Interlocking and Distancing Processes

An analysis of farmers' interactions with introduced crop production technologies in Sauri Millennium Village, Kenya

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An analysis of farmers' interactions with introduced crop production technologies in Sauri Millennium Village, Kenya

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For my daughter, Nicole

ABSTRACT

Planned development presumes a step by step progression from policy formulation, implementation through to the outcomes even though the projected futures from such developments may be different from the set objectives. Local people organise themselves differently to deal with changes that happen around them and their interactions with interventions shape the outcomes. The Millennium Villages Project (MVP) initiated in Sauri, in Siaya County in western Kenya, follows a similar trajectory of planned developments but it also tried to incorporate both top-down and bottom-up approaches.

MVP introduced various crop production technologies such fertilizers, hybrid seeds and improved fallow technologies. Farmers were also exposed to formal organisational systems to facilitate access to credits and markets. This study analyses how farmers interact with the introduced technologies in Sauri. It also explores the mechanisms through which MVP operates to get farmers to adopt to new technologies in Sauri. Data collection and analysis were done qualitatively in addition to desk study of relevant materials. An actor oriented approach provided a framework for studying farmers' responses to MVP crop production interventions. Examination of MVP's operations in Sauri and the farmers' responses reveals three processes: interlocking, reassembling and distancing. The project anticipated for only interlocking process to eradicate hunger by the year 2015. The processes of reassembling/redesigning and distancing, which are part of development, were ignored.

Farmers interact with new technologies differently through the processes of reassembling and distancing. Some have interlocked through the following ways; embracing the free gifts (inputs), optimization of economic benefits of the technologies, becoming lead/master farmers for other farmers to emulate, keeping close relations with those in good positions to acquire resources (inputs) and sticking to the new organisational structure for access to credit and markets. Other farmers have deviated from the 'proper' use of the technologies to mix them with their traditional practices, for instance, planting hybrid seeds in the traditional ways, using low quantities of fertilizers, making 'own hybrid' seeds or even using improved fallows as live fences. They re-assembled the new and traditional practices to make sense to them. On the other hand, some farmers have totally distanced from the formal organisational system as well as use of the introduced technologies for reasons such as financial and labour constraints and mismanagement and corruption within the system. They have ended up forming their own informal groups for production and marketing and/or reverted to traditional practices of crop production which makes use of the local resources.

Despite that MVP succeeded in creating awareness about new crop production technologies in Sauri Millennium Village, the project will not amount to much as regards to eradication of hunger through high crop productivity. The local people engage with MVP through processes of interlocking, reassembling/ redesigning and distancing which has always been the case even with previous interventions. This proves that agrarian change is gradual and that technological change is not only a technical process, but socio-technical in nature.

Keywords: *Interlocking, reassembling, distancing, planned development, crop production technologies.*

LISTS OF FIGURES AND TABLES

Figures

Tables

ABBREVIATIONS

AGRA	Alliance for a Green Revolution in Africa
CAN	Calcium ammonium nitrate
DAP	Diammonium phosphate
FTC	Farmers Training Centre
HYV	High yielding variety
ICRAF	World Agroforestry Centre
KARI	Kenya Agricultural Research Institute
IMF	International Monetary Fund
MDGs	Millennium Development Goals
MSC	Market Service Centre
MV	Millennium Village
MVP	Millennium Villages Project
NCPB	National Cereals and Produce Board
ODA	Official Development Assistance
SAP	Structural Adjustment Programs
SFR	Soil Fertility Replenishment
SIDA	Swedish International Development Agency
SMV	Sauri Millennium Village
SOC	Social capital
SSA	Sub-Saharan Africa
T&V	Training and Visit
TSBP	Tropical Soils Biology and Fertility Programme
UN	United Nations
UNU	United Nations University

GLOSSARY

Chwiri	Long rain season
Githeri	Food that is made from mixture of maize and beans
Gorogoro	Two kilogram tin
Mzungu	A white man
Nyaluo	Local seed varieties
Opon	Short rain season
Ugali	Maize meal made from maize flour
Jembe	A hoe (for digging)
Surudu	A home garden

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TABLE OF CONTENTS

CHAPTER 1 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Development interventions are presumed by development agents to follow a linear progression. Policies are formulated, implemented and outcomes evaluated to determine whether the laid down objectives have been achieved. However, individuals and groups of the targeted communities devise their own strategies when faced with planned interventions and the way they interact with the interveners shape the end results of the intervention. Thus agricultural development interventions do not progress linearly which implies that there is no straight line from policy formulation through the implementation to the outcomes (Long 2001 :31).

Similarly, agricultural development in western Kenya, where Siaya County lies, has never been a linear process. The region has been subjected to planned interventions since early 20th Century and farmers have always been interacting with induced technologies differently. This has involved de-linking from the technological innovations induced by external agents to form endogenous development. Crop production technologies initiated 'from above' in Siaya County have not been effective in bringing about the kind of changes desired by development agents. Some of these technologies are not congruent with the local cultural practices, institutional arrangements and ecological conditions and so in most cases people end up discarding them while others redesign them to fit to their needs and beliefs (Mango 2002).

Farmers' experiences with crop production technologies in Siaya County has been documented as constituting processes of interlocking, re-assembling (re-designing) and distancing (which are elaborated in chapter 2) from introduced technologies (Mango and Hebinck 2004, Mango 2002). Farmers diverge from the mainstream activities of the planned interventions and get more involved in their own practices that have little or no connection with the development projects and this forms the basis of agrarian change(Mango 2002). Imposing change to people can create resistance although it can also facilitate change (Stiglitz 1999) and in this way the social actors, and particularly the end users (farmers), are said to interlock with and distance themselves from planned changes (Long and Ploeg 1994).

Even though farmers may interlock with the new ways of crop production, some adopt for reasons that are different from the aims of developers. For instance, from the quantitative and qualitative research done by Place et al. (2007), 'most farmers in western Kenya adopted agroforestry system, not because they were really interested in increasing their maize production as intended by ICRAF, but because it was a way in which they could build social networks and also make money from the sale of improved fallow seeds that they sold to research and development organisations'(Place et al. 2007 :320). From my field data, I also found out that the farmers were more interested in the money they got from the sale of improved fallow seeds to MVP than the use of improved fallows for soil fertility replenishment as expected by MVP. Thus farmers make use of the opportunities availed to them and mostly in the way they deem fit for themselves rather than turning their backs on the introduced technologies which can as well be seen as a gift. Who refuses a gift anyway?

The MVP, which claims to incorporate bottom up approaches by promoting active community participation, is no exception in this planned development phenomenon. Carr (2008) points out that the "descriptions of the MVP as a 'bottom-up' approach are questionable, given the project's reliance on pre-conceived definitions of problems and pre-packaged solutions to address poverty at the village level" (Carr 2008 :334). The project's strategy was seen as the ideal plan to end extreme poverty within a short time through the revitalization of green revolution to increase food production in Africa. The project has followed the similar trajectory of planned development with the hope of, among other things, eradicating extreme poverty in Sauri sub-location to demonstrate that the MDGs are achievable. The project is phasing out, having achieved similar results as most planned development interventions, according to the respondents who felt that they (local people) have gone back to the same situation that existed before the implementation of MVP-poverty. This is, however, despite that a lot of resources were used in the effort of creating change and the local communities actively participated in implementation.

Implementation of MVP required massive investment from the donor society and one of the key development intervention identified were crop production inputs for increased production in order to eradicate hunger and extreme poverty by the year 2015. These crop production technologies include hybrid seed varieties, fertilizers, improved fallows, irrigation as well as green manures and cover crops (Sachs 2005 :232-233). Farmers were given free inputs at the beginning that saw tremendous increase of crop production at the initial phase of the project. They were also introduced to formal organisation system to facilitate credit and market access (Mutuo et al. 2006). However, with time, most farmers have either stopped using the introduced technologies or use them in ways they deem fit for themselves while very few farmers use the technologies as prescribed by MVP for various reasons as elaborated in this report.

The study therefore explored farmers' interactions with crop production technologies and new systems that were put in place by MVP in Sauri. It investigates the mechanisms through which new crop production technologies were introduced in Sauri and how the farmers interact with them or rather the extent to which farmers are involved in the processes of interlocking, reassembling/redesigning and distancing. This study stemmed from literature on studies that pinpoint non-linear progression of development interventions and highlight development as a social process in addition to a technical process. Social actors interact with each other, negotiate and renegotiate meaning and use of introduced interventions (Carr 2008, Long 2001, Long and Ploeg 1989, Mango 2002). However, development agents do not recognize this fact and assume straight forward progression of the interventions towards the desired outcomes. In an earlier study by Mango (2002), it is noted that most farmers still use their traditional knowledge in most of their farming activities even after having been exposed to modern ways of farming (Mango 2002).

The empirical chapters (7 and 8) detail the findings which embody different scenarios where the first one shows why and how farmers interlock with crop production technologies while of the other one details the farmer's concerns and actions around distancing from and redesigning of new technologies in Sauri. They highlight the multifaceted nature of development to bring out the fact that, as Hebinck (2013) puts it, 'there are so many things that go on within the villages and at grassroots level that the development experts and policy makers assume' (Hebinck 2013 :4). The following is an overview of the organisation of this report.

1.2 AN OVERVIEW OF CHAPTERS

This report is organised in different chapters. Chapter one provides the background information of the study. Chapter two is a literature review of planned development that mainly explains the planned development concept and elaborates on various examples of planned development and especially how farmers have been reacting when faced such interventions. It also projects that changes occur gradually and discusses various critique on models of development that have existed before. In this chapter, actor-oriented approach which provides the framework for this study is also explained as well as the problem statement, research objectives and research questions. Chapter three is about the methodology used as well as the study context. The study employed qualitative methods of data collection and analysis (thematic content analysis). Primary data was obtained from two months' fieldwork that began in December 2013 till February 2014 in Sauri sub-location, Yala division, Siaya County in Nyanza Province. The chapter also includes the significance, limitations and ethical considerations of/during the study.

The historical depth of the farmers' interactions with various interventions in western Kenya is elaborated under chapter four. It explains how farmers have been dealing with induced changes in the past where the processes central to this study are depicted. Historically, farmers have been subjected to various interventions and have been eager to try them out. However, the 'excitement' about the new ways of crop production would diminish after sometime. Chapter five is a broader elaboration of the Sauri Millennium Village. It includes how the MVP landed in Sauri, key players and generally the operations of MVP in Sauri since the time it was initiated up to now. These are the crop production technologies introduced and the formal organisational system as designed by the project designers for facilitation of credit and market access by farmers.

The last three chapters are the empirical and conclusion chapters. Chapter six explains how farmers in Sauri have been able to adopt the introduced technologies and this is brought out by exploration of various factors leading to it. On the other hand, chapter seven elaborates on why and how farmers reassemble and also distance themselves from the MVP technologies while chapter eight is the conclusion of the report.

CHAPTER 2 LITERATURE REVIEW OF PLANNED DEVELOPMENT

2.1 INTRODUCTION

According to Dusseldorp (1990), there is a realisation from general experience that planned people-oriented development through projects, very rarely follow the progression as specified in the plans of the developers and thus it is not possible for development agents to achieve a certain future that they conceive as ideal in the exact manner they foresee it through planned development (Dusseldorp 1990 :337). Planned development is mainly aimed at bringing about social change to the people and especially a strive to end poverty in developing countries that have traditionally been the recipients of development assistance. However, the transmission process has never been linear since the local people (farmers) organize themselves differently either as individuals or groups in the face of planned development from development organisations or the governments. They devise their own ways of dealing with the changes that are brought to them in a way that the outcomes of such interventions result from the kind of interactions that ensue between them and the intervening parties (Long 2001 :25).

So then, what is planned development? Paudyal (1994)conceptualizes planning for development as "a process of making decisions about alternative ways of using available resources with the aim of achieving particular goals at some time in the future" (Paudyal 1994 :20). Planned development in this case is therefore the kind of (agrarian) development that mostly concerns the engagement of the government and/or other agencies in bringing about general economic and social changes (Pongquan 1992 :36 Quoting Conveyers, 1982) to the local people by making decisions on what needs to be done in order to bring about change. In this kind of development, local bodies of knowledge encounter scientific knowledge and result in (re)production of heterogeneity which is a structural feature of agrarian development. Clashes and frictions are inevitable in such an encounter (Hebinck 2001 :119).

In this chapter, I review the literature on planned development. Such a review will provide me with a critical orientation on how to study planned development, what questions and issues arise and what key processes arise as key to make planned development researchable. It also includes a critical view of planned development implemented in different parts of the world. I begin with broader set of literature to capture experiences. After that I will elaborate the three processes, interlocking, redesigning/reassembling and distancing, which I have identified as significant and central to my research. These three processes are instrumental for the formulation of the problem statement and research questions, allow me to gather data, order and interpret the data and make it presentable in the form of a thesis.

2.2 THE LATEST DEVELOPMENT MODELS

In this section, I revisit the latest development models (planned development) and their effects in the developing world, citing examples from some developing countries and this reveals human agency in the process. The section also includes how the idea of MVP was born within the planned development model.

There have been different strategies of development set forth by development leaders in the past in order to engineer development in areas or countries that were deemed underdeveloped. Encounter of these planned strategies with the local social actors produced 'unexpected' results. The models of development presented to developing countries since 1980s impacted differently on different categories of people. There has always been a successive model to try and pick up from the shortcomings of the previous one. The MDG model is the latest one which brought about the idea of MVP across African countries.

Prior to MDG model of development, Structural Adjustment Policies (SAPs) were imposed by the International Monetary Fund (IMF) and the World Bank in the 1980s. States in developing countries were required to reduce control over markets and embark on privatisation. The rationale behind Structural Adjustment Programs was motivated by the assumptions that the unfavourable economic positions in developing countries was due to poor governance, the state intervening too much in the markets, excessive government spending and much state ownership which called for privatization, liberalization and good governance (Sachs 2005 :81).

SAPs had adverse effects in the economies of developing countries. In Latin America for instance, reduction of the government´s expenditure or rather the fiscal adjustment was implemented at the cost of social expenditure (just like in the other developing countries). Additionally, liberalization of markets was aimed at benefitting everyone including the poor by effective allocation of resources more than the state could do and the market was supposed to be self-regulatory. However, decades later after Latin America had opened up liberalization policies, the market has not been regulating itself and the gap between the rich and the poor has instead increased (Hazell and Wood 2008 :7). The negative effects of SAPs are evident in most countries in Latin America which is contrary to the growth and economical change expected from implementation of the policies. Hazell and Wood (2008) explain what happened in Bolivia due to implementation of the policies-:

> "Neo-liberalism came to Bolivia in 1985, when the government privatized most state-owned industries, and cut social services. Although manufacturing grew during this time, it soon became fragmented and decentralized into small workshops, therefore, destroying the once powerful unions. Between 1989 and 1996, the number of permanent jobs dropped from 71 percent to just 29 percent of all employment. But despite all these negative effects, the IMF praised Bolivia as one of Latin America's best examples of globalization. Twenty years later, Bolivia is the poorest country in South America"(Hazell and Wood 2008 :5).

In Kenya, removal of the government subsidies as a way of reducing government expenditure affected directly to the poor people. Just like in Latin America, costs for services that were otherwise provided by the government went up with the impact being felt by the users who had to bear the increased costs. There was little or no considerations that were made to ensure that people across the country were able to meet the increased costs which implied that the poor suffered more. Additionally, the liberalization of markets led to deprivation, deterioration of living standards of many people and further cementing of poverty. This is due to the fact that, for instance, removing of food subsidies made that the low income earners like the farmers would bear the costs of increased food stuffs which were supposed to be served by the subsidies. This thus resulted in reduced food

production. Liberalization and privatization of economy was liable to poor planning, inefficiency and corruption (Kang'ara 1998 :113-115).

Since the plan was meant to improve the economic conditions in the country as well as the rest of the developing countries, it is clear that the aims were not achieved. This can partly be explained by the way social actors engaged themselves in response to the new policies. For instance, in Nyanza province, privatization of sectors did not work because many privatized businesses such as the sugar and textile industries as well as the coffee sector collapsed due to corruption that led to farmers reducing on their production of cash crops and instead growing food crops. Again, this affected the flow of inputs and outputs in the markets (Mango 2002 :55). Corruption is a social process in which individuals get involved to promote their interest/goals/desires/preferences and act towards achieving them (Warburton 2001 :222). Some people (especially the managers) saw opportunities within the privatized businesses or sectors and reworked it out in favour of themselves through corrupt dealings (Mango 2002 :55).

Stiglitz (1999) argued that the set of policy recommendations in which the Washington Consensus or rather the SAPs focused on were not sufficient. It focused on trade liberalization and privatization as ends rather than means through which a more sustainable, equitable, and democratic growth could be achieved. It did not recognize the importance of strengthening financial institutions. Little attention was paid to the strengthening of institutional efficiency to make markets work, and especially to the importance of competition. In other words, the SAPs model did not consider the 'underlying factors' of life in the rural areas which prevents households in the rural areas from participating in the market. He therefore advocated for a paradigm that would be based on a broad conception of development that would have related broader vision of development strategies as well as positioning the role of international development assistance at a different angle including a different way of delivery to the people. In short, the earlier development paradigms viewed development too narrowly (Stiglitz 1999 :1-2).

The latest strategy developed by the world development leaders was the MDGs in the year 2000 at the Millennium Summit where they set forth eight goals that `would lead´ to transformation of society (Sanchez et al. 2007, Stiglitz 1999). "The MDGs are a set of eight Goals, 18 Targets, and 48 Indicators which are based on the Millennium Declaration signed in 2000 by all United Nations (UN) member states, and scheduled for fulfilment by 2015. They have been described as *the world's biggest promise*" (Wilson 2013 :2). In other words, they are basic human rights aimed at addressing the world's extreme poverty in a time bound manner and with quantified targets at a broader scope. Extreme poverty has many dimensions which include income poverty, hunger, diseases, and lack of shelter and exclusion which could be addressed while promoting gender equality, education and environmental sustainability at the same time (UN-Millennium-Project 2005 :1). These eight international development goals were deemed too important to fail. The MDGs were packaged and promoted as an ideal model that would be capable of overcoming the limitations of previous approaches.

However, the MDGs, as targets set for addressing extreme poverty by the year 2015 (Binagwaho and Sachs 2005), did not seem to bear much fruits as time progressed and thus MDG-plus was required to facilitate the achievement of MDGs since it was realised that there was a likelihood of failing to

achieve the goals by the end of the specified time in most countries in Sub-Saharan Africa. The UN Secretary-General Kofi Annan commissioned the Millennium Project to produce a strategy for the achievement of the Goals, which was then implemented in the Millennium Villages. Headed by Jeffrey Sachs, the Millennium Project comprised a 'task force' including representatives of the World Bank, the IMF, UN agencies, 'civil society', and the private sector (Wilson 2013 :7). Sauri MV was set up in Siaya County in Kenya as a pilot project to help the international community from its experience in order to benefit villages located in other parts of Africa or elsewhere(Sachs 2005 :228). The MVPs were scaled to other countries like Uganda, Tanzania, Rwanda, Ethiopia, Malawi, Senegal, Mali, Ghana, and Nigeria. The key interventions within MVPs were the agricultural inputs that would increase production, a green revolution attempt in Africa.

2.3 MVP- A MISPLACED HOPE?

MVP emanated from the big push approach. It was largely assumed that the poor countries entangled in poverty traps and the only way out was through large-scale interventions. These would be in terms of ODA (Official Development Assistance) so that they increase their income to a level that is above a critical point. MVP therefore is based on the assumption that the big-push ideas would be effective in the rural communities and considers agricultural sector as the licence to development of the economies of these countries (Sachs 2005, Wanjala and Muradian 2013). It was envisioned that, the MVP, which is a brain-child of Prof. Jeffrey Sachs required financial injection that is rather too little in the donor society but translates to very high amount on the side of the recipients. Sachs therefore outlined what he referred to as the ´big-five´ development interventions which the UN Millennium project and Sauri community identified as crucial for change.
Investments were made correlating to the eight MDGs (Sachs 2005).

MVP was piloted in Kenya and scaled up in other African 'impoverished' villages. These villages are said to have been carefully selected to represent each of the twelve principal agro-ecological zones (geographical areas exhibiting similar climatic conditions that determine their ability to support rain fed agriculture) and farming systems in Africa (Mutuo et al. 2007 :7). This was based on the proposition that "a green-revolution-style breakthrough in smallholder farm productivity is central to escaping the poverty trap throughout rural Africa and that an African Green Revolution is crucial for the dual purposes of tackling hunger and for kick-starting rural economic growth by raising productivity and rural incomes" (Hobart 2002 :10).

In order to proof that 'the MDGs were achievable in a 10 year time frame at the local level, the Millennium Village communities partnered with local governments, The Earth Institute at Columbia University, The Millennium Promise Alliance, UNDP, and other development partners through participation and empowerment of the communities, investments and capacity building in different sectors' (Mutuo et al. 2007 :7). This global cooperation, according to Sachs (2005), had been used in the past in order to bring about change around the world. Examples that justified this included the Green Revolution in Asia (described in the next section) that was donor funded and provided high yields to end hunger, successful campaigns for eradication of smallpox in the 1950s and polio in the 1980s, global alliance for vaccines and immunizations and also campaigns for child survival (Sachs 2005).

MVP assumes homogeneity of African communities. Sachs (2005) notes that the villagers are so impoverished and cannot get started on the path to development thus they need to be assisted (kick-started) (Sachs 2005). There is a big assumption that the villagers are composed of a 'homogeneous mass of subsistence farmers' who are willing to participate in the market but they are hindered by lack of capital. For instance, Carr (2008) noted that even though it is said that the MVP team identified specific problems, causes and solutions together with the community, the 'community' is a heterogeneous group that is composed of individuals and groups who have diverse world views and needs(Carr 2008 :336, Wison 2013 :9).

On the other hand, Wilson (2013) views the MVP as 'model village-style social experiment' whereby massive investments are made in integrated programmes at a village level through planned interventions. He compares MVP with the Rural Cities Project in southern Mexico that also aims to achieve the MDGs. They both embody a re-emergence of model villages constructed under the support of colonial and post-colonial states in developing countries. Each of the village at that time was made to produce an idealised society that would represent a certain envisioned social order (Wilson 2013 :1-2).

The typical villages in SSA comprise of heterogeneous groups of people and differentiated individuals some of whom are powerful business-oriented farmers and already engaged in global markets while others may be small scale farmers who depend on family labour and produce for subsistence purposes. In short, the 'African village' has been misinterpreted and this makes it vulnerable to unintended consequences of the project implementation. For instance, the inputs provided by the project such as fertilizers, improved fallow seeds and hybrid seeds are vulnerable to 'elite capture' where the most powerful community members benefit more. Similarly, the improved soil fertility in the model villages will likely attract large landowners who will be willing to buy the land for large scale production while the impoverished smallholders will be willing to sell land due to its increased value(Wilson 2013 :9).

The kind of development that the model tries to realize in its miniature form, according to Wilson (2013), is not significant as compared to the fast populations in similar situations outside the model villages. It is noted that such development is not sustainable and once funding is withdrawn, their successes are eroded which leads the local people to keep relying on aid or otherwise revert to the use of their traditional methods of production and so some extent remain in poverty (Wilson 2013 :14). Thus 'the hope for a 'better' development that MVP came to exemplify maybe a misplaced hope' (Carr 2008 :333).

