁸⁷ Also Mr. Hamweene explains his land dispute with jealousy: the man that sold him his land seven years ago must be jealous of Mr. Hamweene's achievements and therefore trying to obstruct his movements.

Jealousy is seen as a sentiment that explains why some people try to hinder other people's possibilities. It is often related to witchcraft and can therefore explain difficulties that people face in achieving something even if no other person is visibly involved in causing these difficulties. Anita's illness, for example, cannot be explained by the actions of a particular person. However, she still assigns her problem to jealousy, because she expects that somebody has spoken spells on her and thereby caused her disease. However, it can also be given as an explanation when people refuse to assist others in their objectives. Anita supposes that her parents are jealous of her and her husband because they did not assist or encourage them when they were expanding the area for vegetable production. And several farmers in Mungu who have heard of IDE but have never been invited by Mr. Hamweene or anybody else to attend a meeting, provide the explanation that farmers in Mungu are jealous, and are not likely to talk to other farmers about their garden and potential developments.

It is striking that this sentiment seemingly plays a role in the implementation of the Rural Prosperity Initiative in Mungu, but not in Kabweza. Kafue's field officer gave me some ideas to understand this difference. The land tenure system is, according to him, crucial for the social relationships of villagers. In Kabweza, the land is traditional, and people can be assigned a plot of land to live on and to cultivate by the chief. In Mungu, however, people live on titled land.⁸⁸ Hence, in Mungu, villagers can perceive each other as potential competitors in a struggle over land ownership, whereas in Kabweza, rural dwellers are likely to be co-habitants on a communal portion of land.⁸⁹ Moreover, Kabweza consists of a relatively small community of farmers from the same tribe, the Tonga, whereas Mungu is more spread out and consists people from a variety of tribes. These characteristics can suggest a lower level of cooperation between villagers in Mungu as compared to the rural dwellers of Kabweza.

These are some explanations for the observed difference in sense of community that people in Kabweza seem to experience compared to the villagers of Mungu. The observation, however, remains that 'jealousy' as a sentiment is given as an clarification of the lack of cooperation between farmers in Mungu. What Zambian farmers refer to as jealousy can be understood as a dynamic which prevents people from cooperation and limits the possibilities of development. Since IDE relies on the word-of-mouth marketing by local farmers, such a lack of trust and cooperation between farmers can be a plausible explanation for a limited impact of IDE's implementation of the Rural Prosperity Initiative in Mungu.

⁸⁷ Conversation with Anita Mweemba on 27 September 2011.

⁸⁸ Conversation with Jairos Simukoko on 28 November 2011.

⁸⁹ The connection between land tenure systems and social relations is expressed for example in Platteau (1996) and Van der Haar (2001).

7.3 The role of the field officer

Another social reality which is part of the practices of development intervention is the role of the field officer. The field officer has his or her own goals, perceptions, and social relations as well, which are of importance for the course of the implementation. As mentioned in chapter 3, a prime concern in the work of field officers appears to be their target: the amount of technologies they are supposed to sell in a year's time. A major concern of the field staff to reach a target as compared to a principal concern with the challenges and welfare of vegetable farmers is likely to lead to a different course in project implementation. In addition, the field officer's social relations are likely to play a role in the ways in which he carries out his work.

Kafue's field officer Jairos Simukoko was already acquainted with Anita Mweemba before he came to Kabweza as an employee of IDE. They have come to know each other through a seed multiplication program in which they were both involved. Jairos and Anita are good friends and assist each other when necessary. Anita takes care of Jairos' goats: since he lives in urban Kafue he does not have space for his goats himself. Also, Jairos gives Anita regular rides to Lusaka when she needs to be there for business or other purposes. Hence, the choice for Anita as a contact farmers is very likely to be closely related to their friendly relationship. Still, Jairos' friendship with Anita plays a role in the way in which he carries out his work as field officer. For example, he uses her network in order to find additional clients to sell IDE's technologies. Anita contacted her sister in Chikankata in order to organize a demonstration of sprinkler irrigation. This was for Jairos an entry point in Mazabuka district, another part of the country.