2.4 THE GREEN REVOLUTION AS AN EXAMPLE OF PLANNED DEVELOPMENT

The above brings me to a closer look at green revolution which is "a package of high yield variety seeds, fertilizers and pesticides, was a planned intervention designed to raise the production of basic grains and cereals in developing countries, thereby making them self-sufficient in food production" (Sisaye and Stommes 1985 :39). During the time of introduction of green revolution in various countries in Asia and Latin America, a lot was happening at the village and individual levels as well as

among various actors before it could be said to be a success. I will therefore discuss generally about green revolution then zoom in on how social actors positioned themselves during the process.

By the middle of the twentieth century, most industrialized countries had achieved sustained food surpluses and many developing countries, such as Asian and Latin American countries, followed suit (Hazell and Wood 2008). Research on the suitable varieties of high yielding seeds in regions with tropical and semi-tropical climates started as a Rockefeller Foundation project in 1941 which sort to come up with high yielding variety (HYV) for wheat seeds in northern Mexico. This brought together professionals from different backgrounds such as agronomy, biology, plant genetics and others from other specializations. Hybrid wheat seed varieties developed successfully and Mexican farmers gradually (as later explained in this section) adopted them. Similarly, international research centres were set up in other countries in the developing world with the research centre in Mexico becoming the International Maize and Wheat Improvement Centre in 1966 which expanded its research programme to other cereal grains apart from wheat and maize.

The research activities that took place at that time led to the concept of 'green revolution' which was the first phase leading to development of high yielding varieties (HYV). The second phase then followed which involved (was to involve) the successful application of the HYV which come in a package that has to be used effectively with the right application amount of fertilizers and good supply of water. Green Revolution also involved the strategies used to deliver the HYV package to the farmers and through which assessments were made concerning the hybrid package impact as regards to food security as well as bringing about structural changes in socio-economic and political aspects in the areas of introduction.

The diffusion of green revolution involved the work of extension agents who would guide the farmers in the best ways of HYV package application. They would convince the people into using the new technologies due to their proven high yielding capacities despite the fact that they were expensive, farmers not being familiar with the husbandry practices and the use of credit. These extension agents worked closely with model farmers who would serve as examples of how HVY would be used practically so as to teach the adoption of HVY package to the poor and subsistence farmers (Sisaye and Stommes 1985 :43-44).

Staple crop production is said to have increased especially in per capita and this increase is attributed to use of the green revolution technologies which include fertilizers, improved seed varieties, mechanization, irrigation and pest and disease control. Sub-Saharan Africa (SSA) is the only region which has not been able to achieve this sustained food surpluses. Its population is growing but the yields of major crops are still very low with the average yields three times less than those produced in Latin America and South Asia (Hazell and Wood 2008, Nziguheba et al. 2010). Generally, green revolution in Africa has not had sustained success in food production that would surpass the increasingly growing population of Africa (De Groote et al. 2005 :33).

Below is an example of green revolution (in Asia) that shows how a regime that resulted from planned development and supported by aid has become the basis in which food policies are formulated in other developing areas as well as technologies and how institutions are set. However,

it is important to note that the process of agrarian change was not just a linear one and additionally, it required commitment, support and understanding of all stakeholders involved.

Yuksel (2013) explains that 'the green revolution in Asia began in the mid-1960s, from where the narrative surrounding food insecurity was created. The definition of green revolution in this particular context is expanded to go beyond the narrow view of just technology based to a broader view that includes other components as socio-economical, geopolitical context, domestic realities, state interventions, markets and policy process. It all started as a result of increasing global food crisis which saw donors and national governments focus more on agricultural production so as to deal with the crisis. Technology in food production was used and breakthroughs in crop breeding followed which led to improved wheat production in Mexico and rice in Asia.

Development practitioners and governments in Asia created programmes within the green revolution. Science and politics were merged in the sense that technology was used as well as political control of the programmes in a positive manner. Even though green revolution has been narrowly expressed as a set of technological packages that were mostly delivered to Asia and Latin America in the 1960s, the process involved complex blend of technical, political and economic factors. The governments were actively involved in the control of aspects of agricultural supply chain and also creation of input subsidy programs. The states were involved in all the stages right from the procurement of inputs through to the subsidy programs and marketing.

Politically, Asia was very much committed to the green revolution. For instance, India implemented a mixture of rural development interventions which included large public investments and policy interventions which provided favourable grounds for adoption of agricultural technology. During this time, government investments in the rural areas increased five times and this showed the extent of political commitment to increase agricultural income at all levels of the government. At the same time the governments were committed to strengthening rural productivity, the donor society was also committed to its role in agricultural development. Generally, the green revolution is said to have led to doubling of food production, reduction of the rural poor and a considerable reduction of main cereal crop prices' (Yuksel 2013 :44-48).

In Africa, attempts have been made to bring forth green revolution as the one in Asia saw a great improvement in crop production which accounted for 66-88% of the yield increases (Sanchez et al. 2007). In SSA, per capita food production has remained stagnant over the past 40 years. This has been attributed to lack of adoption of improved crop germplasm or even their unavailability within the region and poor state of soils which have been depleted for decades through removal of nutrients with crop harvests and failure to replenish them with good amounts of fertilizers, mineral or organic (Nziguheba et al. 2010, Sanchez 2002). Since the Asian green revolution concentrated more on wheat and rice but not on traditional food crops grown in Africa such as millet, sorghum, cowpea, cassava etc, the African staples like maize received less attention and funding. However, there have been some improvements that have been made on maize such as the hybrid maize grown in Zimbabwe and Kenya although still maize did not get as much attention as wheat and rice did (De Groote et al. 2005, Yuksel 2013 :49-50).

Agriculture is seen as a major boost to African economies and so there is increased attention towards agriculture in many African countries which can serve as an 'engine of growth' for their economies. For Africa to overcome its food crisis, Yuksel (2013) suggests that more focus in agricultural productivity is required along with a focus on the smallholders so as to bring forth a more equitable and sustainable African green revolution (Yuksel 2013). It is claimed that the biasness against small hold farm sector is a major obstacle to increased food production in SSA. Conversely, it is said that green revolution technologies are not applicable in SSA which then leads to misguided policy directives in crop breeding and agricultural research in addition to dismantling of extension services which is counter-productive. Additionally, many governments rely on importing food grains since they are lowly priced and also due to wrong advice (Djurfeldt 2005).

In Kenya, the green revolution in maize evolved in stages. In the first stage, 1964-1974, mostly farms producing at a large scale adopted more the use of fertilizers and hybrid seeds. The second stage which was between 1975 and 1984 saw more smallholder farmers especially from the high potential areas adopt more the use of new crop production technologies to a point of being equal in adoption rates as the large scale farmers. And during the third stage, 1985-1991, small holder farmers adopted in the low potential areas adopted the use of improved seeds but with low fertilizer usage.

Adoption has, however, slowed down since 1980s as the introduction of the Structural Adjustment Programmes had consequences for smallholder farmers who could not cope with the rising prices of inputs as a result of market liberalization and ban on fertilizer subsidies. The farmers had to prioritize on their expenditures. Around the same time, "the scientific and institutional cooperation that created the maize success story of the 1960s and 1970s collapsed in the 1980s due to weakened public financial support for research with a subsequent general decline in overall maize production" (Djurfeldt 2005 :68 quoting Hassan and Karanja, 1997:90). From 1990s, production of maize has been on decline to a point of hitting 2.2 million *t* in 2000, a drop from 3.1 million *t* in 1988. Achievement of sustained increases in maize productivity has been very elusive in Kenya as a country (Djurfeldt 2005 :184).

Despite the said success of green revolution in many parts of Asia and Latin America, a lot ensued between the social actors in those continents. It is noted that success was not equitably distributed as the wealthier populations adopted more to the introduced technologies at that time than the less wealthy. This is because those who were better off benefitted from the situation which prevailed as things such as power relations and politics were not were not well tackled within the communities and this saw ineffectiveness in input programmes delivery. Consequently, the green revolution was experienced differently in different regions with some regions receiving more attention than others and also across social classes (Yuksel 2013 :48-49). This implies that the future of the development intervention depends a lot on the relations among the actors since people have different interests and respond accordingly in the face of interventions.

The early green revolution diffusion by use of the extension agents that originated from United States presumed education as the primary way of diffusing the technologies. "By teaching farmers about the HYVs, extension agents were expected to bring about high rates of adoption among all groups of farmers. When farmers failed to adopt the technology as expected, it was assumed that they were resisting change because of ignorance or because traditional attitudes prevented them

from becoming a 'modern' farmer" (Sisaye and Stommes 1985 :48). However, farmers have their own way of looking at the new technologies that are introduced to them. For example, from a study done (according to Sisaye and Stommes 1985) of a Mexican village that rejected the use of the new technologies, it was found that farmers were aiming at achieving maximum food production but within their local production systems. Adopting the new crop production technologies was seen as an exposure to unquantifiable risks that would see farmers accumulate debts and probably lose some of their wealth such as land due to pay off debts (Sisaye and Stommes 1985 :49).

There were many assumptions and beliefs that were not stated in the HYV package that was solely developed to increase food production. For instance, the fact that the package was going to result to changes in traditional agricultural practices was not addressed. Imposing the use of HYV package meant a change in socio-economic and political atmosphere in the rural areas. Again, the package required more than just its sufficient application to include broader aspects like infrastructural, economic and administrative capability. This would facilitate the supply chain as well as the application of the package by the farmers. Successful adoption of the HYV package partly depended on the availability of such support systems on the ground and thus 'transplantation' of the new HYV system to people with totally different ways of life and socio-political and economic environment meant encounter with incongruence of the existing structural and belief systems.

Pushing farmers to adopt the new ways of farming seemed like implying that the farmers did not have an existing local system of reference and were just as ready to take up the 'modern' ways of farming of which has not been the case since the local people possess own knowledge and interest in their local agricultural practices. Due to the absence of supporting systems, there was a need to do assessments to determine the likelihood of the emergence of a modern system. However, the extension agents, as social actors charged with the responsibility of technology dissemination to farmers, belonged to the elite class and saw manual labour as a thing for the poor. They focused more on the large scale farmers than on the poor from which assessment conclusions were made (Sisaye and Stommes 1985 :49).

It is claimed that despite the numerous attempts that have been made to introduce successful green revolution in Africa and more specifically in SSA which includes Kenya, these programmes have not seen much success. According to various authors, some of the major reasons, just as discussed, include generally lack of supporting systems (political support) by the governments (Yuksel 2013), environmental factors that include poor soils, inadequate water for irrigation and also weeds, crop pests and diseases (Sanchez et al. 2007, Sanchez 2002), lack of understanding of local people's traditional agricultural practices, corruption (which implies a different way of people's engagement with interventions to suit their desires) (Mango 2002) and low adoption of improved seed varieties (Nziguheba et al. 2010 :19).

2.5 THEORETICAL FRAMEWORK

From the examples in sections of this chapter, it is clear that planned development takes twists and turns and that agrarian development does not only involve technical processes, but also social processes. The people involved in development affairs, especially the target population and project staffs, engage with the interventions in a way that benefits them (for instance, involvement in

corruption by managers or rejection of new technologies by farmers for fear of unknown risks) and these have implications for planned development.

In order to better understand what farmers finally do with the crop production technologies introduced to them by MVP, I focused on how actors deal with each other making sense of such technologies. Adopting such a perspective enabled me to comprehend how farmers in Sauri interact with crop production technologies brought to them with the aim of improving crop production for alleviation of hunger.

Modernisation perspective has been dominant in informing development agencies on development planning. However, it follows the thought that poor countries can be said to be developed only if they are at the same level with the rich countries. "It is excessively Eurocentric in terms of its account of the universal supremacy of Western rationalism and Western institutions. It basically says: if you want to develop, be like us" (Peet and Hartwick 2009 :104). Modernisation follows one-way direction of how social change should occur and treats scientific knowledge with more superiority to traditional knowledge hence the categorization; tradition-modern, developed-underdeveloped. It also assumes that, the only gateway to modernisation is through the use of scientific knowledge. This knowledge by itself requires quantification and thus homogenizing elements which are heterogeneous in nature. In the process, there is lumping up of elements of change such as the kind of activities people do, their social composition and so on. The theory also treats culture as an impediment to change rather than the one which also facilitates change (Hobart 2002).

However, people's practices, their experiences and responses to planned development need to go beyond modernisation; people question modernisation by disengaging with such models of development that hinge on modernisation. They also engage differently with the interveners and develop different practices which modernisation does not capture. What is required theoretically is capturing heterogeneity and this is what actor oriented approach provides a framework for. In the field, I encountered different social processes which cannot be explained by modernisation. Farmers in Sauri sub- location engage in varied farming practices, for example, combining of the traditional and scientific knowledge through significant processes.

2.5.1 ACTOR ORIENTED APPROACH

This research applies actor oriented approach which has been developed and promoted by Prof. Norman Long (2001) who points out that development involves complex processes of interactions of heterogeneous group of people with interventions. In this approach, the notion of human agency is central. It attributes knowledge and capacity to the individual social actors to process social experiences and come up with ways of coping with changing situations (Long 2001 :16). 'Social actors are those who can be said to have agency in regards to possession of the knowledgeability and capacity to gauge problematic situations and arrange for suitable responses. They are not only individuals or informal groups/interpersonal networks but also organizations, collective groupings (or rather coalition of actors) and what are sometimes called 'macro' actors, for example, a particular national government, church or international organization' (Long 2001 :241). In this study,

the social actors include farmers, farmers' informal organisations, credit bank (equity bank), NCPB, fertilizers and seeds companies, cooperatives, national government through the extension office and municipality.

Structural changes may be as a result of external influence but this does not mean that the interventions from outside enter the life-worlds of individuals and groups involved without being transformed by the social actors and structures already in place. The social actors are not then to be portrayed as passive participants in terms of receiving and adopting new technologies but as active participants who have the knowledge and capacity to select or modify introduced technologies in line with their significance to their lives. They engage actively in constructing their own social worlds hence their life-worlds are not predetermined by the logic of the capital or interventions (Long 2001, Long and Ploeg 1994).

This approach gives emphasis on how farmers themselves contribute to shaping the ways in which agriculture develops. It projects that the various patterns of social organization result from continuous processes of struggle, negotiations and interactions of different actors regardless of whether they are physically involved in the face to face encounters or not. It gives one the advantage of being interested in looking at differentiated responses, even in seemingly homogenous conditions, to structural circumstances that are similar (Long 2001). The farmers' agricultural practices are thus developed through an arena of struggle and processes of change that are complex, heterogeneous and at times contradictory in which they respond in different ways as individuals (Hebinck and Ploeg 1997).

In order to understand Sauri farmers' experience with agrarian development technologies, this theoretical perspective is appropriate as it shades light on how farmers interact with new crop production technologies. Additionally, transfer of the crop production technologies in Sauri involve different actors like the farmers, administrative staff in government institutions, project staff and designers, private sectors like banking systems, marketing structures etc. The use of actor approach in this study contributes to better understanding of the linkages between household level actors (farmers) and other actors at different levels and more specifically how farmers internalize different crop production technologies brought to them.

This approach in practice implies that the MVP is a social process and the farmers have agency. They influence each other. From my field work data and the literature review on planned development and the approach of this study as well as an earlier research done by Mango (2002), I have identified three processes (concepts) that are fit for this research as they can well explain this fact. Elements of interlocking, redesigning or reassembling and distancing are projected in those sources of information. They frame the understanding of actor responses to interventions and eventually how agrarian changes occur.

2.6 KEY CONCEPTS (PROCESSES)

The following concepts/processes are central in this thesis as they form the basis of the main arguments projected and by themselves speak out about the responses of farmers in Sauri when subjected to new interventions.

2.6.1 INTERLOCKING

"Interlocking is a process of forging particular links between institutions and particular groups of farmers" (Mango 2002:13). In this thesis, interlocking implies well blending of the farmers´ ideas (or ways of life) and traditional ways of crop production to those introduced by the MVP. This process result in modernized forms of farming where farmers eventually use modern technologies in their practices as well as commodity markets as introduced to them by the different actor groups (Mango 2002). Some farmers are very interested in the new technologies and are eager to try them out. They follow the policies and rules of usage as set by the interventionists. This also includes joining and participating in new structural organizations laid by the project designers which include production and marketing organisational systems aimed at facilitating and sustaining the use of new technologies.

For instance, some farmers in Sauri are now using the introduced technologies as prescribed by the project staff as well as maintaining their links with the new market systems. They have joined one or more cooperative societies for ease of access of inputs as well as facilitation of marketing of their farm produce.

2.6.2 RE-ASSEMBLING/RE-DESIGNING

Some farmers do not entirely make use of the new technologies brought to them for improved crop production. They tend to mix the traditional farming practices with the introduced methods of crop production which involve different farming practices and this result in *hybridity of practices*. Long (2001) defines hybridity as ' the mixed end products that arise out of the combining of different cultural ingredients and repertoires' (Long 2001 :51). Farmers have their own desires, interests and knowledge that emanates from various historical processes including intergenerational exchange, cultural beliefs, livelihood contexts and previous interventions that play a role in further development of their farm. This serves to offset the ideas passed to them by the interventionists and respond adequately towards the internalization of new technologies (Hebinck and Ploeg 1997).

Re-assembling is as a result of encounter between externally developed innovations which are scientific in nature and the local knowledge that farmers possess. In their confrontation with scientific knowledge, farmers mould them with their local knowledge in a way that fits them as regards how they go about their farming practices (Mango 2002 :14). The technologies come as a package (explained in chapter 5); with prescriptions of how they should be used. This is however, unpacked differently by farmers.

Farmers in Sauri transform introduced technologies as well as the local structures into forms that suit their local situation and meet their needs and capacities. For instance, it is in the Luo culture that the elder people in a homestead do planting as well as harvesting first before younger ones can do the same. However, the hybrid maize requires to be planted in good time. This conflicts with the traditions as the young people who want to plant early enough cannot do so before the elder ones have planted. Therefore the prescription is modified by the farmers to suit their cultural demands as the younger people have to wait for the seniors to plant and this at times would mean planting hybrid seeds even at the 'wrong' time.

From my interaction with farmers, I understand that farmers have knowledge and capability to decide and act for themselves on what to absorb and how to make use of it in a way that does not compromise their own way of living. They also make use of the external groups and individuals for their own benefits.

2.6.3 DISTANCING

Farmers disassociate themselves from the introduced technologies by completely rejecting the new technologies or showing no interests in them to seek for own solutions or maintain their own local structures of livelihoods (Mango 2002 :13). Distancing implies de-linking from earlier on interlocked interventions as well as rejecting the use of new technologies altogether. However, in this thesis distancing is more depicted in the way farmers have delinked themselves from the use of the introduced technologies and new ways of community organization than rejection altogether. This is because when MVP was initiated in Sauri and farmers were offered free inputs, some were sceptical about it and did not want to use the new technologies. However, upon realization of how beneficial the inputs were after the first bumper harvest, they all wanted the inputs of which most of them used but started to distance themselves with time.

Distancing is also shown in the way farmers dissociate with new ways of social organization as introduced by the project. Most farmers in Sauri are peasant farmers who use the available capital in production in order to enhance their livelihoods. Peasant farmers, as Van der Ploeg (2008) explains, use family owned land as well as family labour for production and form their own peasant institutions that facilitate their struggles for autonomy against environments that they deem unfavourable and which they are exposed to (Van der Ploeg 2008). They strive to be 'self-provisioning' which implies that they struggle to reduce dependency on resources from outside as they keep improving on the kinds of resources they own. And thus in this way they 'distance themselves from the dominant socio-technical regime'(Van der Ploeg 2010 :6-7).

This has seen farmers in Sauri sub-location; for instance, make use of farmyard manure, *tithonia* or even household wastes to improve fertility of the soils in their farms.

2.8 PROBLEM STATEMENT

Planned development has always assumed a linear progression towards the intended results or change in planning (Long 2001). Likewise, the MDG model assumes a step by step progression towards achievement of the MDGs by the year 2015 which brought into picture the initiation of MVP in Sauri in order to catalyse the process of achieving the MDGs. Like any other planned development, the MVP was decided upon and designed externally. This initiative follows the similar trajectory as many other development models that have been previously projected in developing countries with the aim of bringing about development to the local people even though MVP claims to integrate top down and bottom up approaches for effectiveness.

Various mechanisms were employed by the MVP to capture farmers' attention to the new technologies and again persuade them to use the technologies. They offered free inputs in the first two years of initiation as well as free capacity building through trainings, demonstrations and intense community mobilisation by encouraging community participation in its activities. They also used to buy improved fallows seeds from the farmers so as to encourage them to plant more improved fallows.

In planned development process, interlocking (basically adoption) is the only process that the development agents recognize as development. The MVP designers as well as the previous implementers of various development projects in Siaya County have had a clear objective of development which implied straightforward advancement right from initiation of the projects till the end. However, farmers in Sauri community have differential responses to the new crop production technologies introduced by the MVP. In as much as some farmers may adopt the new ways of farming, the processes of reassembling and distancing are predominant and relevant but often ignored by development agents who want to witness only interlocking process in order to determine success of a project.

Individual members of a community have different preference, desires and interests emanating from their agency which is reflected in the way they interact with introduced technologies and in this case crop production technologies. The local people are subjected to interventions which they continuously redesign/reassemble to make them suitable for their needs or distance themselves altogether from such interventions although others interlock with the intervention designs.

Farmers in Sauri re-assemble MVP crop production technologies to make meaning out of them. Over the last two decades, they have been exposed to technologies from different paradigmatic angels at the same time (which seem to contract one another). One involves the use of local resources in soil fertility replenishment (agro-forestry model) while the other one involves use of external resources (fertilizers and hybrid seeds) all of which are advocated for by the same staffs working in earlier project with ICRAF and also with MVP in the same community. Despite documentation on how farmers interact with various agricultural technologies in Siaya County (Mango 2002) there is no research that has been done on the same within the Millennium Village especially how the MVP produce heterogeneous practices and processes that I would like to capture as interlocking, reassembling/redesigning and distancing.

2.9 RESEARCH OBJECTIVE AND QUESTIONS

2.9.1 OBJECTIVE

From the problem statement, it is clear that 'unpacking' of new agricultural technologies by the end-users (farmers) has always been different from the prescriptions laid down by the development experts. The project employed various mechanisms to get farmers to adopt to the new crop production technologies. It is also known that agricultural development in Siaya County has always been characterised by processes of distancing, reassembling as well as interlocking and farmers are known to devise their own ways dealing with such interventions. Therefore the objectives of this study are to-:

1. Document farmers' experiences with the introduced crop production technologies in Sauri MV in regards to interlocking, reassembling/redesigning and distancing.
2. Explore the ways in which the MVP operates in its effort to get farmers to adopt the new technologies they advocate for in Sauri MV.

2.9.2 RESEARCH QUESTIONS

The main question of the study was as follows-:

> *What are the mechanisms through MVP transmits its crop production technologies and how do the farmers experience them?*

This question was further investigated by use of the following two specific research questions which relate to introduction of crop production technologies in Sauri sub-location.

1. What are the means or ways through which MVP is transmitted to Sauri community?
2. To what extend are farmers involved in the processes of interlocking, reassembling or distancing from introduced crop production technologies in Sauri Millennium Village?

CHAPTER 3 RESEARCH DESIGN AND STUDY CONTEXT

In the previous chapter, I have discussed how I arrived at the problem of the study as well as objectives and research questions which showed *why* this study is important and therefore the question of *how* and *where* begs. In this chapter, I elaborate on the research design which in this case implies the methodology of the study, that is, data collection and analysis. Therefore the methods I used for data collection as well as how I recorded and analysed the data is explained. I thereafter give a description of the area of study -where I did most of my fieldwork.

3.1 DATA COLLECTION METHODS

In order to answer the research questions, this study employed qualitative methods of data collection. Johnson and Christensen (2010) explain that "qualitative research methods focus on discovering and understanding the experiences, perspectives and thoughts of participants"(Johnson and Christensen 2010 :148). I wanted to explore in details and get to understand how the new crop production technologies are introduced to the farmers in Sauri and how the farmers experience them. I therefore used the following data collection methods of data collection: ethnographic interviewing, case studies, life histories, observations, key informant interviews, desk study and document (reports) review. The use of these methods gave me an opportunity to be able to describe my interactions with the study subjects as well as their interactions among each other and with the external world.

The research units were mainly farmers at household level as they were the targets of the MVP interventions and the level where important processes of interlocking, re-assembling and distancing took place. The selection criterion for the respondents is described under each method since some were, for instance, selected purposively and others through snowballing methods. However, it is important to note that some respondents were central to the study and provided most of the information that linked with the previous work done by Mango (2002). Some other respondents provided information that served as a confirmation or rather back up of the already recorded data.

3.1.1 DESK STUDY

By the use of secondary sources, I derived data through desk study. This information was mainly about the studies that have been done around the same topic as well as information concerning the MDG model (and MVP). Basically, I researched materials relating to this topic of study that, first of all, gave me an overview of the study area, interventions that have been introduced in the area before commencement of my fieldwork and secondly, desk study helped me interpret my data after fieldwork. The desk study materials were mainly books and scientific materials which include student theses that have been done in the same area. One of the research work that was key (or guided) this study was the research by Mango (2002). I build on his work which analyses the processes of agricultural development and socio-technical change in western Kenya and in particular Siaya district.

Additionally, I explored online materials (mainly on MVP) which are plenty due to the much attention Sauri MV has received from both national (local) and international media and these include websites, blogs and online newspapers which supplied information about the MVP from different angles of understanding.

3.1.2 ETHNOGRAPHIC INTERVIEWING (INFORMAL CONVERSATIONAL INTERVIEWS)

Informal conversational interviews or ethnographic interviewing are unstructured interviews which allow for maximum flexibility as regards to the direction of the conversations. Pursuing information may take whatever appropriate direction depending on the various observations or from informal talks with other people in that setting. There is usually no predetermined set of questions since the fieldworker does not know beforehand what to expect (Hammersley and Atkinson 2007, Patton 2005 :342). I did ethnographic interviews to 'break the ground' and familiarize myself with what had been happening in Sauri so as to map important issues that I would later on focus on. This was done by conversing with the villagers (both male and females, young and old) in the market place, households and farms and by the spring (water points) all of whom gave varied but useful information about various interventions introduced by Sauri MVP as well as ICRAF and how farmers were engaged with the MVP activities.

This gave me a broader understanding of the relationship between the farmers and with the project staff as well as other researchers who have visited the area. I linked this information and what I had gathered from the desk study as well as from observations to prepare a short interview guide for more focused inquiries.

3.1.3 LIFE HISTORIES

In order to understand how the local people have been experiencing various induced agricultural interventions in the past, way before MVP was initiated; I used life histories as a research tool. It helped in understanding the current trajectories of the processes of change which are more or less a continuation of what has been happening in the past in relation to interlocking and distancing from agricultural development technologies. To get more details and a wider coverage of the topic in terms of historical events (mainly for the past two decades but also earlier), I made several follow-up visits to the same respondents. Some of these respondents were interviewed about a decade ago to provide information in a related topic and it was important to follow them up to get more information that would connect to the earlier study by Mango (2002). Therefore, respondents for life histories were purposively selected with the help of some village elders of the villages since they knew the village members very well.

3.1.4 CASE STUDIES

The time for data collection was limited and so I restricted myself to a few cases in order to get detailed information about the processes that has been taking place in Sauri MVP since its implementation in the location. Selection of the cases was purposively done to incorporate information from different types of respondents. The ethnographic interviews provided an overview of what had been happening since the implementation of the project and who was involved in what. I thus purposively selected cases of farmers who were actively involved activities of the MVP especially the agricultural sector. They also included those farmers who had benefitted in different ways from the project, for instance the widows who were built houses by the project, households where at least one child was sponsored by the project and those farmers who had previously used the new technologies but somehow have reduced their usage or stopped using them altogether as well as the adopters of new technologies.

It is important to note that all the households Sauri location benefited from crop production technologies according to MVP staff and so at one point most households used the technologies before distancing from or re-assembling them. Generally, different cases were purposively selected from different categories of farming households such as those who grow/have grown hybrid maize, those who used/use fertilizers or other farming technologies and in general those who have used/ don't use introduced crop production technologies. The selection of these households was done through snowballing and information I got through ethnographic interviews.

3.1.5 OBSERVATIONS

Observations of crop production technologies being used by farmers were made and also to generate questions and confirm the farmers´ accounts. For example, I would observe crops growing in almost the same fields but different health-wise. This would lead me to ask why the health of some crops in one field is better than in another and with this; farmers would explain the use/non-use of different technologies. Observation was helpful as it aided the kind of questions to be asked for specific respondents and vice versa where the respondents´ information would guide on what to observe.

Below are examples of how I applied the observation technique:

- I observed that most of the fallow trees introduced by ICRAF and re-introduced by MVP were planted at the edges of the farms. It was after some farmers mentioned that they no longer plant the fallows but they maintain some of them in the farm in order to keep supply of seeds for the future just in case the project would decide to buy them as they did in the past.
- Similarly in one of the respondents´ household, i observed some local maize (yellow cobs) spread on ground to dry although the farmer had mentioned that he no longer grows local maize. This prompted further inquiry and i found out that it is his wife is the one who usually grows local maize while he specializes in hybrid maize mainly for market as discussed in chapter 6.

3.1.6 KEY INFORMANT INTERVIEWS

Interviews with key informants were conducted so as to get in-depth information from a wide range of people with first-hand information about the SMV as well as stakeholders working with the project in one way or the other. These key informants included the agricultural extension officer based in Yala, NCPB manager, Market Service Centre (MSC) manager (Indigent cooperative manager), MVP field officer (or research assistant) and Bar Sauri Primary School head teacher. Interviews were done on face-to-face basis using interview guide to gain more insights on the on-going processes.

3.1.7 DOCUMENT (REPORTS) REVIEWING

Since important documents from the MVP office could not be accessed as explained under the limitations section in this chapter (below), it was imperative to seek alternative ways of getting the relevant reports for reviewing. The agricultural extension officer provided me with soft copies of a few documents concerning the MVP since she had been working with the project for some time even though there wasn't much. These included the baseline survey report and annual report for the first year of the project implementation. Some key respondents also had materials such as newspapers, copies of handbooks given by ICRAF and MVP staffs, copy of student thesis conducted in the area.

3.2 DATA RECORDING AND ANALYSIS

All the information that was collected from the field through interviews was recorded in a digital voice recorder for transcription and analysis. Sketch notes were also taken during each interview to note down non-verbal cues and main points of discussions just in case the recorder failed (though it never failed). However, I came to realize that even though some respondents allowed for recording of the interviews, they hesitated in giving some crucial (negative) information about MVP when the recorder was switched on. Some were free to give details when not being recorded and so I devised another way of recording the interviews. I would just do interviews without recording and immediately after try to write down everything from my memory. By so doing, I was able to get more detailed information than I would have gotten if I was recording during some interviews. Observations were also written down as field notes as well as pictures taken during fieldwork to be used as back up of the information. None of the respondents refused to be recorded or photographed.

Thematic content analysis (Hammersley and Atkinson 2007) was used to analyse field data. The transcribed and written field notes as well as all other relevant information obtained during the course of fieldwork were compiled to make a text that was organised in analytic themes which emerged from the text. They were categorically arranged in the empirical chapters. The themes reflected the topic of study, the main research questions, the theory and main concepts used.

3.3. SIGNIFICANCE AND ASSUMPTIONS OF THE STUDY

- *Significance*

This study informs on the current trajectories of farmers' responses to new crop production technologies highlighting the processes involved that shape agrarian change. This is centred on the processes of interlocking, reassembling and distancing to indicate that agrarian change is not a linear processes and that it is a complex socio-technical process. It is thus important for the scientists and development planners to rethink about the ways of integrating scientific knowledge in the daily lives of the local people.

The findings of this study contribute knowledge that is useful to development practitioners and policy makers, for instance, to enable them formulate policies and design development programs that are congruent to the ways of lives of people in order to be effective and successful in the programs.

- *Assumptions*

The theoretical approach adopted in this study as well as the literature review implies that MVP is a social process that involves multiple social actors and agency is attributable to the actors. Even from the historical account of agricultural development, it is noted that farmers have always exercised their own knowledge and used their ability in selecting and applying agricultural interventions presented to them. My assumption is that: even in the face of massive investments in Sauri that saw farmers get free sufficient inputs at the first phase of the project; the identified processes (interlocking, reassembling and distancing) are still visible and can be studied from the farmers' point of view.

3.4 LIMITATIONS

The research had its own constraints especially during data collection. To start with, it was impossible to access data from the MVP offices, both the field office (at Sauri) and the Kisumu office. The staffs have been given strict orders not to give any information to independent researchers or let them access any data that the project has generated. When we (together with my supervisor) approached the MVP team leader for consent to interview the staff and also get access to some of the MVP data, she made it clear that they do not allow anyone access their data and added that even if she was to send us to the MDG centre for East and Southern Africa in Nairobi to request for permission, it would be of no use since we would not get any help. She thus suggested that we send her an email detailing the kind of data and information we wanted from MVP and how it was going to be used. It was surprising that even after doing that, we did not succeed. Actually, we never got any feedback to the email we send.

Similarly, at the Market Service Centre (MSC) in Yala, I could not get any records as they referred me to the MVP field office where they send all the records (of which the records were inaccessible). In the government offices like the NCPB, they required an introduction letter that had to be send to the offices in Kisumu for approval. This took a long time and eventually I had to seek alternatives in order to get information and I only managed to do an interview with the manager. However, most of

the records that I needed to review were not produced. I was given some recall estimates of the data.

Logistically, data collection involved walking across a wide area and at times the respondents would be away on various commitment (often at funeral meetings) thus inviting call-backs. The time I had to spend in the field was limited and so most of the issues could not be captured within the two months period of data collection. Moreover, more interesting issues kept popping up from my discussions with the respondents and I realized that if I had some more time in the field, I would have collected a bit more in-depth and broader information.

The methodology used was mainly qualitative and so not having used quantitative methods to map the key issues of inclusion may have some consequences of the final outcome since some aspects of the processes may not have been fully covered by the methodology used.

Sauri is inhabited by Luo people who speak three languages; Dholuo, English and Swahili. I could only communicate with them in Swahili and English of which most of the respondents are fluent in and especially those who have some good level of education. However, for some of my respondents, it was a struggle to give a coherent story in Swahili or English and so it would take me some time trying to make meaning of what they said during our discussions. At times I was made to get someone within the household to translate for me when it was possible for them to do so.

3.5 ETHICAL CONSIDERATIONS

All respondents were informed about my status as a student and consent obtained before starting any interviews and especially the use of a voice recorder. The confidentiality of the respondents was assured since some of them expressed fear that I may have been send by the MVP to interview them and more so if they were against the MVP strategies. By informing them that I was an independent student and that I had no connection with MVP made them more comfortable talking to me about anything that had to do with the flaws of MVP and dissatisfaction with the project. In this thesis, pseudonyms are used to conceal the identities of the respondents.

3.6 DESCRIPTION OF THE STUDY AREA

This research was done in Siaya County which is mostly inhibited by the Luo ethnic group and lies in Nyanza Province in western region of Kenya. “The County lies between latitude 0° 261 to 0° 281 north and longitude 33° 581 east and 34° 331 west and the total surface area of the county is approximately 1540km². It has six sub-counties namely; Ugunja, Yala, Ugenya, Siaya, Bondo and Rarieda. The county borders Busia County to the north, Kakamega County to the north eastern, Vihiga County to the east, Kisumu County to the south east, with Lake Victoria to the south and west”(Oloo et al. 2013 :373). The highlighted area in the map below shows the location of Siaya County in Kenya.

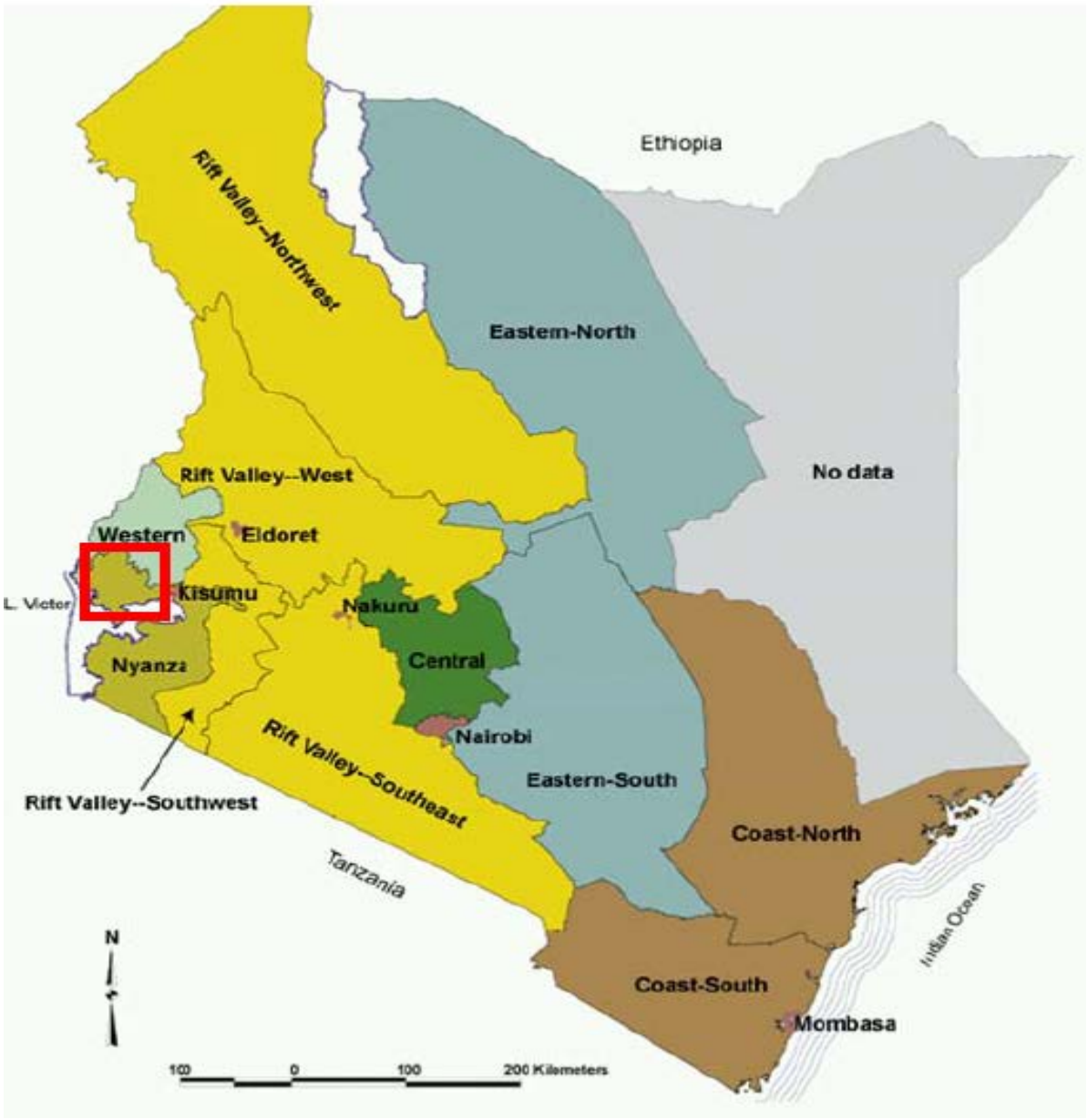

Figure 1 Map of Kenya showing location of Siaya County. Source (Mutuo et al. 2006 :4)

Administratively, Siaya County is divided into 7 divisions namely; Yala, Wagai, Karemo, Ugunja, Boro, Urenga and Ukwala divisions. It is cited as having more than half the population in some state of poverty of which the causes of poverty are partly associated with low agricultural production due to poor soils and inadequate land for cultivation, relying too much on traditional methods of farming, the inhabitants' cultural beliefs and practices as well as erratic rainfall (NCAPD 2005).

The study location is in Yala division and specifically in Sauri sub location which was the first millennium village that was launched officially by Prof. Jeffrey Sachs, The Earth Institute team and the Kenya government officials in July 2004 (Mutuo et al. 2006 :4). Sauri was chosen for the research because a lot of planned development activities have been going on within the sub location that has seen several agricultural technologies being introduced to the communities by partnership of the government and non-governmental organizations such as ICRAF, MVP, Care Kenya, Heifer international, AGRA, Africa Now and Sacred Africa. Some of these organizations were involved

indirectly with the communities, for instance, Sacred Africa trained lead farmers and MVP staff on the best methods of storage so that they would train the farmers the same.

The topography in Sauri is undulating with streams, rivers such as Yala River and wetlands meandering through the rounded hills. The equator lies at 0°06°N just to the south of Sauri. The area is characterised as a semi humid tropics with an average rainfall of 1800mm and temperatures that range between 18° C to 27°C. There are two rainy seasons experienced in this area; the short rains also known as *Opon* (from September to December) with average rainfall amount of about 710mm and the long rains known as *Chwiri* (March to June with average rainfall of 1120mm. The farmers rely mainly on the long rains since the short rains are unreliable. The soils in Sauri sub location are clayey, deep, well drained and reddish in colour which are now said to be depleted of nitrogen (N) and Phosphorus (P). The main livelihood activity is agriculture which is practised by almost all the people living there although the population is high thus causing constrains in the farming land (Mutuo et al. 2007, Mutuo et al. 2006 :4-5).

Sauri sub-location consists of 11 villages, each with a village representative (village elder). These villages were merged to make the Sauri Millennium Village (SMV) which covers an area of 8km². The names of the villages are as shown in the map below as well with their distribution within the SMV. (Mutuo et al. 2007). This Millennium Village has a population of more than 8000 people and a total number of 970 households, according to Odunga (2013 :680).

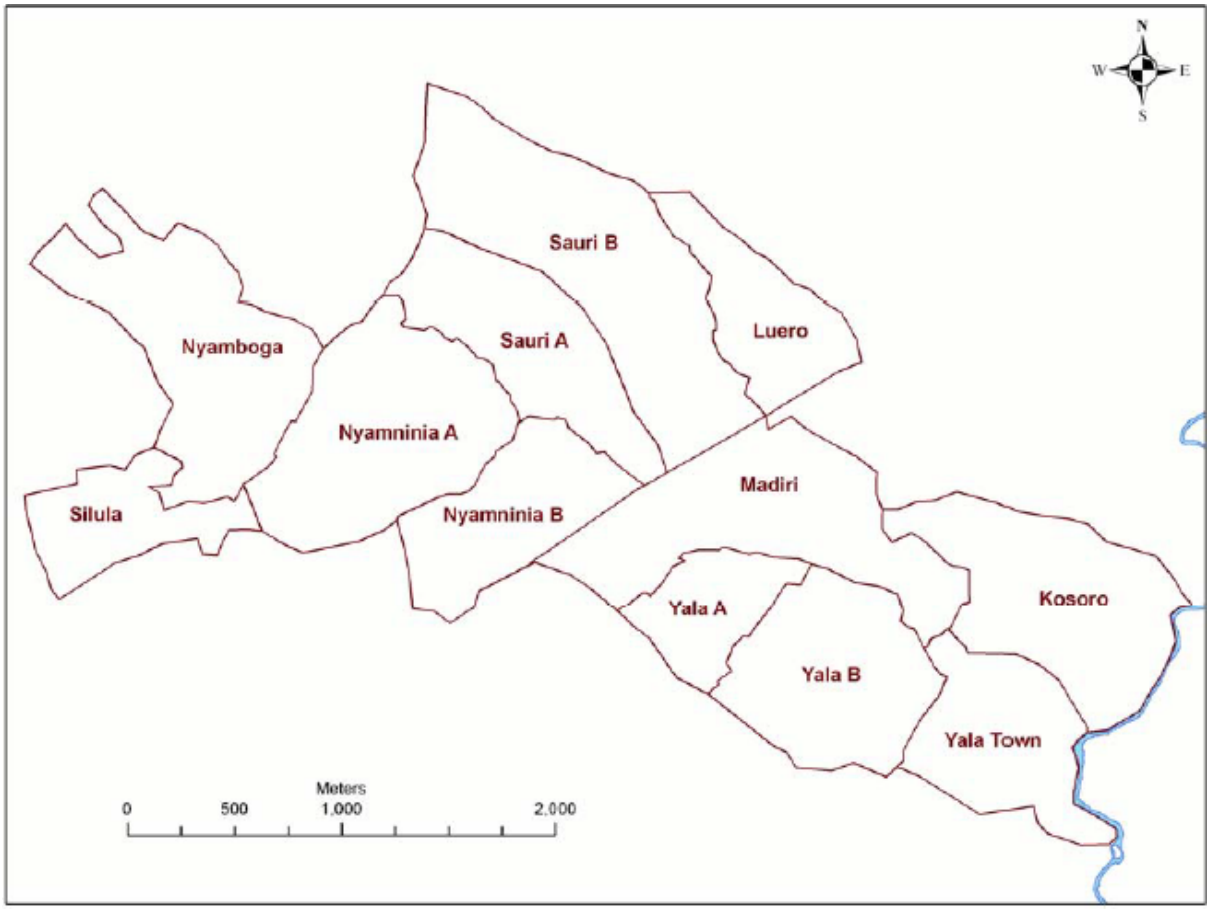

Figure 2 Map showing the villages of SMV. Source Mutuo et al. (2007 :16)

This study mainly centred on Luero village where most respondents were drawn from as it is the nucleus of the SMV and the central place where most of the activities were conducted including meetings with high ranking officials as well as community meetings. It is also the village where ICRAF conducted their research in agroforestry in the 1990s. It is a good representative of the Sauri MV although respondents were also drawn from other villages like Sauri A and Sauri B.

CHAPTER 4 HISTORICAL PERSPECTIVE OF CROP PRODUCTION IN SIAYA COUNTY

4.1 INTRODUCTION

In this chapter, the trend in which farmers have been interacting with new technologies is elaborated from a historical view point. Siaya County, which is part of the wider western Kenya, has been subjected to a range of interventions since early 1900s. This historical perspective positions the MVP as a continuation of what has been happening in western Kenya and more specifically in Siaya County where Sauri MV lies. It is also asserted here that agrarian change has not been linear historically and that people have had their own ways of unpacking previous interventions to fit to their needs, interests as well as beliefs and conditions. People have in the past resisted changes that did not merge well with their traditions and thus devising methods of dealing with the changes which were not always direct absorption of the procedures laid down by the change agents. This historical perspective provides a background for understanding of what has been happening in Sauri as part of on-going process in agrarian change.

4.2 THE 'COMING' OF NEW CROPS IN SIAYA

Siaya County has not been 'an ecological disaster zone' at least in the twentieth century even though it has experienced hunger frequently in its history (Cohen and Odhiambo 1989). Traditionally, the staple food crops in Kenya were the sorghums and millets although there were small quantities of maize grown before the beginning of the twentieth century. Distribution of white improved varieties of maize gained prominence during the First World War and by the 1930s maize was not well established in Siaya although it had been established in some other areas such as some parts of Central, Eastern and Coast provinces. Pulses were more important in Siaya at that time and people mostly grew sorghum and millet (Heyer 1975 :146).