Hence, the course of the implementation is related to the field officer's social relations. The field officer can strategically use his social contacts in order to find clients and reach his target. Moreover, his professional relations with farmers cannot be considered separately from the friendly relationship he has with them at the same time. These relationships can also form part of the explanation of the differences between the development practices in Mungu and in Kabweza. Perhaps, the field officer's friendship relation with Kabweza's contact farmer has created a situation which is beneficial for the course of the implementation. It has potentially increased the feeling of trust towards the field officer, as he is much less and outsider than a friend. As a result, villagers could be less suspicious towards the project and more open to receiving external inputs. Moreover, from the side of the field officer, a friendly relationship with the contact farmer could mean a willingness to put more effort in the implementation of the project. These suggestions are worth taking into account when considering the importance of social relations and life worlds in the analysis of project implementation, and again they stress the key role of community dynamics in the course of an intervention.

7.4 Social interfaces in project implementation

As explained in the introduction, social interface refers to the encounter between different social life worlds involved in the implementation of a planned intervention. The encounter between different life worlds is likely to be dynamic and potentially conflictive, is what I argued in the introduction. We have seen a conflictive encounter in Mr. Hamweene's case. He is an analytical thinker, who assesses both IDE and the irrigation technologies promoted by IDE in a critical way. He is not convinced of the good work of IDE and neither of the

helpfulness of the irrigation technologies he has adopted through IDE. Mr. Hamweene's understandings and perceptions thus seem to be in conflict with those of the Rural Prosperity Initiative. Anita's encounter is dynamic rather than conflictive. She strategically uses her position as contact farmer for material benefits as well as to increase her reputation. The outcome of the encounter in this case has a dynamic character. Both Mr. Hamweene and Anita show that their discourse and the interaction with IDE's discourse, is significant for the course of the implementation. Also the field officer has his own life world or discourse, which I have not explored in-depth, but in which the annual target seems to be highly important. The ways in which he perceives and represents his task as a field officer determines to a high degree the way in which his work unfolds. This suggests that not the design of the intervention itself determines development practices. Rather, the interaction with the social reality at field level decides the course of the implementation. It is in the social interface, the encounter of different life worlds, that the social reality of an intervention is given shape.

7.5 Conclusion

This chapter presented an analysis of the implementation of the Rural Prosperity Initiative. I focused on the contact farmer as a key figure in the course of the implementation, as well as on the role of social dynamics on the community level and the social relations of the field officer. With the help of the concept social interface, I have aimed to understand the different social realities of the implementations in Kabweza and in Mungu. I have argued that three factors are of importance in these dynamics, which are the person of the contact farmer within the context of the community as well as his or her understanding and appreciation of IDE and its irrigation technologies, social dynamics at community level, and the role of the field officer. These dynamics together are part of the social reality of the key figure in the implementation, and lead to a variety of outcomes of the intervention's implementation. The social reality of the intervention, in other words the discourse of low-cost irrigation technologies, is in its implementation embodied in the encounter with the life world of the contact farmer. The resulting shape which the implementation is given, is a product of the dynamic interface of the life world of the intervention, in other words the discourse, and the life world of the contact farmer. In Kafue, I have found that the field officers, also play a role in the shape which the intervention is given, because of his work incentives and social relations. Hence, villagers, together with their 'leaders' and the field officers, have a role in co-determining the discourse and the outcome of the intervention, which makes the outcomes of interventions a "product" of ongoing interactive processes" (Heijdra 1989: 93). As such, the processes of intervention in practice are socially constructed. These processes form a contrast with IDE's approach, which is focused on the individual farmer. In IDE's discourses, development is assumed to take place on the individual, family or household level rather than on community level. However, communities are different from each other, and these differences matter in the ways in which an implementation unfolds.

Chapter 8 – Conclusion

Words or concepts have different meanings in different contexts and in different discourses. As we have seen in chapter 5, 'gender' for the rural Zambians means that men and women can share their work and assist each other in their tasks. For IDE, gender means that men and women have different roles and responsibilities (IDE 2012), whereas in practice their concern with gender does not go much further than counting the amount of women purchasing irrigation technologies. Irrigation technologies for IDE are considered a way out of poverty, a means to increase farmers' income, providing means to continue to invest in more advanced irrigation technologies. For farmers, the irrigation technologies have a variety of meanings. Some farmers hold a discourse that fits IDE's, and perceive irrigation technologies as worth taking a risk of investing money in, expecting these to help them increase their income. Other farmers, however, see irrigation technologies as a means to relieve their work load and increase their yields, but do not talk about them as business assets.

In this thesis, I have presented an analysis of IDE's discourse on low-cost irrigation technologies. The analysis covers two parts, first the embodiment of the intervention in the social and gendered practices related to vegetable production, and second the implementation of the intervention and the role the contact farmer plays in this process. My findings suggest that IDE's Rural Prosperity Initiative targets a masculine type of farming, which leads to the selection of male rather than female farmers. Moreover, I have argued that the contact farmer is a key figure in the course of the implementation, and that the social dynamics at community level as well as the social relations and professional targets of the field officer play a large role in the ongoing process of implementation as well. Hence, IDE's individualistic approach to rural development does not suit the social reality of rural Zambians. Dynamics at the community level do matter for the ways in which the project unfolds. Though the realities of poor people seem to be insignificant in the design of development intervention, they play a crucial role in the course of the implementation.

To extend this argument further, I want to endorse to Mongbo (1995), who argues that rural development can be considered as an arena in which different categories of actors interact. The result of this interaction is unpredictable and potentially conflictive. The beneficiary of an intervention is not a neutral recipient of aid, but a social actor with his or her own understandings, judgments, social relations, goals and interests. By concentrating on the role of the contact farmer, I have shown how these dynamics play a large role in the ways in which the project unfolds. Mongbo argues that "intervention roles and practices are defined, negotiated and established in the process of interaction, as a means for achieving different interests" (Mongbo 1995: 19). A development intervention does not arrive in a vacuum, but in a social context with established social relations and practices. An interaction between this existing social reality and the development intervention takes place, a process by which the outcome will take an unexpected shape. "[G]lobal phenomena like the rhetoric of rural development are dynamically appropriated by people, decoded according to individual's life worlds, made culturally, locally, and politically meaningful and incorporated into individuals' and groups' strategic and tactical initiatives" (Mongbo 1995: 18).

In a video which can be found on YouTube, Paul Polak, IDE's founder, comments that "practical solutions to extreme poverty can only come from listening to poor people themselves."⁹⁰ He argues that potential beneficiaries are the people who know best how their livelihoods can be improved, and therefore they should be part of the design of the intervention. Poor people know which improvements fit their expectations and potentials best and should thus be listened to in order to design a suitable solution to poverty. However, I have shown how the Rural Prosperity Initiative is selective towards better-off and male farmers rather than towards poorer and/or female farmers. Though IDE claims to be aware of different roles and responsibilities of men and women, the RPI does not show that these are actually accounted for. As Chambers (2000) suggests, outsider professionals treat communities as homogeneous, ignoring social dynamics and varieties like age, gender, ethnicity and poverty. As a result, different preferences and priorities of these different groups are not accounted for in interventions. Mongbo's conclusion after his study on development interventions in Benin seems to be in place: "The issues referred to as "development" [...] do not arise from the realities of so-called under-developed people, nor can they pretend to change significantly these realities since the realities of such people play only a marginal role in the making of the language and practice of development intervention" (Mongbo 1995:2).

IDE is right to assume that irrigation technologies potentially make a large difference in the income of small holder farmers. However, analyzing farmer's discourses on vegetable production and irrigation technologies, reveals that not everybody is inclined to take the risk of a loan in order to invest in new technologies. In this process, women rather than men are likely to be left out. In order to be fully responsive to the needs of poor farmers, it is necessary to recognize first of all that local discourse is likely to differ from the professional discourse, and second, that there is a multiplicity of local discourses at stake. The rural poor are not a homogeneous group of people. As Namara (no date) argues, the diversity in households, needs, capacities and discourses is large and results in an unequal benefit of project implementation by local people. It is also important to acknowledge the importance of community dynamics and social relations of people involved in the project for the course of the implementation.

It was not the intention of this work to give recommendations to IDE. I will not present a list of advices on how IDE can improve project design and implementation. However, I have shown that the key to responding to the needs of rural poor lies in understanding their realities and their heterogeneity. In line with this reasoning, mainstreaming gender entails more than acknowledging that men and women have different roles and responsibilities, as IDE states on the website. It implies that these differences should be accounted for in project design. Hence, I suggest that IDE does not forget its founder's Paul Polak's expression that "practical solutions to extreme poverty can only come from listening to poor people themselves."