During this time, shifting cultivation which was the order of the day, proved to be a bit difficult in Nyanza due to population densities and this saw farmers cultivate continuously. Ox-drawn ploughs were increasingly used and the use of hand and machine operated maize mills were also spreading. 1930s was seen as the beginning of change as there was more encouragement for African agriculture as opposed to the earlier dominance of European agriculture. Concerns were raised about the soil erosion and the waning natural resources that had great influence on agricultural policy at that time. Famines that occurred in the 1929 and 1933 led to intensification of food crops, especially cassava. There was increase in food production in African farms and coffee was introduced for the first time but in a small way (Heyer 1975 :148-149).

Permission was granted for limited African coffee growing experiments (coffee was previously a cash crop that was preserved for the European farming) even though Siaya was not one of the experiment districts that were selected. This was done by the colonial government against the interest of the European farmers. The resistance by the European farmers can be explained in the fact that coffee berries fetched higher prices than cotton and even higher than sesame, groundnuts or maize. Coffee has high weight per unit of land and it was seen as the key to wealth (Carlsen 1980 :23-24, Heyer 1975, Kitching 1980).

Efforts by the few agricultural officers available at that time were geared towards the areas that were fit for certain crops or accessible as well as to farmers who responded well and this meant that the impact of the officers was not evenly distributed. Cotton was introduced in Nyanza and expanded rapidly in the 1930s (Heyer 1975 :150), although having been introduced as early as 1901, the peasants had not showed any enthusiasm for growing it not only because of discouraging returns but also because it gave food crops competition for land and labour as they were planted at the same time (Carlsen 1980 :53-55) . The rapid expansion was associated with its high prices at that time as well as high cotton uptake resulting from self-commoditization as there was no much pressure from the state. The value for cotton was higher than that of maize and beans and even when the prices of cotton fell up to four times that of an equivalent amount of maize, cotton prices were still attractive. Commercialization and commoditization had just gained grounds in Luoland (Kitching 1980, Mango 2002 :45-46).

However, despite the high prices associated with cotton output, cotton was still unpopular in most parts of Nyanza Province where alternative cash or food crops could be grown. Farmers did not recognize growing of cotton in a large plot to only get low weight output (even if the prices were high per unit) as worthwhile cash income. Farmers, especially in densely populated areas, did not push themselves into growing crops which were not even edible and had only one exchange value and no other use for the farmers. Cotton was thus likely to succeed only in the areas that were not suitable for growing of heavy-yielding food or cash crops that farmers felt could be more beneficial to them (Kitching 1980 :77-80). Other crops that were being grown and also introduced at that time included maize, rice, millets, sorghum, legumes, cassava and wattle (Heyer 1975, Mango 2002).

Due to the fact that the white settler dominance could not be sustained after the Second World War, there was pressure from the 'foreign capitalist interest groups' and the upcoming African businessmen to have the colonial government revise its policies. This led to post war policy that mainly addressed issues to do with soil conservation. Close to the end of the Second World War, Nyanza province became a major maize producing area and the farmers made a lot of sales as well as producing maize for own consumption. For this reason, revitalization of cotton production by the colonial government was not successful as farmers had already chosen what they perceived as important crop for them to grow which brought in cash as well as food (Mango 2002 :47-48).

Maize is not an African indigenous crop but was brought to Africa by explorers and early settlers and is said to have originated from Central America and the Andean Region in South America where it was first used as a food crop. Maize was first introduced to East Africans by the Portuguese traders in the sixteenth and seventeenth centuries. At first maize was limited to the coastal areas but by the beginning of the twentieth century, the settlers brought new varieties that were suited for inland climate. It thus spread rapidly throughout Africa and even became a significant staple food in Kenya and very important in Kenyan Agriculture (Rundquist 1984 :87).

Breeding programmes were set up in Kenya with the first one being in 1955 at Kitale which started off with a local maize variety known as Kenya Flat White which was a developed variety. The breeding programme aimed at increasing the maize varieties present in Kenya at that time. The breeding programme developed and this saw the release of the first of the first classical hybrid

maize in 1964 to add to the synthetic and composite varieties. The hybrid seed varieties were made in package form as described in chapter four (Rundquist 1984 91-94).

The adoption and use of hybrid maize has not been straight forward even from the time of the innovation even though they spread rapidly throughout the country. Farmers have been known to try out innovations at limited scale first and thus planting of hybrid maize has been done along with that of the local maize to minimize the risks of the new technology and be on the safe side just in case of failure. Farmers knew better how to manage the local maize under different weather conditions such as drought as opposed to the hybrid maize which they are uncertain about. The farmers were cautious about 'placing all their eggs in one basket' as Rundquist (1984 :124) puts it. They also had their own preferences in the use of local maize or rather retaining them over the hybrid maize and preferred the local varieties for their palatability (taste preferences) (Rundquist 1984 :124).

In Siaya, the process of introduction of maize into the lives of the local people was termed as 'an ambiguous' one by Cohen and Odhiambo (1989). The use of white maize was seen as 'westernisation' as maize first entered the local economy through intervention by the colonial government. Most of those who adopted at the initial stages of introduction are those who went to school as well as the emerging elites. There was also pressure from the colonial government to make farmers adopt white maize. The reference of maize as 'white man's *ugali' or '*the *ugali* of the clothed man' implied that people did not fully identify themselves with the white maize as they saw it as external, that belonged to other people and in that case the white man. On the other hand, it was seen as a sign of status symbol of local elites (Cohen and Odhiambo 1989 :64). In addition at a later stage, the local maize and other traditional crops were not well covered by the extension officers who mainly promoted the growth of hybrid maize and thus the former were associated with backwardness and ignorance. They were referred to as 'the poor man's crops' while the hybrid maize production was recognized as 'progress' (Mango and Hebinck 2004 :305).

Adoption of maize as a new crop involved new ways of cultivating it such as planting in rows, second weeding. Even though the new cultivation practices lead to relatively high yields, they also brought about soil erosion and soil conservation issues with the result being continuous famines. Moreover, it was realised that the maize yields as compared to the traditional crops (sorghums and millets) were not superior and a harvest of maize could not extend to the next planting season as that of the traditional crops did. In addition, maize was said to be inferior in terms of nutritional value as compared to sorghums and millets since mothers of Siaya noted high incidence of kwashiorkor among children fed with maize meal at the start of modernization influences(Cohen and Odhiambo 1989 :64-65).

Although there was decrease in the role of sorghums and millets since the 1930s in Nyanza as maize took over slowly, it is worth noting that these traditional crops did not disappear and have been retained by farmers for some reasons. They are more nutritious, as already indicated, and drought resistant than maize. It is a pity that more attention has been diverted towards improving the maize production and little done to encourage production of the traditional crops that farmers still valued in the post-independence era (Heyer 1975 :171). Even though "for the authorities, maize has virtues as a national grain, as a potential export crop and as an agent of the commodification of agriculture

and expansion of regulated cash economy into the countryside, maize means hunger for Siaya"(Cohen and Odhiambo 1989 :65). In fact, a series of famines that occurred in the late 19th and early 20th century is associated with the gradual shift from sorghum and millet to maize (Mango and Hebinck 2004 :289).

4.3 ECONOMIC GROWTH POLICIES

In the 1950s, the policy objective was economic growth and modernisation in developing countries aimed at overcoming social inequalities. The policies included substitution of imports, industrialization and investments in infrastructure and social capital overhead (SOC) which are the common goods like roads, hospitals etc mostly by the government with industrialization as the mechanisms of growth in which other economy would follow. At that time, industrial sector was given more preference than the agricultural sector which was discriminated upon as it was thought that the industrial sector would offer a lot and cater even for the agricultural sector. This would be in things like offering jobs to the population under agriculture, elicit demand for raw materials as well as foodstuffs and also supplying the necessary agricultural inputs.

Nevertheless, there was a gradual shift following an emphasis of the important role agriculture played in development as it was clear that agriculture could serve to supply resources to the industry. This was to be done by having agricultural sector become an active and co-equal partner with the industry rather than being a passive sector whose resources were used to facilitate growth of the modern industry. Agriculture was therefore assigned a much more active role in the development process in the 1960s. Public resources were thus provided in support of agriculture at greater levels and the price policies were made less discriminatory in order to facilitate higher production that would uplift the rest of the economy (Thorbecke 2006 :3-10).

Meanwhile in Kenya, a Swynnerton Plan was published in 1954 that argued for a capitalist mode of production advancing for projects that would intensify agriculture based on land tenure systems rather than the African peasant holdings (Peter Coughlin and Ikiara 1988 :16). The plan set out land tenure policy and also a policy for increasing cash crop production that would maintain and increase incomes as well as improving techniques for land utilization(Heyer 1975 :156, Mango 2002). It spelt out the kind of implications that the land tenure system would have on individuals and supported creation of different classes; those with land and those without land so that the landless would offer labour (and benefit from employment) to the landed who would have meaningful production (Heyer 1975 :156).

However, despite the launching of this plan, Nyanza Province peasant holdings remained in opposition to land consolidation and registration partly due to the fear of losing their inheritance rights. Traditionally family land was allocated such that there were equal considerations in terms of distance from the river, productivity of the land and possibility of growing different crops for different seasons. Land consolidation overlooked this traditional understanding or rather procedure and it also moved towards erosion of clan elders' authority which was the custodian of clan land. Due to opposition of land consolidation and registration in Nyanza, the colonial government had to tread carefully with the local people as they exhibited a way of life that served them and thus the government devised another way of approaching them with the new policy. They provided a relaxed

policy-'self-help policy'- in 1958 whereby willing members of the community would be mobilised by private individuals to consolidate land unanimously. When they had sufficient number of people willing to consolidate land, then the government would come in to offer the necessary assistance (Mango 2002 :49-50).

Besides the land tenure issues, the Swynnerton Plan to expand cash cropping in African areas which was accompanied by soil conservation programme, was minimally realised in Nyanza Province as cash crops as such as cotton, coffee, tea and pyrethrum were grown in small scale although there was much control of cash crop production by the government at that time. It is clear that intensification of agriculture in Nyanza province was not without constraints as the government tried to implement the formulated policy. These constraints were partly as a result of the Luo people's cultural repertoires as seen above as well as the natural state of Luoland which did not have large area suited for expansion of cash crops later on (Heyer 1975 :160-161, Mango 2002). Additionally, people preferred to plant food crops rather than cash crops like cotton since cotton was not edible and its production interfered with food production hence resistance as discussed in the previous subtitle (Onduru 2009).

After independence in Kenya, population continued to increase in Luoland. This put constraints on the available land for cultivation that consequently meant reduced cattle herds that would otherwise facilitate adoption of ox-drawn ploughs. The main method of preparing land for cultivation became hand hoeing and thus it turned out to be very hard for the Luo people to increase their agricultural output. Previously, the Luo planted crops like sorghum, millet, beans, groundnuts, maize, sweet potatoes etc but due to the dense population, they were made to strengthen their practices around production so as to increase yield hence the adoption of high yielding maize varieties upon their availability. Other crops were slowly being substituted for maize. Development in Nyanza during this period was not impressive as compared to other areas such as Central Province. There were no fast land in Nyanza that could facilitate expansion of cash crops and there was a general lack of products that were of high value and which would aid in faster growth of the region (Heyer 1975, Mango 2002).

Politics had a role to play in the subsequent development of agriculture in Luoland after independence. Due to political differences between the ruling party and the opposition whose leader was from Luoland, the Luos were marginalised from the mainstream politics as well as development projects that were made for the Luoland. State intervention as well as markets became inefficient which greatly affected the cash crops introduced in the region. Farmers were not paid in due time after delivering their produce to the agricultural cooperatives and state controlled markets hence gradually distancing themselves from the production of cash crops.

Additionally, International Monetary Fund and World Bank pressed on Structural Adjustment Programs (discussed in chapter 2) that required the state to reduce its control over markets and embark on privatisation which further exacerbated market inefficiency. As a result of corruption in Kenya and particularly in Nyanza, many privatized businesses and cash crop sectors like the coffee sector collapsed stimulating farmers to de-intensify cash crops and to grow subsistence crops. Agricultural practice in Siaya County has seen many changes as land for cultivation continued to

diminish, unreliable rainfall, soils became less fertile and occurrences of drought and pests and diseases have been witnessed (Mango 2002 :53-55).

In the 1970s and 1980s, there was decline in agriculture as soils became more degraded when people embarked on increased food crop cultivation since soil protection measures were absent. Crop yields began to decline and this prompted farmers to review their crop composition who began focus more on growing bananas, cassava and sweet potatoes. Some community-based groups planted high value vegetables and fruits for generation of cash income. The government also promoted the expansion of sugar cane production. Nonetheless, there were still reduced farm incomes as many people (especially men) continued to migrate to work in other places hence resulting in farm labour shortages and would send money for food purchase (Mango 1999 :6).

4.4 SOIL FERTILITY REPLENISHMENT IN SIAYA COUNTY

Cohen and Odhiambo (1989) explain that the Siaya countryside was becoming increasingly unable to support itself especially in the early 1980s (or many so claimed) during the periods of drought and rain shortage. This was attributed to loss of soil fertility and it implies that the production made during 'good' rainfall were not plenty enough to sustain the rural households even during the 'bad' times. Many women relied on remittances from their husbands who mainly worked as wage labourers in urban areas but still they suffered a lot since the money they would receive from their working husbands was not enough and more so when incidences such as sickness occurred (Cohen and Odhiambo 1989 :66-67). Agriculture had been transformed and characterised by production decline, subsistence farming, domination of local trade and decline in soil fertility (Mango and Hebinck 2004 :287, Mango 2002 :112).

Since soil fertility decline was a major blow to crop production development in Siaya. In the past, the colonial government addressed the problem of soil erosion by imposing district level laws aimed at farms that belonged to the Africans and which mostly were used for the production of cash crops like coffee and cotton. Ploughing steep land, cultivation along the stream channels as well as clearing forests was not allowed. (Mango 2002 :191). The farmers were forced by the colonial government to establish contour bands, terraces and hedges, a practice that stopped after the country became independent (Mango 1999). However, in the efforts of ensuring soil conservation during the colonial rule, stiff penalties were levied on those farmers who did not comply with the set policies and the local, chiefs, headmen and technical assistants were employed to oversee that farmers followed the conservation measures. Due to the fact that the farmers were compelled to comply with the soil conservation measures, it lead to creation of hostility as farmers did not willingly obey the policies imposed on them and thus in the long run, the policy failed (Mango 2002 :191-192).

The association of soil conservation measures with the colonial government led to reduced conservation measures by the farmer and even for some, dropping them completely after independence and this also contributed to increase in soil erosion. A commission set up in 1970 to address the then deteriorating state of natural resources in the country did not make a fast progression. An initiative that was supported by Swedish International Development Agency (SIDA), known as the National Soil Conservation Programme was launched the same year with the aim of

increasing agricultural production through the introduction of cheap and simple effective conservation measures. The strategy was such that the farmers could carry out conservations measures by themselves through giving extension advice to volunteer farmers and letting the farmers adopt any conservation measures they deemed fit for themselves. This approach turned out to be slow and ineffective and farmers were rarely consulted beyond the initial extension phase (ibid: 193).

Another attempt to promote soil conservation techniques was done by the Ministry of Agriculture, Livestock Development and Marketing in the 1980s in the form of Training and Visit (T&V) that relied mainly on the extension agents to give adequate conservation advice and follow up to farmers. However, the agents were too overloaded that it became too difficult for them to survey the farms, give their support in planning and putting in place the conservation measures. This approach did not have a great impact as well. Farmers recognised themselves as key to reducing soil erosion and pointed out to inadequate labour as one of the constraints to soil conservation practices especially constructing and maintaining terraces. Additionally, the farmers claimed that is were not always easy for them to follow the recommendations against steep slope cultivation due to population pressures hence limiting cultivation land. Some farmers modified the terraces to form micro-catchments for bananas (Mango 2002 :193-194).

Even with the promotion of terracing for several decades, its impact in the control of soil erosion has been limited (Mango 1999). Farmers also used fertilizers which were controlled by the government and which also subsidized the prices although their use was not extensive due to import delays that led to inefficient domestic supplies. The fertilizers were not always supplied in time and the quantities were also wanting. After economic liberalization in 1991, fertilizer prices went up and it became difficult for the farmers in Siaya to buy fertilizers especially during persistent droughts that occurred in the region as farmers mainly rely on agricultural produce hence do not have money after poor harvest (Mango 2002 :195-197).

Maintaining adequate soil fertility levels was not easy in the 1990s. Fallow cultivation that was used to restore soil fertility in the earlier times was not possible since the land had become scarce and crop rotation was also becoming hard since farmers needed large portions of the land to grow maize (Mango 1999). ICRAF therefore, together with research partners KARI and KEFRI established a research program that was aimed at addressing the problem of soil fertility. In 1991, improved fallow technology, which implies planting of fallow species, was tried in Kenya as experiment as well as in the farms. Previously, alley farming was tested but its viability and performance were questionable and so fallow technology and biomass transfer (or rather growing of a tree or shrub in one place and using it as biomass in another place) appeared to be more promising as most farmers used to leave their farms fallow for at least a season. Thus the two technologies were deemed important add-ons to the soil fertility as fallow trees fix nitrogen in the soil. This saw a shift towards agroforestry for soil fertility replenishment.

At that time only one fallow tree species was used *Sesbania sesban*, which was considered a prolific biomass producer as per the conditions in western Kenya. More species were introduced later on in 1996 which include *Crotalaria grahamiana* and *Tephrosia vogelii*. Other management conditions that were tested by the research were addition of organic phosphorous fertilizer, minimum tillage and

planting densities. Around this time, Tropical Soils Biology and Fertility Programme (TSBP) tested the potentiality of local shrubs in supplying nutrients to maize crops and *tithonia* was identified which has high concentration in nitrogen (Place et al. 2005, Place et al. 2004). The farmers had not previously known *tithonia's* importance in soil fertility replenishment or how to use it as Alex, a farmer in Luero village noted:-

> *"When ICRAF came, they showed us how to improve the soil fertility by use of fallow trees which helped us a lot. Even this* tithonia*, they are the ones who showed us how to use it and it is a plant that was there before but we did not know whether it could be used to enrich the soils. They told us to be cutting them into small pieces and to incorporate them in the soil where seeds are to be planted but it really requires a lot of work".*

Initially, efforts were directed towards pilot projects in 1997 which involved 17 villages of mainly Vihiga and Siaya districts (Place et al. 2005) although according to Omolo, a village elder in Luero village, ICRAF began their research in Sauri sub location and specifically in Luero Village in 1995 being led by a Senegalese Principal Forester called Amadou Niang. The research sort to find out the conditions of the soils in the area and they had their offices in Maseno at that time although Sauri area was just part of the wider research which was being done in western Kenya. They found that the soils lacked nitrogen (N) and phosphorous (P). ICRAF came up with ways of dealing with soils and thus fallow technology was introduced in Sauri sub location. They first set up demonstrations in 45 farmers' farm since most of the farmers did not immediately believe in them. Some of the farmers held ICRAF staff with suspicions and feared that they would grab their land. However, for those who welcomed ICRAF staff to use their farms, ICRAF used plots of 20 by 20m for demonstrations which initially yielded less than 4kgs but after leaving such plots fallow with improved fallows, they yielded even more than 60kgs.

The improved fallows and biomass transfer technologies were incorporated in the NGO partner's existing portfolios and disseminated to the communities through different channels such as contact farmers, tours to different places and field days. Extension officers, who are in direct contact with the farmers were also trained and given extension materials as well as germplasm of species that were new to the areas by the year 1998(Place et al. 2005 :3, Place et al. 2004). From 1999, farmers were seeking for more information about the technology although there was a reduction of fallow size as a result of low rainfall, farmer preferences and challenges in seeds supply.

However, farmers continued to redesign the use of improved fallows, for instance, farmers would plant them at the edges and boundaries of the farms (Place et al. 2004). This has now become a common practice as it was observed during data collection that in some farms in Sauri sub location, the fallow trees are planted along the edges of the farms and homesteads to serve as live fence as well as for seeds (to ensure that they don't lose the fallow trees' seeds).

One of the key informants explained that when he joined ICRAF in 2002, the farmers whose farms were used for demonstrations were being given fertilizers as compensation. Later on, farmers were given the privilege of selling the fallow seeds to ICRAF. From a survey they (ICRAF) conducted with farmers to determine improved fallow usage, it was found that a big percentage of farmers were interested in planting fallow trees because they would get cash out of it. There were four things that

were being looked at during the survey 1) Income generation, 2) Soil improvement 3) Fuel-use as firewood and 4) Fodder for livestock. From the results, it turned out that the use of fallow trees as fodder for livestock was the least while use of fallow trees for income generation was cited as the most important motivation behind planting of the trees which was followed by soil improvement.

Those who were initially given seeds by ICRAF were a few farmers. 15 from Luero village were given seeds, those of whom ICRAF was working with but two dropped out due to spouse disagreements on decision making. There were other 100 farmers from other villages who got the seeds but much later-in 2003. The seeds were sold back to ICRAF. Most farmers appreciated that the fallow trees were helping in improvement of soil fertility although it was noticed that when ICRAF stopped buying seeds from the farmers, the number of those who planted them started to go down. Similarly, Place et al. (2005) explain that not everyone in western Kenya was reached in terms of disseminating the SFR technologies, which were intended to trickle down to the rest of the farmers who could not be directly reached, and this had impact on the rate of adoption. It was actually noted that some farmers deliberately decided not to adopt since they had a feeling of favouritism towards the people who were picked upon (agents) and thus resisted such agents.

Demonstrations were laid down by ICRAF in the mid-1990s on how to plant the improved fallow trees during the long rains and in the short rains, the farmers were expected to leave the farms fallow with the fallow trees growing on them but not to plant maize. The farmers were being advised to plant fallows especially those that take short time like 6 months in order to avoid repeating maize. The challenge was that most farms were small and the farmers needed food and so most of them could do that after confirming that the fallow seeds would be sold otherwise they would plant maize again or any other crop. ICRAF gave way to the MVP in 2004 where most of the staff who worked with ICRAF joined MVP and still encouraged the use of improved fallows in addition to fertilizers.

4.5 CONCLUSION

> *"Agrarian transformation remains relatively self-generating, in the sense that change cannot simply be imposed or dictated by outside authorities or power holders"(Long and Liu 2010 :65).*

The historical narrations of events regards to the way farmers have been experiencing and interacting with induced crop production technologies, new crops and new policies like the land tenure systems in the past. Traditionally, the Luo people grew mainly sorghums and millets but new crops have been introduced in the region and these include coffee, cotton, and white maize as well as improved maize varieties. Adoption of new crops and crop varieties by the farmers in Luoland was done cautiously, for instance, hybrid maize was planted at limited scale and alongside the local maize for risk minimization while on the other hand, maize was preferred to cotton due to its food and cash benefits. The Luo people resisted cotton because it interfered with food production. However, the role of the traditional crops has never been ignored by the farmers who have more knowledge about their management and still prefer them as they can withstand drought and are more nutritious than maize. It is also noted that the shift from traditional crops to maize led to famines in the 19th and 20th century.

Farmers always devise ways of coping with changing situations. Due to famines that occurred in the second quarter of 20th Century, farmers intensified production of food crops although it was as a result of a natural calamity. Similarly, when population pressure was mounting in western Kenya, farmers found it hard to produce enough food by growing of the traditional crops and so they adopted high yielding maize varieties so as to produce enough for the growing population. Additionally, politics impacted on the Luo farming. Due to differences between the ruling party and the opposition (where most Luo people belonged), the Luos were cut off from the mainstream of politics and development projects. The farmers' response was to distance from cash crop production since food production was more important and again, they faced production and marketing constraints. Likewise, imposition of SAPs resulted in corruption and collapse of, among others, cash crop sectors. Farmers thus de-intensified production of cash crops.

The Swynnerton Plan of 1954 that urged for capitalist mode of production required people to adopt land tenure systems. However, n Luo customs, land was divided by the elders using fair criteria that would benefit the people involved. However, land consolidation policies overlooked this traditional way of dealing with land issues and this was not well taken by the people who resisted such changes. On the other hand, when the colonial government imposed soil conservation measures, farmers complied only because it was mandatory. This imposition actually created hostility between the people and the government as most farmers tried to resist these changes. After the colonial rule, some abandoned the most of the conservation measures while others modified them in a way that they perceived as beneficial to them like changing terraces to micro-catchments in order to plant bananas. Therefore not everything that was brought to the local people was taken for granted.

Luo agriculture is best characterised by interlocking and distancing: people switch back and forth the use of modern technology. They go back to what they trust and this generates varied responses where some farmers go for the hybrid varieties (introduced technologies), others are caught in between as they tend to reassemble the technologies to make them fit for use while others distance from the use of such technologies. All this happen in the same context and by different individuals or groups. Crops 'come and go' and continue to be subjected to Luo logics of contesting interventions. A similar interaction has been taking place in Sauri with the initiation of MVP. This is discussed in the subsequent chapters.

CHAPTER 5 SAURI MILLENNIUM VILLAGE

5.1 INTRODUCTION

In the previous chapter, I have given the problem of the study some historical depth to unmask the fact that even though people in Luoland have been subjected to a range of interventions for over a century, they have always devised ways of dealing with such interventions which defined their (level) of adoption. People have always been eager to try out new things (interventions), they retain some elements of it and/or eventually distance themselves after sometime. The interventions brought to the farmers in Sauri are no exception.

This chapter zooms in to the SMV where various interventions have been implemented by ICRAF as well as MVP in the past two decades. However, I am going to focus mainly on the crop production technologies introduced by the MVP and different strategies that they used to disseminate these technologies. *Why was Sauri a suitable site for MVP? Who were the key people involved in site selection? What crop production technologies were brought to the local people? By what means did MVP transfer these technologies to the local people? What has been the local people's perception and reactions towards these interventions?* All these questions (and more) are addressed in this chapter although an in-depth and broader elaboration of the farmers' interactions with these technologies is dealt with in the subsequent chapters.

The line of events described in this chapter concerns only crop production in SMV although there are a wide range of activities in regards to agriculture (such as in animal husbandry) as well as the other sectors of intervention like health, education, communication, infrastructure, business development etc.

5.2 INITIATION OF SAURI MVP

SMV is made up of 11 villages which are densely populated. It is an area with high potential for agriculture which receives rainfall two seasons a year as discussed in chapter 3. Water is readily available as there are springs across the villages in addition to Yala River; all of which never dry up. Before implementation of MVP, a baseline survey was conducted so as to document the Millennium Village situation at that time and to act as the basis for impact evaluation of the project. Some of the indicators assessed include-: village governance and traditional structures, infrastructure and government services, proximity to major cities, livelihood data, agricultural standing of the village such as use of fertilizers, yields and seasons, poverty level and key health variables.

The results of the survey showed that Sauri residents owned an average farm size of 1.43 acres. This acreage increased from the poorest to the wealthiest which means that wealthier people have more land than the poor. There were different types of land tenure systems at the household level although only 41% of the households had formal land title deeds. Some farmers rent out land while most of the people have inherited their land. Among the crops that farmers grow, maize grains

emerged as the agricultural product that contributed the highest source of agricultural income to the farming households at that time (Mutuo et al. 2007).

However, it is claimed that agricultural production has been low in these villages partly due to depleted soil nutrients and this has contributed to poverty and hunger (Mutuo et al. 2006). The map below shows land use in Sauri.

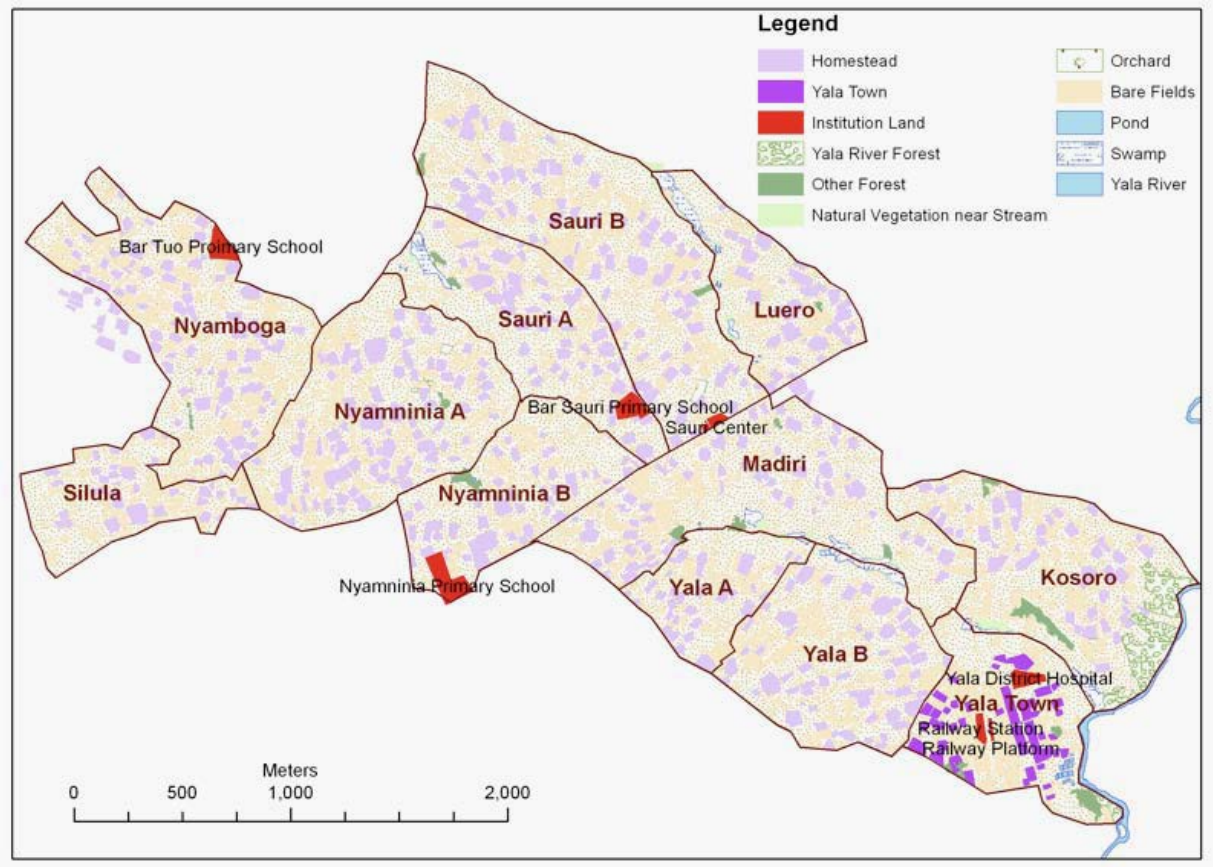

Figure 3 Map showing land use in Sauri Sub-location. Source: Mutuo et al, 2007:69

Sauri is one of the areas that have been receiving financial assistance from international organisations for more than two decades now. ICRAF began research in the sub location in the early 1990s along with KARI while Africa Now, which is a UK based charity organisation worked with the community in the late 1990s to support the building of spring-protection cisterns, CARE Kenya as well as Heifer International also worked in the 1990s while the MVP came in 2004. Schlesinger (2007) argues that Sauri did not appear to be an ideal choice for a site where 'an experiment' that aimed at poverty alleviation of the 'poorest of the poor' was to be carried out given the development work that has been ongoing in the same area. She wondered; " if one were truly attempting to establish a representative baseline of data for the MVP model, would it not be more logical to choose an untouched locale?" (Schlesinger 2007 :2). Similarly, Ramogi who is a resident of Sauri and heavily criticizes MVP operations in Sauri shared the same sentiments when he said that-:

"MVP claims that Sauri is one of the poorest of the poor communities in Kenya of which this is not true and even for the much you know this country, there are so many areas where people live in abject poverty as compared to Sauri which is evergreen".

The approach that MVP took in choice of the project site, according to Schlesinger (2007), was the consideration of an area that was more likely to succeed and pass as a good example of the possibility of eradicating poverty during 'our time' as envisioned by Sachs (2005). Instead, the MVP designers should have opted for an area that is in dire poverty so that it could exemplify the problem depth. Since many villages in Sauri sub location have had experience interacting with external development agents and given that the area is not that badly off as compared to many other poor areas in Kenya, one could as well say that the project was foreseen or rather expected to be a success in such a location (Schlesinger 2007 :3). Nevertheless, was this a misplaced hope?

Be that as it may, *how did MVP land in Sauri*? Omolo, a knowledgeable respondent from Luero village, explained that when ICRAF started research in Sauri in 1995 concerning soil fertility as part of the ongoing research in western Kenya at that time, there were key personalities involved with the community. He mentioned that the research was led by Dr. Niang Amadou, a Senegalese Principal Forester who was charged with the responsibility of developing methods for speeding up the adoption of agro-forestry innovations. He brought the idea of improved fallow technology to Sauri. In 1997, according to Omolo, Dr. Amadou's boss, Professor Pedro Sanchez got personally involved in the agroforestry research activities that were going on in the area.

Prof. Pedro Sanchez was the director general of ICRAF at that time (1991-2001), which is headquartered in Nairobi, Kenya, and who later on became the director of the Millennium Villages Projects between 2004 and 2010. He was also the co-chair of the United Nations Millennium Village Project Hunger Task Force from 2002-2005 (Earth-Institute n.d). Omolo explained that Prof. Pedro worked with them for around three years before leaving. But before he left, he promised the farmers that he would come back with more development interventions. The local people organised a farewell party for him where he was crowned the Chief and named Odera Akang'o, after a famous chief who existed during the colonial period from the 19th Century. It was after a few years, in 2004, that the Prof. Sanchez returned with Prof. Jeffrey Sachs and his colleagues from Earth Institute as well as a delegation of donors from the private sector and non-profit organizations to launch the MVP in Sauri.

Even though the MVP was intended to be initiated in a poor area in order to prove the feasibility and effectiveness of village-level interventions, it is clear that the selection of Sauri as the choice for MVP was influenced (partly) by the designers' knowledge of the area and experience working with the local people of Sauri. Interestingly, some of the staff who joined MVP used to work with ICRAF, advocating for use of agro-forestry technologies (which required use of internal resources) in soil fertility replenishment and were seen as more effective. For instance, Sanchez (2002) suggests that the most effective and appropriate approach to soil replenishment that can help improve the current African conditions better than those used during the Green Revolution are combinations of improved fallows, phosphorous and biomass transfer. This is because they are 'low-tech' and knowledge intensive technologies (Sanchez 2002 :2020). However, upon joining MVP, more focus was on use of fertilizers, which are externally acquired, to improve soil fertility.

5.3 MVP INTERVENTIONS

In each Millennium village across the African countries where MVP was implemented including SMV, a broad package of interventions was deployed. Interventions under MVPs were directed by the recommendations of the UN Millennium project on the kinds of interventions to be implemented under various sectors like agriculture, education, health, infrastructure, water and environment, etc (Mutuo et al. 2007).

The costs for implementation of MVP was on shared basis which was calculated such that each villager (farmer) would get $50 from the (MVP) donor funding, $30 from the local and national governments through provision of support staff such as agricultural and health extension workers and donations towards the project, $20 from NGO partners through their existing supportive programs and $10 which was a contribution by each villager (mainly in kind, for instance, giving back 10% of their grain harvest to the project to go towards school feeding programs). Thus the total amount of the MVP project was estimated to be $110 per villager per year for five years after which the project was expected to sustain itself. There was also an addition of $10 per villager per year that would go into establishing, training and paying of the local staff to lead the village-based systems hence making a total of $120 per person per year (Odunga 2013 :679).

The MVP was a ten year initiative that was planned to spin in two five-year phases in which more attention was directed towards achieving 'quick wins' during the first phase. This was mainly in staple (maize) crop production and disease control as well as establishment of basic systems that would facilitate smooth running of the project (Nziguheba et al. 2010). At the initial phase of the project implementation, project technical teams were set up, trained and supported. The community and local government were engaged and baseline assessments done. The communities were organized into sectorial committees such as agriculture, health, education, infrastructure, water etc which were charged with leadership responsibilities in the implementation of their different sectorial plans (Mutuo et al. 2007).

Interventions were introduced in different sectors of the MVP across different countries. The table below shows an overview of the different interventions in some sectors.

Sector	*Interventions*
Agriculture	• Inputs: Improved seeds, fertilizers and improved fallow seeds • Extension training and storage • Crop diversification • Greenhouse technology
Health	• Bed-nets, immunizations, Vitamin A, de-worming • Construction of clinics and staffing them • Referral hospitals (including ambulance for transportation in SMV) • Community health workers
Education	• School staffing • Construction and classroom refurbishment • Provision of computers (and television in Bar Sauri Primary school) • School feeding programs
Infrastructure	• Water and sanitation • Roads • Energy- Improved cooking stoves, electricity
Business development	• Micro-finance • Cooperative based businesses
Environment	• Woodlot and nursery establishment

Table 1 Sector specific interventions. Source Mutuo et al. (2006)

The second phase of the project focused more on commercialization of agricultural gains and improvement of the local service delivery systems to support scaling up of the project (Nziguheba et al. 2010).

5.4 MVP OPERATIONS IN SAURI

In this section, I describe how MVP has been able to carry out its activities in Sauri or rather the strategies they have been using to 'make' farmers adopt to the new ways of farming which include use of 'modern' crop production technologies, involvement in formal organisational system for production as well as accessing of credit for agricultural purposes. I also highlight some of the responses or reactions from the farmers although this is detailed in the next chapters.

Along with the baseline survey and during the short rains of 2004, demonstrations were laid down in the villages on the 'unpacking' of the introduced technologies, that is, fertilizers and hybrid seeds as well as proper usage of improved fallows. Different types of hybrid seeds were demonstrated and farmers were given the freedom to choose the best performing seeds according to them. The one that ranked high was WH502 because according to the farmers, it produced high yields and took

relatively short time to mature. In preparation for the 2005 long rains, farmers were given free inputs, hybrid seeds and fertilizers, as much as they needed. The farm sizes for each farmer was not known at that time and so many farmers took excess inputs which they ended up selling in the neighbouring villages to get cash for other purposes. Since the fertilizers were freely given in plenty, some farmers ´misused´ the fertilizers as they just poured it on their farms without following the prescribed ways of using them

The year 2005 was a year of celebration in Sauri. After the long rains, a bumper harvest was realized which was highly remarked by everyone and to celebrate the harvests, there was a big harvest festival organised by MVP. This harvest festival (mainly maize grain harvests) that was attended by such highly ranking officials (Mutuo et al. 2006) was probably to be the first and the last because thereafter, crop production took a different turn though not immediately. There were no other harvests like that one. The farmers were required to give out 10% of their harvest as a payback for the inputs and a contribution towards school feeding program. However, this did not last long also.

The idea of community contribution towards the school feeding program (which was largely pushed forth by MVP) was attractive even to the pupils some of whom got some supplementary foods in school that they would otherwise miss at home. The respondents confirmed that their children in school would eat meat or fish every week and fruits everyday in addition to the daily meals that were being offered in school. This boosted the performance of the pupils, according to the principal, Bar Sauri Primary school. However, the enthusiasm of the parents to contribute towards the school feeding program gradually died down, just like many other MVP activities.

Currently, it's only the parents who have children in the school (Bar Sauri Primary school) who contribute 8 kilograms of maize and 2 kilograms of beans per pupil and an additional 2 kilograms of maize for making porridge in the morning. For those who do not contribute, their children are left out when others are being served. It is a pity to see little children lining for porridge while some of their friends, whose parents could not contribute food for the meals, are left in class or rather staring as others feed.

Figure 4 Children being served porridge. Source: field photo, February 2014

Due to lack of storage facilities and especially after the bumper harvests, a Cereal Bank was established after training of the officials of the agricultural committee by an NGO known as Sacred Africa. Farmers were to join as members and bring their produce for storage. The produce would later on be sold and money given to the farmers. Nevertheless, this arrangement ceased to be operational shortly after its introduction due to mismanagement and fraud within the organisational system.

There are various improved maize seed varieties that are recommended in the area and have been introduced to the farmers, according to the agricultural extension officer. They are as per the table below-:

Company	Variety details
Western Seed Co.	There are different varieties of the western seed company seeds and are abbreviated as WH. WH 502 which has been identified as the best variety in the area but has been out of stock since 2008 WH505 (2kg costs Kshs. 390) WH404 is a new seed and it costs Kshs 280 per 2kg pack WH403 (2kg costs Kshs. 370) WH507 (2kg costs Kshs 370) WH202 is a seed variety under trial WH303 (seeds coated with herbicides to control *striga* weed and costs Kshs 150 per kg)
Kenya Seed Co.	They are not very popular in the area and include-: H513 H632
Olerai Ltd.	Olerai variety has low production in the area
Monsanto Seed Co.	DK 8031 It is a variety which is mostly suited for the short rains and is preferred by many farmers. Most farmers use it along with the local maze seeds during the short rains.
Seed Co.	Duma varieties Simba
Pioneer Seed Co.	Not specified
Pannar Seed Co.	Not specified

Table 2 shows seed varieties recommended in Sauri area. Source: Field data from key informants

Farmers in the area mostly prefer seed varieties such as WH505, WH403, WH507, WH509, WH303 and Monsanto DK 8031. Some other farmers go for Duma. The rest of the varieties are available but are not mostly used by farmers in the area. WH502 went out of stock after the post-election violence in the country in 2008 despite the fact that it was the best of all the hybrid seeds in terms of performance. The available fertilizers are nitrogenous and phosphorous fertilizers, basically DAP and also Urea for top dressing.

There are also some 'rules' which come along with the technology 'package' as explained by both the MVP staff and the agricultural extension officer. The farmers in Sauri were advised to use hybrid seeds and fertilizers in the required way as well as the required amount. 75kg of DAP should be used in one acre although the farmers have been using less and less amounts. Other parameters such as spacing apply too. There are two ways of spacing; single spacing which is done at 75cm*30cm and

double spacing done at 75cm*60cm. DAP is then supposed to be applied at 3gms per hole. The farmers were trained in all that. For broader elaboration of the usage of hybrid maize varieties, Rundquist (1984) gives an overview of the package.

He indicated that fresh seed of hybrid maize varieties are supposed to be planted each season and also they require to be managed in a certain way that is different from that of the local varieties so as to realize the full yield potential. Hybrid maize variety is made in a package form. The table below, which Rundquist (1984) adapted from Kenya Seed Company, outlines the recommended practices.

Hybrid maize package ideal practices	
Land preparation	It should be done well in advance of planting and ensure a ready seed bed clean of weeds at the onset of the rains.
Time of planting	Planting should be made at the beginning of the rains or shortly before.
Choice of hybrid	The right hybrid variety with respect to altitude and rainfall should be chosen.
Population and spacing	A good number of plants which is not excessively high should be achieved by planting in rows with a 100 cm between the rows 25 cm between the plants. (However, the MVP advocated for 75 cm by 30 cm as stated above).
Planting	Two seeds should be planted in every hole and later on thinning should be done when plants are 15-20 cm high.
Fertilizers	They should be used at two times. First at planting (where mostly DAP is used in this case) and then later for top-dressing (Urea is mostly used) when the maize plant is knee-high.
Weeding	Apart from having a clean seed bed, an early weeding is recommended. Weeding should be continuous process to keep the farms clear of weeds until the maize flowers.
Stolkborer protection	Insecticides should be used on the growing maize in order to prevent the insects that attack maize (stolkborers) from attacking them.
Storage and treatment against weevils	It is recommended that insecticides be applied to dried cobs before storage to reduce storage losses.

Table 3 Hybrid ideal practices adapted from Kenya Seed Company in Rundquist (1984 :95)

Mutuo et al. (2006) reported that after the end of long rains in 2005, farmers were re-introduced to improved fallow technology and told of their importance, how to use and manage them. There were three major categories of fallows that were distributed to the farmers-:

1. Short term cover crops or green manure which included; *Dolicos lablab*, *Mucuna pruriens* and *Canavalia spp* and take around 3-4 months. Farmers were also encouraged to plant legumes like soya beans, groundnuts.
2. Non-coppicing species take 6-8 months and include *Clolataria grahamiana*, *Crotalaria Johnina* and *Tephrosia candida*.
3. Coppicing fallows included *Calliandra calothyrsus, Gliricidia sepium, Leucaena Tricandra* and *Sesbania sesban*. They are cut down at the end of a cropping season and let the sprout after

which they are cut down the next cropping season and at that time there is enough biomass transfer and nitrogen fixation.

All these improved fallow species were distributed to the farmers to grow throughout the short rains to improve soil fertility although farmers who were being introduced to the improved fallows for the first time were reluctant and also many farmers did not follow some of the fallow seeds pre-treatment and spacing recommendations (Mutuo et al. 2006 :12-13). Nonetheless, the agricultural extension officer did not hesitate to point out that the approach given the fallow seeds was wrong in the first place. The farmers were told that the seeds would be bought once they were ready and during the time that the seeds were being bought by the project, the farmers planted lots of fallow trees but once the seeds were no longer being bought, they stopped planting them. However, the project saw it as a motivator for the farmers to plant more fallow trees before it failed since the financial aspect of it is what was attracting farmers who were not mainly concerned about the technology as a way of improving soil fertility. One of the respondents, Naliaka, actually said that she did not see the need for planting improved fallows if she was not going to get money out of it.
This was still the case when ICRAF was working with the farmers in the area.

The second year of the project focused more on 'agriculture as a business' and this saw diversification of crops in addition to production for surplus in order to generate income which was done through formation and training of producer groups. These groups included Banana group, Tomatoes group and Onion group (Mutuo et al. 2006 :17). During the long rains in 2006, farmers were again given the required hybrid seeds and fertilizers each according to their farm sizes as the agricultural committee had taken a step in measuring the farm sizes of all farming households within SMV. The harvest was relatively good.

One thing that came out was that in 2005, not all the farmers got the free fertilizers. Some were sceptical and refused to take as they claimed that fertilizers destroy soils and brings more *striga* weeds to the farm. But when they saw the yields of 2005, they all wanted the inputs and so the number of farmers who came out for the inputs in 2006 was higher than in 2005. Diversification program came in and the farmers were encouraged to plant other crops during the short rains. They were given seeds for vegetables such as kales, carrots, onions, tissue culture banana plantlets and tomatoes etc for free and at the same time KARI Kenya started teaching farmers about bananas. At this point, it's worth noting that adoption was very high and most of the farmers were busy with the MVP activities.

In 2007, the farmers were introduced to a loan scheme called SAGA which is a local Micro Finance Institution. The idea was that the farmers would be given loans for inputs and they would pay back with cash or maize and thus most of the 2006 farmers joined. The project was helping the loaners with the pay back as it would pay half and the farmers paid the rest. However, most farmers did not payback and thus failed the SAGA or rather the SAGA failed eventually.

Equity Bank came in 2008 to give farmers loans for buying inputs. For the farmers to qualify for the loans they had to be non-loan defaulters and so those who had defaulted in SAGA were not eligible for the bank loans and this disqualified them from getting loans to buy inputs. There were so many 'doors closed' for such farmers, for instance, they were locked out of access to other benefits like in

other sub sectors of agriculture such as in dairy where farmers benefited according to their records. One of the reasons that farmers gave for defaulting was that the inputs were made for them and they were supposed to get them freely as the project had promised to work with them for 5 years. They wondered why they were being told to pay back something that was their own and yet in the first two years they were given for free. Some of them had money and waited to see what would happen if they did not pay. Some could not genuinely pay especially where crops failed.