⁹⁰ Polak in "Out of Poverty: Paul Polak on Practical Problem Solving", <http://www.youtube.com/watch?v=kSEGN-EJJho>

As I come home from an afternoon in the field, my host mother Mrs. Hamweene has the food ready. I sit down on the mat and wash my hands in the water that she pours from a plastic tea pot. Mr. Hamweene is seated on his comfortable chair and starts his prayer, to thank God for the food that we have today. As every day, today's food is nshima. Mr. Hamweene puts two big lumps on my plate, because he knows the porridge is still too hot for me to grab from the pot with my bare hands. I have not yet had the opportunity to talk to Mr. Hamweene about his garden, so I take the chance that I have now. When I ask him about the drip kit that I saw in his garden, he explains that it was brought by a previous student that came with IDE, who did a research in order to develop a drip planner chart, a tool designed to inform farmers about the amount of water their crops need under drip irrigation. "Drip irrigation is very good if it works well and when you can pump water in the tank with a motorized pump. We only have a treadle pump, so for us it is a lot of work to pump the water. Also, the pipes are leaking, so I cannot use the drip kit now." Mr. Hamweene currently has very little time for his vegetables: the rain season is approaching and every morning he is busy preparing the land so that he can plant maize when the rains arrive. He is also constructing a new piggery, as they have six piglets that will grow up and need more space soon. When I ask Mr. Hamweene if he knows any other farmers in Mungu with a drip kit, he replies: "I know only one other person with a drip kit. Maybe that is because most people do not see the benefit of drip irrigation. They can see it once in a demonstration from IDE, but it might not be enough to convince them. They can come and see the benefits in my garden, but hardly anybody comes by to visit my garden." I have tried hard and succeeded to finish the nshima on my plate and start washing my hands in the big bowl of water. "Are you already finished? Why don't you eat more!" Mrs. Hamweene comments. "No, I am fine. Twalumba⁹¹!" I reply.⁹²

⁹¹ "Thank you" in Tonga.

⁹² Dinner time at the Hamweene family on 30 September 2011.

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Appendix I: Interview questions

1. Since when are you involved in gardening?
2. How did you learn about gardening?
3. Who decided to start gardening?
4. Who own the land you use for gardening?
5. Who works on this land? (Family? Hired labour?)
6. How are the tasks divided among the people working on the land?
7. Who decides about this division of labor?
8. Which irrigation technologies do you use?
9. Why did you choose this/these technology/ies?
10. How did you finance this/these technology/ies?
11. How much did it cost?
12. When did you purchase it?
13. Which technology/ies did you use before?
14. Which changes did the new technology/ies bring?
15. Did you income increase? With how much?
16. How is the extra income spent?
17. Who decides how to spend the extra income?
18. Did the total hours of work in the garden decrease?
19. Who works less hours?
20. How are the extra “free” hours spent?
21. Did the total area of irrigated land change?
22. Did the type of crops you grow change?
23. Which crops did you grow?
24. How many crop cycles do you have per year?
25. Who decides which crops you grow?
26. How is this decided?
27. Where are the crops sold?
28. Who sells the crops? Why this person?
29. Which other sources of income do members of the household have? Who?
30. How is this money spent? Who decides how to spent this money?
31. What are the benefits of the irrigation technology you currently use?
32. What are the challenges of the irrigation technology you currently use?
33. Are you planning to shift to/purchase another irrigation technology? Which? Why?
34. Which changes do you think this new technology will bring?
35. Are you member of a farmers’ cooperative/women’s group? Why?
36. Is your husband/wife member of a farmers’ cooperative/women’s group? Why?
37. Do you or your husband/wife attend IDE meetings? Why?
38. What do you think of the work IDE does?
39. Is IDE equally helpful for men as for women?
40. What do you think IDE should do to reach more women?

Appendix II: Topic list

Gardening

- When, why, who?
- Land
- Labour – who, division

Irrigation technology

- Costs/financing
- Decision
- Changes (income, plot size, labour, crops)
- Benefits/challenges
- New purchase?
- Expectations

Crops & Market

Income

- “Side jobs”
- Spending money – what, who?

Participation

- Cooperative/group
- IDE meeting: who, frequency, why?
- Opinion work IDE
- Beneficial men/women?