The loans that farmers were getting from equity would aid them to buy inputs. They would get vouchers from the bank (not cash) to go and purchase inputs from dealers because if they were to be given cash, they would probably use it for other things. Equity bank was able to recover most of the money because the strict sanctions they employed towards the loanees; they had things like collaterals to determine whether the farmers had valuable things that they would take as payment in case the farmers could not pay. There were also cases of defaulting from the bank loans but it was up to the farmers to tackle the matter by themselves.

The SAGA lasted for one year but Equity bank loans lasted for two years before coming to an end since the bankers faced difficulties recovering their money from the farmers. Most farmers opted to just purchase the inputs from the little money they had and so they would purchase less fertilizers than recommended since they could not afford the right proportion except for a few able farmers. The produce definitely went down. According to MVP staff, from the trend of yields estimate data that the project has (I did not get to see the data); the yields have been decreasing from 2008 up to now.

After 2008, the farmers were left on their own to make decisions for themselves since they had been introduced to the loans, SAGA and were free to make own choices and acquire inputs. The project was by then diverting attention to other areas of crop production besides maize production since all the knowledge that they wanted to impart to the farmers had already been released and what remained was for the farmers to act upon it. Farmers were encouraged to form groups for specific crops such as bananas, chillies, kales and were linked up with appropriate companies for marketing. However, some crops like chillies and white groundnuts could not be produced for long by the farmers.

Most farmers had stopped using improved fallows by 2009 as they were only interested in financial gains from the sale of seeds of which the project had stopped buying. Around this time, there was also decrease in maize yields which the project attributed to non-payment of loans, drought and decreased use of improved fallows for soil fertility improvement. There was thus a campaign organised by the project to re-institute the use of improved fallows by the farmers. And MVP also distributed more fallow seeds to the farmers (according to MVP field staff).

In order to help the poorest of the farmers to access inputs, a wealthy ranking exercise was conducted where indigent farmers were grouped and made eligible for input subsidies. The indigents get inputs as follows: 25kg of DAP, 6 Kgs of hybrid seeds and 25kg of Urea (urea for top dressing) which they are supposed to pay back with a bag of maize upon harvesting. However, the farmers (indigents) complain that the fertilizers given are too little and again, compared to the market prices, a bag of maize is far too much as payment for the inputs. There are also additional

costs that come with the payment such as transportation as well as membership fee. Most farmers did not see it worthy and have thus fallen out to depend on themselves as was the case before.

In 2010, the farmers were introduced to greenhouse technology. They were trained on all aspects of greenhouse technology such as its management, how to control diseases and pests, irrigation etc. The greenhouse technology was facilitated by the Millennium Promise that gave horticultural farmers loans for greenhouses. Farmers were supposed to repay the loans so that other farmers would also benefit. However, this technology has not been a success as most of the greenhouses are seen empty, fallen apart or used for other purposes such as storing bricks. Few farmers use the technology effectively.

A Market Service Centre (MSC) was established around 2011 so as to address marketing challenges that farmers were facing. The proposition that, as the Indigent cooperative manager explained, individual marketing by farmers has many challenges which include exploitation by middlemen. It was thought that a collective centre where farmers would bring their produce for marketing collectively would be a solution for such challenges. The MSC provides necessary bulking, sorting and packaging infrastructure needed for marketing of agricultural produce.

The community was organised in cooperatives as a sustainability measure once the project pulls out. There are a total of 8 farmers' cooperatives of which six of them are housed at the MSC. These include grain cooperatives which are Kilimo ni Uhai and Indigent Cooperatives, Gem Horticultural Cooperative, Fish farming cooperative, Poultry cooperatives and beekeeping and honey processing cooperatives. As opposed to indigent cooperative, Kilimo ni Uhai cooperative is made for those farmers who are able to buy inputs by themselves and so the prices are subsidized for them. However, even with the perceived advantages of the cooperatives by the project, farmers have a lot (contrary stories) to tell about them.

The project is now phasing out and as per the MVP staff and also by judging the situation in Sauri, if the farmers using fertilizers and hybrid seeds are compared against those who use only local maize (*Nyaluo* maize), it is now half-half. Many farmers once used these technologies but have gone back to the local seeds for various reasons which range from financial constraints (preference in decision making in terms of money allocation to different household expenditures) to cultural considerations as elaborated in Chapter 6. However, all along the farmers have been planting hybrid maize concurrently with local maize as well as using animal manure for soil fertility in addition to fertilizers.

5.5 CONCLUSION

The initiation of MVP in Sauri was greatly influenced by the previous contacts of the work of ICRAF with the community as Sauri is a location where the likelihood of success of the project was high. Farmers were introduced to new crop production technologies (different hybrid seeds for long and short seasons, fertilizers and improved fallows) as well as new ways of accessing funds and organising themselves that were seen as important for development by the development agents. Farmers were trained on how to ´unpack´ the new technologies and given free inputs during the first and second years of initiation, however, most farmers did not use the inputs as required and, for

instance, ´poured' the fertilizers in their farms as they were given for free and in excess while others sold some of the inputs to their neighbours from other villages outside the MVP.

There was a tendency whereby upon introduction to the crop production technologies for the first time or rather the first contact with the external agents, the farmers would be sceptical. For instance, the farmers who were being introduced to the improved fallows for the first time by MVP were reluctant to pick up the technologies. Additionally, some farmers refused to use the free inputs when they were provided by the project for the first time until they witnessed high harvests from their neighbours.

High adoption was seen when the project was offering inputs for free to the farmers and training and motivating the various committee members to be active in the activities designed. With withdrawal of the project's massive support, farmers' enthusiasm also died along. For instance, the school feeding program is no longer a community responsibility and an individual (parents) responsibility. On the other hand, giving of free inputs and incentives generated 'irresponsibility' and lack of ownership of debts. Farmers were reluctant to pay back loans that they received from the loaning institutions because they still thought that MVP was supposed to cater for that.

MVP's strategy to have farmers' get loans in form of vouchers that they would use to acquire inputs instead of cash acted as a way of controlling the usage of the loans. Farmers place different priorities on their decision making on how to spend their money. Some would have used the 'cash' loans (if they were provided in this form) for other expenditures like paying school fees while others would have bought inputs as expected. It is a matter of choice for the farmers which the project cannot control forever and this implies that; with or without the knowledge of the 'right' thing to do, farmers will always make own decision that fit with their desires, interests or goal in life.

After the first two years of initiation, usage of new technologies depended a lot on the farmers´ choices and capability. The farmers weigh options and make own decisions about the use of technologies and whether to stick to the formal organisational system introduced by MVP or not. This has seen many farmers drop out of cooperatives and farmers´ groups as well as adopting different levels of input use. Nevertheless, the situation in Sauri at the moment is more or less the same as it used to be before the initiation of MVP for most farmers as regards crop production.

This chapter has provided a background for discussion of farmers' interaction with introduced crop production technologies in Sauri in the subsequent chapters.

CHAPTER 6 SCRIPT FOLLOWERS

6.1 INTRODUCTION

In the previous chapter, I have discussed various elements of the MVP, how it was transmitted, initiated and also its operations in Sauri sub-location. This partly includes the findings of the study of which are discussed categorically in this chapter and the next chapter.

During my fieldwork, I realized that some farmers have been able to follow the prescribed policies of technology use as outlined by MVP in order to increase crop yields. At the initiation phase of the project, farmers were trained on how to use the new technologies, for instance, how to apply fertilizers, plant hybrid seeds and also management of improved fallows from the planting time till they are incorporated in the soil or used for other purposes. In addition to being able to follow the laid policies of use (script) of the introduced technologies, some of the farmers have chosen to stick to the formal organisational systems put in place by the MVP. These include market and credit institutional systems.

The trainings given to the farmers acted as the basis for capacity building where farmers gained more knowledge in 'modern' farming practices. Decision making on whether to use the new technologies or not was left in their hands thereafter. Some of the farmers expressed confidence in the introduced technologies. One dedicated farmer (Tom) concluded "...*we then realised that going hungry is just a mistake from lack of knowledge of best ways of farming and poverty*." Traditionally, the farmers did not use line planting but broadcasting of seeds when planting. The few agricultural officers who were there at that time (in 1980s) tried to show people new ways of planting like line planting but they were not as aggressive as MVP, according to the respondents. Fertilizers were too expensive (at that time and to date) to buy and thus most people did not use them since they did not know much about them. The farmers planted local seeds mostly by use of hands and mainly relied on animal manure. Most of these farming practices have now changed for some farmers in Sauri.

This chapter therefore deals with one angle of the farmers´ interaction with crop production technologies that emerges from my study which is the interlocking process. It explains how farmers internalise the use of new technologies introduced to them by the MVP as well as the previous interventions in Sauri which include ICRAF interventions. Different factors and approaches have led to some farmers adopting (fully) new technologies. These include for instance, the fact that MVP initially used to train farmers freely as well as provide free inputs which triggered the need to try out the new technologies and acted as the basis for adopting the interventions.

Again, the lead/master farmer approach whereby some farmers are positioned to be examples to the rest of the farmers is enough reason for such farmers to adopt. Other factors include economic considerations, relationships created mainly around acquisition of the new technologies as well as the different organisational systems that support continued use of the new technologies. Additionally, there is an aspect of gender perspective as men and women within the same

household (man and wife) have the freedom of choice to adopt the new technologies independently or reject them.

6.2 '*NEVER REFUSE A GIFT*'

Foreign aid relates to the tie the donor community has with the recipient society which functions like a gift and also comes with 'strings attached' in the same way as the gifts between individuals. The gift giver also feels obligated in giving the gift and expects the recipient to reciprocate or appreciate in one way or the other (Peterson 2014) and even with that, such gifts are not easy to refuse (Callari 2002).

The MVP used the strategy of a gift to introduce farmers to new technologies. In this case, the gift, in part, constitutes the agricultural development interventions brought to Sauri by the MVP which were freely given to the community and in return, expected to follow the set protocols in order to facilitate development through implementation of the recommended activities in agricultural sector and other sectors too. To enable the farmers understand the importance of using the new crop production technologies and make use of them, the project did a thorough training of farmers at the initiation of the project. The approach used by MVP was to first lay down demonstrations in different villages within SMV. This was done through practical application of fertilizers and different hybrid seeds to show the farmers how the inputs can be effectively used. Similarly, demonstrations were done about the planting and use of improved fallows for soil replenishment.

All this was done for free and it was so natural that farmers could not refuse to attend and gain knowledge from such trainings. On top of that, they were given free inputs as well as improved fallow seeds to start them off. Tom noted that "*the MVP promised to give us everything we needed such as seeds, fertilizers etc for free*". With the knowledge in new ways of farming, the farmers were very curious to make use of the knowledge acquired and try out the inputs provided to them by the project. Some of the farmers have been using fertilizers even in growing local maize with an anticipation of harvesting high yields even though some may struggle to get the required inputs.

Farmers tend to filter and absorb what is necessary for them and disregard what they feel is not beneficial even though they do not turn it down once it is presented to them freely. There is usually acceptance of the 'gift' before deciding whether it is suitable for their needs or not. For instance, there were improved groundnut varieties introduced in the village which the farmers described as small, white and very sweet. This variety of groundnuts could not do well in the area as farmers tested them the first time they were distributed. However, with subsequent distribution of the said seeds, most of the farmers did not even attempt to plant them but they immediately consumed them. Some of the leaders who were charged with the responsibility of distributing the seeds to the farmers did not even share out the groundnut seeds but instead, they consumed them within their households and with close friends. The groundnut ´gift´ could not be resisted even though the farmers knew they were not going to plant them. They had ´better´ uses for them.

The notion of gifts creates room for manoeuvre by the farmers. In the study by Place et al. (2005) concerning impact of agroforestry intervention in western Kenya, it was noted that ICRAF-agents (farmers who were targeted by ICRAF) manoeuvred themselves in strategic and favourable positions

for receiving gifts and attention. For instance, Mango (2002) found that the Luero village elder, Omolo "*was keen to improve himself, forged a very close relationship with ICRAF personnel in order to tap resources. He made sure that his 'fingers' were in all the village organisations in Luero. In this way he succeeded, with the help of ICRAF, to secure an exotic dairy cow from the Kenya-Finland Livestock Development Project. He hijacked the Luero women's group and used it as a springboard to get this animal. When the animal was brought, Omolo maintained that it was for the Luero Youth group, of which he is patron"*(Mango 2002 :261).

During my fieldwork, I interacted with Omolo as he is the gatekeeper of Luero village where I began my data collection. Omolo is the senior village elder of Luero village. He is married to one wife and has grown up children. He has been active in most of the interventions that have been brought to the village and he always took a centre role in all the activities. He has closely worked with ICRAF as well as MVP along with other organisations that have had projects in the village. He has also received a lot of recognition through certificates and other presents such as books from personnel working in the various organisations and enjoyed different field trips and tours within and outside the country. He now plants hybrid maize during the long season in the 'right' way and during the short season, he grows local maize and plants some improved fallows for soil fertility replenishment. He mainly follows the protocols that come with the technology package.

In an earlier study done by Mango (2002), Omolo did not grow hybrid maize at that time, that were claimed to produce much, due to discouragement he got when thieves stole his maize when they were still green as they had produced two cobs per plant. This was in 1988 during the long rainy season and he had planted hybrid 512 (Mango 2002 :255). Moreover, from the many seminars and training sessions Omolo has attended in various aspects of agriculture and his great experience and knowledge in agricultural sector, he has come to adopt the use of the new crop production technologies. He is very enthusiastic and likes to work with external people (interventionists and researchers) because he always knows he can benefit by helping them around the village.

When I first arrived in his homestead, he was getting ready to go for a meeting but all the same he created some time to talk to me. I interviewed him using a general interview guide to get an overview of various interventions that have been implemented in the village and his involvement. Afterwards he promised to take me round the village the following day in an effort to identify some potential respondents (according to my criteria) which he fulfilled the following day. In addition to the many people we visited in Luero village, he also introduced me to the area sub-chief and some youths who usually meet at Sauri Community Centre.

It was after interaction with the youths that they told me to avoid being taken round by Omolo because he is mainly associated with MVP and some people who have fallen out of it may not give me the right (real) information thinking that I am part of the MVP. They also warned me that Omolo is used to being paid by the people he works with especially researchers and so he might as well expect me to pay him. However, with time during my fieldwork, I realised that Omolo was slowly distancing himself from me since whenever I called him he would give some excuses not to meet up. I thought probably it was because I was not paying him or maybe he thought I had already got some 'negative' information about him of which the latter was more likely the case. But all in all I still felt he was ready to assist even though something was holding him back.

During last visit to his home, I observed that he has a variety of maize and bean seeds as well as improved fallow tree seeds of different species. His wife had laid them down on the ground to sort them out and also air them. Omolo likes the seeds to be kept separately; he knows the scientific names of each one of them and their different ways of management. He has been getting the seeds from various organisations he was involved with. Some of them he got from ICRAF, others from MVP and other organisations. Additionally, he has a cow that he got from Heifer International who had a project in Sauri. He has been an entry point for many interventionists coming to the village and thus benefitted a lot by working with/for them. As a parting shot, he emphasised that MVP has had a great impact in people´s lives in Sauri as they were shown how to do farming in the right way.

ICRAF used the strategy of 'agents' to introduce and disseminate SFR technologies over time. The agents were said to have gained substantially from ICRAF and received gifts such as dairy cows or bicycles for services provided hence their continued association with the project (Place et al. 2005). Some farmers in Sauri are not left out of this. They have been engaging with MVP in ways that could earn them gifts in different forms, for instance becoming lead or master farmers as explained later in this chapter so as to get paid for training others or get inputs. They take leadership positions in which they are able to stay in contact with the project and continue to benefit from what comes along whether in form of capacity building (trainings) or material gifts like inputs.

Farmers therefore do not refuse gifts, for some, embracing the gifts leads them to adoption of new technologies. However, some take pleasure in them as long as they last and so 'withdrawal' of the gifts has consequences as discussed in chapter 7.

6.3 ECONOMIC CONSIDERATIONS

New technologies come at a cost but also generate income. Even though they may be easily acquired as result of introduction and dissemination strategies employed by the innovators or the interventionists at first, adoption thereafter depends on, among other things, the capacity to use. You may as well look at it this way; like an advertisement of a new product. The product may be distributed for free by their respective companies to get to introduce it to the potential consumers. These consumers may take it up especially when it is given for free and later leave it or sustain its use depending on their decisions which are based on their experiences, knowledge, capacity (financial status) etc, just to mention but a few. Similarly, in this study, I realize that the wealth of a household is an important factor when it comes to adoption of new technologies.

In a study done by Awotide et al. (2012) to determine the relationship between wealth status and adoption of Improved Rice Varieties, it was found that wealthy households had higher income which encouraged adoption since new technologies require financial back-up (Awotide et al. 2012). In Sauri, the combination of capacity building with economic power (possessed by few farmers) has given some farmers the advantage to fully adopt the use of new technologies in growing of food crops. These are the farmers who do not strain a lot to acquire the inputs required for crop production. On the other hand, the farmers who are very poor and cannot afford to buy the inputs even with little assistance provided by the project end up re-assembling or distancing altogether as discussed in chapter 7. In this regard, Omolo noted that-:

"People still use the knowledge acquired from MVP but it also depends on the amount of money one has. Like now, one should have fertilizers and seeds ready for the next season if they have the money so that they can prepare early in advance to wait for the rains".

Ooko, a committed farmer in Luero village explained that he has never planted without the use of fertilizers because he has always had the money to buy them. He plants according to the package prescriptions described in chapter 4 and always hires labour for all the farm activities. He added that he does not really understand why his neighbours keep claiming that fertilizers are too expensive and yet the farms have been used for so long such that without fertilizers one cannot get any good harvest.

Ooko was born in 1951 and stayed away from home for a long time as he was a civil servant working with the Ministry of Information and Communication and only returned home to be a full time farmer aftr his retirement in early 2000s. He is not badly off financially. His first wife died and he remarried. He began serious farming activities just when MVP was setting in and so he was a beneficiary of most of the interventions that were introduced in the village. His mother had been growing *Nyaluo* maize seeds all her lifetime until she recently died. She also used fallow technology to enrich soil fertility unlike Ooko who says '*planting fallow trees is a bother*'.

He has two farms, one which he cultivates with his brother and another one next to his house which he cultivates with his wife. He is a member of 'Kilimo ni Uhai' cooperative where he gets inputs at a subsidized price and buys as much as he needs since money is not an issue to him. During the long rains, he usually hires an ox-drawn plough to till the land and then uses the same plough or hand tractors to do harrowing. He always hires labour for planting since it is labour intensive if he has to do it all by himself. Planting, according to his explanation, involves use of strings to make lines and then make holes along the lines after which one handful of *boma* manure is put into each hole. Fertilizers (DAP) are then put and the hole is covered halfway with soil. Finally the seeds are put in the hole after which it is closed. After germination of the seeds, he uses CAN or Urea for top dressing.

His crops always do well. He gets good harvests each year and since his farm is adjacent to the road, people passing-by (when the plants are mature) keep asking him the variety of seeds he plants and how he manages them. He has thus put a notice board at the entrance to the farm that reads 'hybrid maize 505'. Even though MVP has contributed to his adopting new crop production technologies, he considers himself as an independent farmer since he buys all the inputs and does all the farming activities by himself. However, whenever MVP staffs pass by his farm with their 'visitors', (probably the donors) they always point out to it and inform the visitors of how some of 'their' farmers are doing well although he claims that this has nothing to do with MVP but his own choice to be a productive farmer.

He also owns a greenhouse where he once planted tomatoes that did very well during the first planting but on second attempt, they were infected by bacterial wilt and so he had to do away with the crops. He has not planted anything again in the greenhouse for close to two years as he got discouraged. The greenhouse is also in bad shape and needs lots of repairs if he has to use it again

that he claims is costly. He does not have any interests anymore to use the greenhouse technology which he claimed he adopted out of curiosity as MVP trained them freely on how to manage a greenhouse. The project also helped interested farmers to acquire loans for setting up greenhouses.

From MVP's evaluations, as per the interview with one of the staffs, the biggest reason as to why most farmers planted improved fallows which were introduced by ICRAF was to get money out of it. Most farmers also indicated that even though they do not plant improved fallows anymore as it is required, they still maintain a few plants that serve to retain seeds in case they may be needed or rather a market for them becomes available. When ICRAF was buying the seeds from farmers, they got a lot of money that greatly uplifted them. Alex pointed out that-:

> *"We would plant the fallow trees, get seeds and sell them to ICRAF people. I personally benefitted a lot because I remember I made around Kshs. 43,000 which I used to build this house because I did not have such a house initially. They just came one time and said they wanted to buy the seeds so that the farmers would uplift their standards of living".*

Even from observation while in the field, at time around the short-rain growing season (a season when fallows are supposed to be planted), I could notice a few improved fallows growing in some farms or at the edges of the farms or homesteads. MVP also adopted the same approach and farmers were told to plant as many improved fallows as possible because the project was going to buy seeds from them to distribute to other regions which did not have. This prompted many people to adopt only during the time when MVP was buying the seeds.

The decision as to whether or not use a certain technology can therefore be determined by the benefits attached to it where mostly farmers adopt due to the financial gains. According to the MVP staff, most farmers planted more improved fallows when the project was buying the fallow seeds from them and stopped planting them once the project stopped buying seeds from them. These farmers are what Kiptot et al. (2007) call *pseudo-adopters* which implies the farmers try out improved fallows with different objective other than solely for soil fertility replenishment (Kiptot et al. 2007). Most farmers, as per the response from most respondents interviewed are pseudo-adopters. They take advantage of the offer.

Farmers also make choices on the best options depending on the purpose of production (for subsistence or commercial). Tom explained that MVP brought them some *soya beans* acquired from KEFRI in Kakamega but claimed that the beans did not have high demand in the market. He has always been planting *rosecoco* beans and been fetching a lot of money from it in the market. He thus did not want to change to the *soya beans* but chose to maintain that kind of variety which was doing him good and had great experience with it. It did not matter that the MVP advocated for the *soya beans* due to its nutritional value even though he is a very enthusiastic in terms of application of MVP interventions. Nevertheless, he produces for the market while his wife produces for subsistence purposes as elaborated in Section 6.7 and so to him the financial benefits are more important than the nutritional value hence his choice to produce *rosecoco* beans. The farmers do not thus make use of everything that is presented to them but they consider their economic value.

Economic consideration as a factor in adoption works two way. Being financially fit encourages adoption depending on the farmers' choice while on the other hand; farmers adopt more to the technologies that have financial benefits attached to them. They always weigh options available to them against their own perception of the interventions hence prioritization of the best options.

6.4 SOCIAL/KINSHIP RELATIONS AND COMMUNITY POLITICS AROUND INTERVENTIONS

In as much as individuals determine how they interact with new technologies introduced to them, innovations and adoption processes take place in contexts beyond individuals per se. The linkage with various social networks like farmer groups, family etc and relationships in which farmers engage in, such as, interactions with external agencies (agricultural and research officers) also influence the degree of technology uptake (Kiptot et al. 2006 :169 citing Leewis and van den Ban 2004; Mudege 2005). These linkages and relationships within SMV have been instrumental in guiding the extent to which farmers utilized the introduced crop production technologies.

MVP devoted a lot to building capacity of the leaders in the villages and also strengthening the capacities of the various committee members to facilitate the running of the project effectively. However, the success of this depended on individual characters of those appointed to leadership positions by the project. It has seen farmers adopt the introduced technologies at different rates within the villages. Success of the committee´s work and in this case the agricultural committee largely depends on the ability of the leaders to disseminate information in an inclusive manner. However, knowledge and material sharing is mostly centred on social relations of the people in the villages. This is mostly around the kinship lines and close friends who tend to benefit a lot especially when one of them is a leader through which information and inputs for other farmers are disseminated. Most of the people associated with the leader tend to benefit more than others who do not have such relations, for instance, the case of Luero village described below.

Luero village, which is one of the villages in Sauri sub-location, is led by Omolo. Omolo belongs to Kathomo clan. According to Alex, a respondent from the same village, Kathomo clan members are originally from a place known as Wagai in Siaya County. Their ancestors migrated to Sauri in 1890s. It is said that a lady from that area was married in Sauri and she later on brought her brother to the area who got married and had children. That was the source of Kathomo Clan. They have been living in the area for more than a century. Compared to the ´original´ clan of Sauri (Kalanyo clan), these particular people are very aggressive in life; they own bigger farms and are very active in agricultural activities. Majority of the people originally from Sauri belong to Kalanyo clan although there are also people from the neighbouring Western Province (luhya people) as well as other clans like Kokwiri and Ndangariya which means Sauri sublocation is composed of a mixture of different people with different origins.

Kathomo Clan is united and the members always come together to assist one another especially during difficult moments like funerals. They hold meetings twice a month to discuss issues of the clan. Members of this clan include Omolo, Tom and Alex who are all adopters of the interventions in the area since 1990s.

During the time when ICRAF was doing research in Sauri, they were among the farmers who offered their farms to be used as demonstration farms by ICRAF staffs and they benefitted from what ICRAF had to offer in return. This included free seeds for improved fallows, fertilizers and hybrid seeds in addition to knowledge they gained from such experiments about farming and specifically soil replenishment as well as being paid to take care of the research farms. They were among the first farmers who sold fallow seeds to ICRAF at good prices of around Kshs. 1000 per 2kg tin (*gorogoro*) which were later distributed to other farmers.

Since Omolo is the village elder in Luero village, he is the entry point of many various interventionists in the village as well as researchers and other visitors visiting the village as already mentioned. Through these external linkages, he is able to acquire lots of information from outside in addition to various trips and meetings outside the village. He is very well informed and alert in many things that are beneficial. As a village elder, he is expected to relay information as well as any other ´gifts´ that come along to the rest of the people in the village. However, at times he is too selective in whom he relays information to or shares the ´gifts´ with and these are mostly channelled towards his close relatives and clan members.

Harietta Magero, one of the respondents from Luero village complained that whenever seeds and fertilizers were given to Omolo to distribute to the rest of the farmers in the village, he would give 'others' far much less than what he would retain for himself and what he would give to his clansmen or close friends. She pointed out that there was a lot of discrimination and corruption and at times farmers would be made to buy inputs that they were supposed to receive for free. She stated in an upset tone -:

> *"You know here we have different clans and those from Kathomo clan are the majority in leadership positions and so they favour only the people who come from that clan, even the village elder you came here with (Omolo Ogola) is from that clan and they distribute things among themselves and neglect people from Kalanyo clan where I come from. He (village elder) was given a hybrid cow by Heifer International that was supposed to go round, that is, upon giving birth, the young one would be given to another household and the process would continue like that. But this never happened. Together with the other people who were initially given the cows, they did not want to release the animals".*

Similarly, Praxides who was also one of the respondents from Luero village complained that information was not being passed down to the people by those responsible as it was initially the case when MVP was initiated. After having leadership meetings in various places, those people in-charge of disseminating the information were not doing so. The people at the lowest rank did not receive as much information as they should and all the knowledge ended up being possessed and acted upon by the leaders and their allies.

In addition to acquisition or dissemination of information and resources through social relations by the leaders in Luero village as well as in other villages in Sauri, village politics also had an influence in the way power was distributed. To be in a position of power (or leadership) means having easy access to information and resources or any other benefits from external sources. Thus struggle for power ensued in Sauri. However, most respondents claimed that Philomena Omuga, the former

chairperson of the MVP community executive committee, was a fair leader. She spoke for everyone and had the community interest at heart. Nonetheless, she was overthrown due to the fact that she was not educated, which was one of the community politics. Sammy had the following to say about her-:

> *"She is a wise lady and she is the one who brought the ideas of building houses for the widows, educating the poor children, a vehicles for transporting harvests to the market, making roads, building toilets for the poor etc. Other people wanted to bring in educated people who would supervise her and the team but they did it through elections where she was overthrown in unfair means. Those opposed to her leadership went and brought young people during the Election Day and called a meeting. But since most people wanted Philomena to remain in leadership, they boycotted the meeting so that the elections would not happen. But the organisers went ahead and voted for someone else who is educated. Ever since that lady was removed from leadership, there has been no meeting that they organised for members of the community to discuss development issues. There has been a lot of office abuse as the leaders now are 'hungry people' without development in mind but to use the project for their own benefits".*

When MVP was initiated in 2004, Philomena was appointed as the chairperson of the Sauri community executive committee and proved her leadership skills through the rigorous work she did as well as valid development ideas she had. She is the one who suggested the need to build houses for poor widows and also getting a vehicle for transportation of products to the market and sick people who had been referred to far away hospitals due to their healing conditions. In her position, she has attended various seminars, trainings, farmers' trips within and outside the country. Philomena is 64 years old and she started living in Sauri in 1982 when she got married. She has two co-wives and was blessed with only one child (daughter) who died as a young lady. She is not educated and lives in Sauri B village within SMV.

Upon re-introduction of improved fallow technology by MVP, Philomena planted lots of them and her land at that time used to be an example where other farmers would come to see how improved fallows are planted and be taught their other benefits apart from soil replenishment. During short rains, she plants the local maize variety as well as Monsanto seeds (DK 8031) since they can still do well in short season. She uses fertilizers as well as composite manure that she makes herself. During the long rains, she plants only hybrid seeds. Although the modern ways of farming are labour intensive, she tries to do her best even though she complains that labour is scarce nowadays the young people who used to help her in farming have all gone to towns and other places to look for 'better' jobs.

When she was the chairlady, she used to receive so many visitors and also hosted researchers at her home. She was featured in many articles in newspapers that concerned modern farming and soil fertility.

The function of kinship and social relations as well as community politics is important as regards to the way technologies are up-taken by the local people. Some leaders position themselves strategically to rip as much as they can from the project. In as much as MVP encouraged community

leadership by having the people select their own leaders for the project, there was still much struggle as some people try to fix themselves in the pathway of receiving 'gifts'. They use their 'education status' and youthful enthusiasm to overthrow the old and uneducated leaders.

Since not all the people who were in leadership positions in MVP at the village level (especially the newly elected youthful leaders) were like Philomena, many of them tried to rip as much as possible from the project and sharing it among a few of their friends or relatives. These are some of the people who adopted a lot the use of crop production technologies as the inputs were available to them and they would attend many seminars and trainings to get more knowledge which was also shared among few people within their cycle. They thus adopted the introduced technologies more than those who did not receive as much information and resources as they did.

6.5. LEAD /MASTER FARMER APPROACH

A shift away from the earlier dominant linear method of introduction and dissemination of new technology through the extension system saw the promotion of community participation through adoption of lead-farmer concept to address the challenges from earlier methods. Farmers are promoted in the communities to facilitate change through empowerment and capacity building. They adopt and other farmers can learn from them (Kiptot et al. 2006 :168).

This concept has applied in Sauri by MVP. According to the agricultural extension officer who was previously working with the MVP, the project adopted lead farmer concept where active farmers were selected and trained so that they would be the source of information for other farmers. They are advised to 'open up' their farms for other farmers to learn from them and seek advice. From MDG report released in January 2014, Lead Farmer program was launched in 2013 to provide a better alternative of how farmers acquire new techniques for farming. The lead farmers were trained in technical, communication and leadership skills and are expected to share with others in order to create some change within the community (MDG 2014 :30).

In SMV, the master farmers are mostly those who have been very active in MVP activities as regards agricultural sector. They have extensive knowledge and are very productive in farming and additionally, some of them were involved in ICRAF interventions. They are positioned as village level facilitators who assist farmers in their farming practices as they have great experience and wider knowledge. At some point they are compensated for the work they do. For instance, when MVP was initiated and sectorial committees formed, Alex, who is one of the master farmers, was made the secretary of agricultural committee in-charge of Luero village. One of the activities he participated in was to take measurements of all farms in the village for documentation and retrieval whenever MVP staff needed them. During an interview with him, he explained that the extension officers were very few compared to the number of farmers that they have to offer services to and so he (together with other farmers) were trained so that they could train others. During that time they were paid Kshs.500 as a motivation for the work they were doing.

However, he also mentioned that since that time, he has not been training anyone but instead he is supposed to be an example to other farmers. He is supposed to do his farming activities in the right way that other farmers can emulate. Thus he tries as much as possible to follow the set protocols on

technology usage. For instance, he is a member of indigent cooperative society and from this cooperative society; members are given inputs but in far less amounts. Most farmers apply fewer fertilizers in their farms but for him, he has to buy extra more and fill up the gap so that he can get some good harvest.

An earlier study by Mango (2002) indicate that when ICRAF was doing research in Luero village in mid 1990s, Alex sold to the project improved fallow seeds that he used to buy a radio. This enabled him and his family have access to nationwide information through the radio. Most farmers were attracted to this and they thus joined the project. At the same time, the farmers realized they could make a lot of money from the use of ICRAF technologies and thus they had big dreams of starting own businesses or building big houses(Mango 2002 :263). During my interview with Alex, I learnt that he later on fulfilled his dream of building a big house. He proudly explained to me how sold improved fallow seeds to the project and earned himself Kshs. 43 000 which he used to build a big house.

The approach by ICRAF of picking a few farmers to work with them has created tensions among the community members. These farmers are seen as having been favoured and thus arousing jealousy in the community. It broke relationships in the community (Mango 2002 :263, Place et al. 2005). Mango (2002) explains how Alex landed in jail after having been framed by his own cousin who was jealous of his progress. The tensions between him and his cousin heightened when the cousin wanted him dead and this had a big impact on him. He had to drop the use of ICRAF technologies following advice by family members. He acquired money from close relatives to start a business of fish mongering. This means that, Alex, who was a very successful adopter of SFR technologies ended up losing out with ICRAF (Mango 2002 :263-264). However, he again picked up with MVP and became one of the master farmers in the community.

The lead/master farmer concept as a factor for adoption is out of question. However, this can be seen from one angle. It is mostly the lead/master farmers who make use of the new technologies and follow the package script as much as possible. Farmers, as individuals and groups have their own way of evaluating situations and making decisions according to their own criteria. It is evident that most of them go for financial benefits. The lead farmer concept has challenges as it produces tension among the community members as a result of envy and this bounces back to the individuals involved with the technologies. The approach is therefore questionable.

6.6 NEW ORGANISATIONAL STRUCTURE LINKAGE

Prior to MVP, farmers had their own ways of organising themselves within the community that would benefit them in various ways. This was mostly through farmers' groups which include women groups like the Luero women´s group. These served as their informal ways of sharing knowledge and resources within the community including seeds and labour. There was mutual interdependence as Mango (2002) explains, whereby farmers would exchange seeds in different ways for example in exchange for labour, through barter trade and sale, borrowing or as a gift. There were no restrictions as to what extend farmers would share among each other (Mango 2002 :185).

However, with implementation of MVP which saw formation of different sectorial committees there was intense work which made people very busy with MVP activities. The community members joined various agricultural activities and the new forms of community organisation. Farmers were grouped into different categories after a wealth ranking exercise, and those who were at the lowest rank, for instance, were grouped together to form indigent group where they could get some special assistance mainly for acquisition of inputs. This was intended to help the farmers who were not capable of buying fertilizers and seeds to have access to these inputs so as to get high yields. Alex remarked that-:

> *"In earlier times, people would share seeds or rather help one another during planting time but with the hybrid seeds, people do not share them. There are only Cooperatives where people can be loaned the seeds and pay back. The cooperatives also have their own conditions and you have to be a member to get inputs".*

With the new ways of organisation and the kind of inputs that are market based, farmers can no longer share these resources. The responsibility of input acquisition is now to individual farmers to source for hybrid seeds and fertilizers, probably with the formal assistance from cooperatives and loaning systems they were introduced to, on their own and do all the labour activities in the farm. Many farmers have fallen out of the MVP organisational system. However, there are still some farmers who are flowing with it and engage themselves in MVP way of organising activities. One of the strategies used by MVP was to introduce the farmers to the formal organisational systems to enable them to acquire inputs and access to credit. Some farmers have chosen to stick to this system so that they can have access to inputs and markets as they realize that the tradition of sharing resources is not applicable anymore and every farmer has to stand up for themselves.

Maintaining the formal links with cooperatives helps them cope with production demands. Some farmers go to an extent of fixing themselves in different cooperatives even when they do not qualify to be in such cooperatives. They come up with own ideas of how to belong. For instance, Nancy does not qualify to be a member of Indigent Cooperative Society. This cooperative is for the poorest farmers who cannot afford to buy inputs on their own. But Nancy does not belong in this category. However, her mother-in-law used to be a member. When the mother-in-law died, Nancy manoeuvred her way into the cooperative by using her mother's position as a member upon her death. Even though the inputs acquired through this cooperative are said to be insufficient, Nancy always buys extra inputs for her farm. She also belongs to another cooperative-Ukulima ni Uhai, where she buys inputs at subsidized prices.

The benefits from some of the access points have 'strings attached'. Western Seed Company, according to a 'modern' farmer-Ooko, has some conditions for access of inputs at subsidized prices. They sell the fertilizers at subsidized prices provided that the farmers buy their seeds. This makes farmers buy the hybrid seeds in order to get fertilizers at a lower price even if they needed only fertilizers. The actors at the company take advantage of the low price offer of fertilizers to farmers so as promote the sale of hybrid seeds from their company.

6.7 GENDER PERSPECTIVE IN ADOPTION

In the process of adoption of new crop production technologies, some gender perspective is observed. Males in Sauri adopt quickly to new technologies than females (Okoth et al. *unpublished*). Women on the other hand according to gender studies (Howard Borjas 2001) are seen as seed custodians and plant breeders. The argument that "women´s responsibilities for post-harvest processing on family food supplies means that women try to ensure that varieties are in line with culinary traditions, are palatable and nutritious, and meet processing and storage requirements,"(Howard Borjas 2001 :19). This confirms the reasons as to why most women in Sauri MV have been slow to adopting hybrid maize than men.

Figure 5 Local maize variety (*nyaluo)* source: field photo, December 2013

Most of the respondents argued that the local maize (*Nyaluo)* meal is more nutritious, tastes better and is satisfying than the hybrid maize. The women are more concerned about the food satisfaction of their families and thus they prefer to use the local maize meal to prepare meals for the family. Harietta Magero explained that-:

> "*Our maize and groundnuts have better taste than the ones they brought. Again, if you grid maize flour from the hybrid maize, you find that you use a lot of flour in making* ugali *and it is still light thus people will eat a lot of it in order to be satisfied. However, OUR* nyaluo *maize meal is heavy and we like it".*

Kongstad and Mönsted (1980) differentiates between food crops and cash crops in relation to family labour and asserts that the food crops that are consumed within the household are more often cultivated by the wife and children while the husband as well as hired labour engage more in cash crops as well as the children and wife (Kongstad and Mönsted 1980 :54). The hybrid maize in this case where the man is more committed to its production mainly serves the market to bring in cash for other household expenditures such as paying school fees while the local maize is used for food due to its advantages over the hybrid and that's where the wife concentrates mostly on.

During an interview with Tom in his household, he proudly mentioned that he no longer plants the local maize and that he always uses fertilizers in his farm. I was yet to discover how he stands out in terms of application of the new technologies.

> It was in the morning hours when I arrived at Tom´s household to do an interview as per our earlier appointment. He was happy that I arrived on time for the interview because then I would allow him sufficient time to attend to another meeting after. He sat outside and near

the door of his main house as his wife prepared breakfast in the kitchen and other members of his extended family were present who include his son's wife. They were all near their respective houses within the big compound doing various activities such as washing utensils and clothes, feeding the baby or just sitting outside their houses. I extended verbal greetings to all of them as I sat down near Tom.

The discussion began with a question on historical account of interventions in the area. Mid-way the interview, breakfast was served and we all took it as we talked. When I asked him whether he still planted local maize, he emphasised that he no longer plants local maize and that was part of the past. We generally got into a conversation about the local maize and how they look like including the different varieties that the local people prefer. To my surprise, he got inside the house and came back with three yellow maize cobs. I did not expect him to have some local maize in store since he had already declared that he no longer has anything to do with the local maize.

When I asked him about having the local maize in store, he brushed it off but indicated that it was important to have them because the seeds can resist weevils and the local variety matures very fast and so they cannot be totally done with.

After several weeks when I went to visit him again, I found lots of yellow maize that looked as if they had just been harvested from the farm spread on the ground in his compound near his main house to dry. I could not help but to ´confront´ him with the question about planting of the local variety of maize to which he replied 'oh, these? They belong to my wife, I personally only plant hybrid maize. I later realised that he and his wife had separate farms. He planted hybrid maize for the market while the wife only planted local varieties mainly for use within the household (for food).

It was from this incidence that I realised that most men in the village, and especially the household heads, were more into planting of the hybrid maize varieties than women. Ooko, also commented that his mother would not hear of hybrid maize and that she always preferred to maintain her local variety. For him, only hybrid maize varieties can be found in his farm. Also, the women who are the bread winners in their families tended to prefer more of the hybrid varieties for the market in order to earn some money to cater for other household expenses as well as local varieties for food.

Women have stronger social networks than men. They establish friendships, especially with fellow women, which enable them to share local seeds and knowledge as well as helping each other in the farms. Women have more knowledge about traditional crops such as cassava, millet, sorghum, sweet potatoes and vegetable crops which are all regarded as women's crop among the Luo people (Mango 2002 :181).

6.8 CONCLUSION

This chapter has elaborated on the different ways in which some farmers in SMV have been able to interlock with various technologies and the formal organisational system as introduced by MVP. Some farmers do not only use the introduced technologies, but are enthusiastic about MVP strategies especially the formal organisational system for input access and marketing. The 'script following' among farmers in Sauri is as a result of different factors.

The notion of 'gifts' creates room for farmers' exploration of introduced technologies. As long as they get them for free, why not try them out? After all there is nothing to lose in using a free gift. And that is what the MVP expects them to do-interlock. Some maintain links with external agents and social relations so as to continue receiving gifts in form of material or even get access to 'useful' information about better ways of farming. The farmers' experiences working with external people and use of technologies as well as the expected 'gifts' they receive from such collaborations explains a lot about their adoption.

To be farmers' example requires one to do the 'right thing'. The master/lead farmers make use of the new technologies in a way that can encourage other farmers to adopt or so it is assumed. There is also a trend in the way the farmers were recruited to be master/lead farmers. Most of them in Luero village were previously ICRAF agents who have benefitted a lot from these projects even beyond productivity and this also explains their continued interlocking. ICRAF used the strategy of 'ICRAF agents' whereby some farmers were the targets of the project and would receive many benefits due to their positions. This aroused envy, tensions and conflicts within the community as they were seen as being favoured by the project.

Economic consideration as a factor of adoption can be understood from two angles. First, the wealthy households adopt more than the poor households. This is because they are able to buy inputs as much as they require and also hire labour for the labour intensive technology application. While on the other hand, the poor households or farmers mostly give up on the technologies if they cannot afford to buy them. Second, farmers consider the economic benefits of the crop production technologies. Can they gain financially out of using them? If they are of any financial benefit, then adoption is high. For example, many farmers planted improved fallows when they anticipated selling the seeds to the projects (ICRAF and also MVP).

Social or kinship relations also play a role in interlocking process. Material resource and information sharing mainly follows these relations. Farmers maintain such relations in order to keep updated and also be in a position to receive gifts that come along with it. Farmers within the village who have 'good' relationships with their kinsmen/friends/relatives in leadership positions benefit from it and thus adopt more than those who seem not to have any ties. On the other hand, people continue to struggle for power in order to be in a position where they can have access to resources and information, probably for free or through their own strategic ways like corruption the system. Community politics has seen wise, dedicated but uneducated leader being overthrown by 'greedy' for power educated persons who are said to only mind themselves.

For continued supply of inputs and access to markets, some farmers have chosen to stick to MVP's organisational system. This implies that they are part of cooperatives where they can acquire inputs and also market their produce. This keeps them in continued use of the technologies even though it is claimed that the inputs acquired from the cooperatives (especially for Indigents) is not enough and farmers have to dig into their pockets for extra inputs.

Adoption also follows the main use of the produce. In most cases, crop production for markets (as a source of income) has seen more use of hybrid seeds and fertilizers than production for subsistence. Men are mostly responsible for income generation within their households and thus adopt more than women who mainly produce for household consumption. Women are more concerned about the nutritional value of their crops. They consider local varieties as being more nutritious and tasteful hence less concern for the hybrid varieties.

CHAPTER 7 DISTANCING AND RE-ASSEMBLING

7.1 INTRODUCTION

This chapter deals with different ways of farmers' interactions with introduced crop production technologies which deviates from MVP's recommendations and expectations. I understand the farmers' responses in two ways where I discuss my findings to bring out two emerging themes and review of how the farmers have taken separate routes in their interactions with introduced crop production technologies. However, there is a minority group that never got involved with MVP and the technologies as Naliaka, a respondent from Sauri B explains *"there is only one man in this area who refused to get involved with MVP because he thought that his land would be taken away. All the other people were involved".* The MVP staff also confirmed that less than 1% of the target population did not engage with MVP.

The first part of the chapter tackles the way some farmers in SMV were initially involved in the MVP project through active participation in its activities in various introduced formal systems and the use of introduced technologies but later on stopped their engagement when conditions changed. The second part elaborates on how farmers mix up traditional farming practices with the introduced ones hence engaging in '*hybrid practices'*.

In summary, this chapter is a discussion of how and why farmers who previously danced to the tune of MVP have taken their own course as well as how others interact with the technologies differently from the recommendations of MVP. Farmers in Sauri sub-location have been interacting with new technologies introduced by the MVP as well as ICRAF in varied ways. Majority of them have tried to use introduced technologies at one time since they were freely provided by MVP as well as the previous interventions in the area. However, some farmers have reverted to using traditional ways of crop production while others have modified the introduced technologies in a way that suits them.

In as much as ICRAF and MVP advocated for use of improved fallows for soil fertility and use of fertilizers and hybrid seeds respectively, these technologies have not been adopted by the farmers in the way the organisations intended for them to be used so as to bring about high crop productivity. There are different reasons as to why farmers reassemble or distance from introduced technologies. First there is failure of the new structures and institutions that were put in place by MVP to facilitate sustainable implementation of the new technologies. Farmers have lost trust in such institutions. Since the new technologies are market-oriented and the resources have to be acquired through the market of which some farmers cannot afford, it then becomes a reason for distancing or re-assembling. Moreover, the introduced technologies are labour intensive which keeps the farmers off the technologies. Above all, there are cultural considerations that are not to be ignored as regards the way the local people make decisions. The cultural believes and preferences of the local people influence the way they adopt to new technologies.

As a result of these reasons, farmers react in multiple ways depending on individual status and ideologies as well as group dynamics. Some of these reactions include disengaging from MVP groups and new ways (formal) of organisations to form their own self-help groups. Additionally, since some

farmers cannot afford buying the hybrid seeds, they make their own seeds, something that the extensionists do not approve of.

7.2 FAILURES OF THE NEW ORGANISATIONAL SYSTEM

MVP recognizes the importance of working systems through which the use of new technologies can be sustained. During the first phase of the MVP, efforts were put towards working on the community systems like production systems such as markets and management structures. This section elaborates on the extent to which farmers have engaged themselves with such organisation.

Setting up of sectorial committees for each sector by MVP was a step into working out of implementation of the project. This included the agricultural sector committee which was charged with the responsibility to oversee and facilitate all the agricultural activities in SMV. Information generated from the community as well as other stakeholders was to be effectively communicated in either ways. Participation within the sector groups was very high among the community members at the beginning of the project since there was adequate compensation and it had not yet dawned on the members that the project support was to be withdrawn sooner.

Mismanagement of the set structures and institutions crept in whereby most of the leaders began to embezzle community resources in different ways for their own benefits. They saw the opportunity that presented itself and due to their positions they strategically exploited it in unfair means. For instance, Sarah, a respondent from Luero village explained that -:

> *"Some of the leaders had stolen so much such that they had even opened bank accounts for themselves that had a lot of money. When the* mzungu *(white man) came, he closed down those accounts and took back the money and gave it to people. They literally stole from people through different ways, for instance, you would take 1 bag of maize (90kgs) and they would put down that you brought 10kgs so that they can pocket the rest. It was bad and people were very angry".*

Farmers were very discouraged from such behaviours of their leaders. Most of the respondents claimed that the same thing was happening from the top most offices of the MVP down to the local authorities such as described by Sarah. Since according to Odunga (2013), community leadership is a key factor for developing agriculture in local communities (Odunga 2013 :681), failure of key institutions, structures and systems of operations emanates from poor leadership. In this case, this has to do with people getting interested in positions of power to only exploit such opportunities which in turn impacts on the way other members of the community relate with the project. Failure of a cereal bank (discussed below) that was established to tackle the problem of storage especially during high yields is an example of the extent to which structure failures bring about distancing.

Due to high harvests within the first year of implementation of MVP, the agricultural committee saw it fit to establish a cereal bank which would be essential in solving the problems of price fluctuations and marketing of maize. Trainings on opening and management of cereal banks was done by Sacred Africa and committee members were taken for tours to existing cereal banks to get an idea of how it operates (Mutuo et al. 2006 :11). A cereal bank was started at the sub-locational level and thus

Sauri established its own cereal bank managed by its own people. However, it did not operate for long before closure, according to the agricultural extension officer.

Joshua, a farmer in-charge of the community resource centre where the cereal bank would have been hosted was one of those who were massively affected by the mismanagement of the cereal bank as he explains-:

> *"When the cereal bank was beginning, we collected 1075 bags of maize and the MVP said they would add us Kshs 100,000 for buying more maize from the farmers to add to the bags we had collected and then they would sell the maize for us. Our maize was sold and we never got anything. These Millennium people really disappointed us. People then refused the whole thing about cereal banking, but the MVP came up with another plan of grouping people in different cooperative societies where most people joined but many have dropped out by now. However, people have not forgotten about what happened with the cereal bank and that's one of the things that made some people refuse to join cooperatives. People had taken different numbers of bags like one, two, three, four or even five bags. I lost five bags that time from the cereal bank, it was painful. That first harvest we got a lot of harvests".*

The whole issue of failure of the cereal bank was blamed on the management as the agricultural officer put it. As a new institution, farmers were eager to invest in it and try out the new ways of self-organisation around marketing where they would also earn dividends. Their dedication was noted in the way they brought bags of maize to the cereal bank for storage and to be sold when the prices would be good although not all farmers were interested in it. Again, people as individuals are entitled to choices.

The cereal bank incidence was a disappointment to the farmers that affected even the subsequent similar arrangement as farmers had began to be sceptical about such system. Some farmers therefore hesitated/refused to join cooperatives that were set to facilitate marketing and acquisition of inputs. From the previous bad experiences farmers had with the cereal bank and some other formal systems set by MVP, some of them did not see the need of joining any other institution like the cooperatives as they saw them as a continuation of the 'oppression' of the poor farmers. For instance, Sammy pointed out -:

> *"I have never being a member of any cooperative because in my view, these project people did not come to help the poor but to do business at our own expenses. They take two bags of maize and Kshs 270 for membership, then again Kshs 570. They say they market for you and get dividends. Your products may take more than one week before being sold out but if you take them to the market to sell for yourself, then you get ready cash. Those who are in the cooperatives are regretting because they can't see any benefits and again they never get their money back even when they withdraw. What's then the use of being a member for three years then you finally get Kshs 300? Many people have withdrawn and if you go there now you will not find anything going on. I used to buy fertilizers for like 50 kgs for three quarters of an acre which is far much more than the ones they give. I also buy or make my own seeds".*

The more the farmers distance themselves from the introduced formal ways of community organisation and especially in regards to the market system, the more they drift away from the use of modern farming technologies. The formal market policies do not allow for marketing of *nyaluo* maize. The farmers who are part of the cooperatives and especially indigents, are supposed to pay back with hybrid maize (or white maize only). The local maize *(yellow*) is not acceptable as a payback and so farmers have to plant the hybrid maize as long as they are getting support for the inputs from the cooperative so that they can be able to pay back. Once they fall out of the cooperatives, they do not feel obligated to plant the hybrid maize or make use of the fertilizers.

Sara stopped planting the hybrid maize when she realized, according to her, that the indigent cooperative she was once a member was more of a burden to her than support. She said that the fertilizers and seeds they were being given were too little for her farm. The members received only 25 kilograms of DAP fertilizers and 6 kilograms of hybrid seeds. In addition, one was required to pay around Kshs 300 for transportation to the Market Service Centre in Yala town for storage and also around 10 kilograms of maize as one's shares. She has therefore opted to planting the local maize mainly but would at times apply little fertilizers if she gets some money although she mainly uses manure. Since she does not use enough fertilizers in her farm, she harvests very little as compared to the time the project was giving the farmers free fertilizers as the soils had got 'used' to the fertilizers.

Similarly, the project introduced farmers to loan scheme known as SAGA that was aimed at assisting farmers to acquire inputs and payback after harvests. The farmers were expected to pay upon harvest but most of them defaulted hence failing the SAGA. They claimed that they were not supposed to pay for resources that were made for them. They still had the notion of 'free gift' (that it was there to stay) which was the impression the project first created to the farmers. They were not told clearly how the project would operate and thus they expected to be getting the inputs for free all the time. MVP kept changing the systems, according to the respondents, and before the farmers knew it, they were linked to Equity bank (a commercial bank) which would give loans to the qualified farmers. Farmers were shown how to apply for bank loans that would aid them to buy inputs. In order to encourage equity bank to offer loans to the farmer, MVP worked in partnership with Alliance for a Green Revolution in Africa (AGRA), which is a development organisation, in supporting credit guarantees to the bank.

However, even with the credit guarantors in place, this loan system too failed because farmers could not pay back the loans or were rather reluctant probably to pay back. This may be because they did not feel as if they owned the debt and maybe had the expectation that the project would chip in. The MVP staff interviewed explained that the Equity Bank had to use harsh methods to recover their money from farmers which created a lot of tension in the village. Some of the farmers 'lost' their animals and household furniture in this ordeal. All along, the farmers connected their harsh treatment by the bank to the project without realizing that they were on their own and MVP was not liable to any of their debts. However, MVP was still blamed by the farmers for any loss of their property from indebtedness. Therefore most farmers refrained from borrowing money from the bank to depend on the little they have.

It is important to note that the qualification criterion for Equity Bank loans was such that only farmers who had repaid all their dues with SAGA qualified for the bank loans. Those who were defaulters (some of whom could not genuinely pay while others waited to see what would happen if they did not pay) in any of the past schemes were not eligible. This meant that many farmers, especially the poorest, could not get access to the bank loan or any other loans. They were totally locked out as the MVP staff put it that-:

> "*There were so many doors closed for those people, they could not get access to even other benefits that were coming from the project. For instance, in other sub sectors from agriculture such as in dairy, farmers benefited according to their records".*

The MVP strategy aimed at introducing farmers to different channels or systems in which they could acquire inputs, yield good harvests with surpluses and payback in order to be able to sustain themselves. However this was not sufficient and above all straight-forward match to solving the problems brought about by poverty. Many of them have distanced from the introduced systems to stand for themselves in other ways.

7.3 LABOUR CONSTRAINTS

Adoption and sustained use of new farming techniques depend largely on the availability of labour. The crop production technologies introduced by ICRAF and MVP which include techniques for soil replenishment is labour intensive. Traditionally, farmers used simple ways of farming such as broadcasting of seeds and spreading of animal manure in the field. However, even with the use of line planting and ox-drawn plough, planting is still simplified and does not take a lot of time. Most farmers were used to these simple methods of farming.

Most respondents acknowledged that use of improved fallows and biomass transfer as introduced by ICRAF adds nutrients to the soil. Omolo pointed out that -:

> "*When you plant these improved fallows in a place with low soil fertility, it increases soil fertility and also fixes nitrogen. When crops are planted in such areas, there is increase in harvests. I find that in a field that would initially not produce more than 4kgs, it produced around 60kgs upon the use of improved fallows."*

Even though this increase in crop yield, as stated by Omolo, may be on the higher side, it was generally agreeable among the farmers that the agroforestry technologies do improve crop yields. Amadalo et al. (2003) explain that "the improved fallows can add between 100 and 200 kilograms of nitrogen per hectare per year which can produce an average of 4.1 tonne per hectare of maize grain as compared to 1.7 tonnes per hectare without the use of inputs or improved fallows. After the use of improved fallows of such fast-growing species, maize yield can be twice as much as the yield of maize that is continuously cropped and with no fertilizer added"(Amadalo et al. 2003 :12).

However, the farmers do not use these technologies as required even with the awareness and knowledge of how to manage and use them and most farmers have actually stopped using them. Among other reasons which include small farm sizes and prioritization of food crops over improved

fallows, most respondents confirmed that improved fallows are labour intensive. The tree fallows have to be removed manually from the field and the biomass transfer systems involve a lot of work too before they can finally be used by crops to supply them with nutrients, for instance, *tithonia* preparations as described below.

Tithonia is rich in potassium in its leafy biomass which after decomposition becomes available to crops (Amadalo et al. 2003 :16). It is a freely growing tree shrub in Sauri and most parts of western Kenya which produces yellow flowers. It is known as *Aketch* in Luoland according to Praxides, a respondent from Luero village. It has always been available but the farmers did not know how to use it until ICRAF made them aware of its importance. However, despite its availability (unlike the other improved fallow seeds that have to be bought and planted) and importance in soil enrichment, farmers do not or rarely use it.

Tom explains that before finally incorporating *tithonia* in the soil, a lot of preparations have to be done. It is used together with *rock phosphate* fertilizer for better results.

> *"You have to go and get lots of it, bring it home and cut it into small pieces, and then put it together with rock fertilizer in all the holes where you are going to plant, cover with soil, put your seeds and cover the seeds"*

Nancy also explained that people do not use *tithonia* because it is labour intensive. At first, when farmers were introduced to it, most of them were very curious about it and this made them active in trying to find out the outcome and also from the motivations they were getting from experts at that time. When they learned of it, Nancy planted her whole farm using it and the results were impressive. She no longer uses it.

Likewise, the hybrid seeds and fertilizers have to be applied at certain rates as well as certain spacing. According to the MVP staff, one acre of land should have 75kg of DAP. The spacing should be 75cm*25cm and 3gms of DAP should be applied in each hole as already explained in chapter five. Nevertheless, most farmers use less than the recommended amount (as discussed in the next sub-topic). Many find it time consuming and hard work having to make the holes, put the right amount of fertilizers, cover with soil, put seeds and finally cover with soil. They want to take short cuts and so they decide to do it in a simple way. Some of them go to an extent of dropping the fertilizers together with the seeds. This has adverse effects on their crops as they later dry up and the farmers end up thinking that the seeds given are not viable. The MVP staff sighed -:

> *"In fact, that was the major problem in 2005, we trained farmers and did demonstrations and then some did not follow the recommendations as taught. If you under dose the fertilizers and put them in contact with the seeds, the seeds cannot be destroyed but if you apply the right dose (3gms) and put them together with the seeds, you destroy the seeds completely".*

Some of the crops which were introduced mainly for the market are also labour intensive to produce. For instance, there are chilli peppers which were introduced to the farmers for the purposes of marketing only. They required a lot of work and did not fetch a lot of money in the

market thus most farmers stopped planting them. They were to be planted and harvested when red, that is, picked and then dried to be ready for market. The MVP staff remarked -:

> *"The chillie company used to come with a lorry but the quantities were not enough. It was labour intensive and the market prices were too low because 1kg was going for Kshs. 120 and you can imagine it is not easy to even get that 1kg of dry chillies".*

Most farmers get discouraged by the intense work involved with the use of new forms of farming. Labour is also scarce as most young people opt to seek jobs outside the community leaving the elder ones behind who cannot do most of the work on their own. Those who can afford to hire labour usually contract people from the neighbouring communities especially the Luhya people from Kakamega County. Others source paid labour from the community members. Omolo pointed out that in the past, people used to assist one another in the farm in almost all the farming activities such as application of manure, planting, weeding, harvesting etc. This was done especially in the informal groups such as the Luero Women group but nowadays, people rely on paid labour such that one can only get such assistance if they have money to contract people do most of the farm work for them. Therefore free labour or on informal basis has greatly decreased if there is still any.
Kongstad and Mönsted (1980) sum it up with the following statement.

> "The commercialization of the economy and the domination of the capitalist economy affect many different aspects of life in the rural areas, tending to destroy many traditional social structures and transform others in the internalization of capitalist market". (Kongstad and Mönsted 1980 :164).

7.4 FINANCIAL CONSTRAINTS

> *"Many farmers once used these technologies especially the hybrid seeds but have gone back to the local seeds due to financial constraints"* MVP staff

Most farmers in Sauri get their income through the sale of agricultural products as well as from on-farm labour hence agriculture is central in income generation for the community members. Most farmers make most income by selling maize grains although wealthier farmers benefit 3 times more than poor farmers from agricultural income (Mutuo et al. 2007). It is also hypothesised that wealthier farmers do adopt more since they have access to financial services and information more than the poorer farmer (Smale and Mason 2014).

Annet represents one of the poorest farmers in Luero village. She is married to Ojuang' and they have two children. They are both HIV positive and receive medication and counselling from Sauri Health Centre on regular basis. She cultivates a very small farm around her home that hardly feeds her family and she always has to rely on market for food, especially maize grains. Her husband is a casual labourer just as herself.

Annet and her husband do not keep any seeds as the family consumes all the available grains even before the start of the next growing season. They have been planting the local seeds which they always buy from the market since they are cheaper than the hybrid maize. They do not use any

fertilizers but once in a while they uses dirt from the compound as manure (composite manure) since they cannot afford fertilizers.

Back in 2005 when MVP was initiated, the household received free fertilizers and hybrid seeds where after harvest they got 7 bags of maize, a great harvest for them. However, when the farmers were grouped into SAGA and loaning was introduced, Annet claimed that her husband got fertilizers and hybrid seeds on loan but could not pay back. They were thus locked out of any loaning scheme or other benefits brought by MVP as all other defaulters. They have thus gone back to growing of local maize and without fertilizers. Annet says nowadays they get lower harvests (less than 1 bag of maize) than before MVP was initiated.

The requirement of fertilizer usage according to the agricultural extension officer is that 50 kilograms of fertilizers should be used in one acre of farm. Conversely, farmers use less and less fertilizers which all depend on their capacity to purchase. Some farmers like Sara and Annet have stopped using fertilizers because they are too expensive for them to buy.
John, a farmer from Sauri B village asserted that -:

> *The MVP stopped providing the free fertilizers and the issue of buying goes along with the farmers' income and that's why you see the differences in farming whereby those who have high incomes get higher produce than those who have low harvests. It's a matter of availability of inputs to the farmers. When the MVP left that issue, they had not left constant supply fertilizers or to train people in such a manner that they have a source that provides for them or securities to pay for them. Individual farmers are trying to get their own ways of accessing their fertilizers through their own channels, for example, other institutions or the networks that they have*.

With the local maize, it is much easier for the farmers to access seeds whenever they want. This is because of the community networks that have been in existence. People feel obligated towards assisting their fellow community members and so they are willing to and can share the local seeds with them. However, with the hybrid seeds, farmers cannot really share them because they are expensive to buy and every farmer is required to buy new ones for every season of which those who can afford only buy just enough for their farms. Rundquist (1984) assert that 'with classical hybrids, yields drop in succeeding generations and in order to retain the yield advantage of hybrids over the local varieties, fresh seeds have to be purchases for every planting season. It is thus not possible to select seeds from the preceding harvest, which is the common practice with the local varieties and this has implications for the farmers and suppliers as it affects adoption'(Rundquist 1984 :94).

Interestingly, some farmers 'make' their own seeds after harvest of the hybrid maize which they believe are not different from the ones sold from the market. Sammy, a farmer from Luero village explains how he makes his own seeds-:

> *"After harvesting maize, I usually get a good big corn and cut off both ends and retain the middle part. I then remove the seeds from the cob and dry them before adding some kerosene on them and then mixing them with wood ash. That way there is no need of applying colour on them. They become like the ones others buy from the market".*

Some farmers blame the project for 'destroying' their soils and worsening their situation in terms of the amount of yields they produce. They claimed that before MVP introduced them to use of fertilizers, they would still plant and get some yields even though they were not much. But after using the fertilizers, the soils have become very weak and cannot yield anything without the use of fertilizers. They therefore pointed out to the way farming has become very expensive compared to the past for some farmers especially the poor ones. It is not also easy for these farmers to sell their produce and invest in inputs since they have priorities when it comes to the way they spend their money. For example, the MVP staff mentioned that during a survey they did in Sauri to determine the reasons as to why farmers were not using fertilizers, majority of them cited the inability to buy fertilizers while others said they had other things to spend their money on such as paying for their children's school fees.

7.5. THE STORY OF ROSE-CULTURE AND PREFERENCES

Culture is part of the complex set of social relations of production that shape agricultural practices and which are constantly changing and through which ideas emerge that are being contested or negotiated upon (Hebinck and Ploeg 1997). In Sauri, which is part of the Luo land, culture plays a big role in the way local people interact with new technologies. Most of it is discussed by (Mango 2002), however, in as much as many people (especially the young people in Sauri) want to believe that the cultural practices are getting eroded in this fast changing world, it is still deep rooted in this community. Again, the local people in Sauri, just like any other community, are a heterogeneous group of people who have different individual preferences which also forms the basis of their decision making.

In most households that I visited, it was acknowledged that the Luo culture is very important in Luo communities. For instance, the culture of first planting and first harvesting (seniority) principle. This is a tradition among the Luo people such that the eldest member of the household has to plant first and harvest first before any other member of the family can do so and this proceeds in the order of seniority. It is a sign of respect to the elderly according to the current reformulation of the culture unlike in the past, according to Mango (2002), where this principle was used to utilize the rich experience and knowledge of the elderly as regards to the decision making on when to plant and harvest (Mango 2002).

Nancy Odede is a farmer from Luero village who has benefited a lot from various projects implemented in the village by ICRAF as well as MVP. She was born in 1953 and schooled up to class 7 before getting married in 1972 as a second wife where she is the youngest among the two wives and she has grown up children. She narrated the culture of the seniority principle as she has been experiencing it within her household.

> 'According to our traditions, in a big family like this one of ours, the eldest member of the family is the one who is supposed to plant first, weed first and also harvest first before others can follow suit in each stage of cultivation and again, according to the order of seniority. I have a co-wife who was married first and so she is the one who is supposed to plant first before I can plant and unless I plant, the children (who are married and with own

families) cannot plant. Sometimes I can be forced to plant first if she delays so much in doing it and if I find that I am getting late in planting. It's against the tradition but I just dare after all I have never seen anyone who has been affected by being deviant and I have overly convinced myself that nothing can happen.

Long time ago they used to say that if you deviate, you will grow very thin together with your kids and then die. I have never seen it happen but nowadays when people see someone growing sickly thin, they say he/she has AIDS. However, the practice is still with us and it is one of the things that are moving us backwards. It is supposed to be done every season, that is, during the short and long rains but once you discover that nothing will happen to you, you can even go ahead and plant even if it's for the short rains without waiting for the other person to plant first. At times the elder people may delay you but some of them are considerate and even if they have other jobs to do and are not in a hurry to plant, they can just walk out with a *jembe*, plant even one hole with seeds and go back to their work. It's not necessarily that they plant the whole farm. This gives the others the chance to plant.

Long time ago, when I was growing up during those times my grandmother was alive, and since I was brought up by her, I used to see when she was away, the others would go and plant her farm first, then go to plant theirs the following day. It still happens in other households if the eldest person is not able to plant for herself; others plant for her and then plant in their own farms the following day. Most of these things we do just to give our elderly the respect they deserve but not because anything will happen if you don't. At times some of them (eldest people in the household) delay planting intentionally and that's why at times we deviate because we need the work done and someone is delaying you.

During the long rains, my co-wife delayed me a lot and ended up planting too late. She knew she would pay people to plant for her and finish within a day while I was left to plant later for several days in addition to having being delayed in planting by her unwillingness to plant in good time to permit me to also to plant. I was not happy and so for these short rains I proceeded to plant first. Her daughter- in-law does not follow such traditions and she always plants even before her mother in law can plant and you know it is supposed to be that her mother in law (my co-wife) plants first, then I plant and lastly she plants but she does not follow that.
You see now in that case my co-wife has cooled down and she cannot really be too harsh on me while her own daughter-in-law is violating the traditions. I have only being doing it for respect but at times she is not considerate and delays intentionally to irritate me.

You see even '*surudu'* (a home garden), you are not supposed to plant it before the elderly plants and that's why you find that her crops mature earlier than those of other family members. Even the kids would want to eat maize but they cannot eat because they are not ready in time while in their grandmother's farm they are ready and that why you find that most of them go to her for maize to roast. But like the way we are two, (me and co-wife), they cannot go there to get some maize to roast because she has to taste first and she does not. That's why if I tell her to go and bring the maize first to open way for us to start eating

and she does not want, I just go to my farm and get some for my kids because and don't want kids to be thieves.

All this is just made so that the young people can give respect to the eldest but nothing really happens nowadays if they don't. Even these things that people say that if your husband dies you have to bring another man to the house is just to prevent women from getting into bad behaviour or moving with the kids to another household if you get married again. They want their kids to remain in their father's home even when he dies. It is a way of controlling the woman´.

In the past, the seniority principle used to be applied at the village level where the eldest person would do the first sowing and first harvesting before others can follow suit. It has however been reduced to homesteads and this has created conflicts especially when the elderly person is unwilling to plant or harvest in time (Mango 2002 :81). Centring on this principle, which is part of an aspect of Luo culture, we notice that it is a tradition which is held highly nowadays only as a sign of respect to the elder people. The young people are going out of their way to get what they want especially if the eldest seem to be an impediment towards the young people's beliefs.

Nonetheless, the young people feel that this cultural practice is an impediment to their own development as they want to use the new technologies in a proper way. Planting of hybrid maize is supposed to be timely and systematic as regards to various parameters such as spacing and application of fertilizers. For a farmer who cannot hire labour to assist in planting, it may take him/her a long time come finish up their farm activities. It is also required that the planting be done immediately the rains begin. If there is delay, it affects the kind of yields that the farmer receives. It is thus creating deviance among the young people who want to get things done but are being curtailed by the cultural practice.

On the other hand, farmers have preferences and choices in what they grow on their farm. During the fieldwork, I noted that most farmers had grown local varieties of maize during the short season. I was surprised because I thought MVP might have influenced farmers massively into adopting the hybrid varieties and using them in all seasons. However, most of the farmers´ response was that they cannot do away with the local seed varieties which (include maize and groundnuts) that they have been planting for years.

The farmers´ preferences still lie within their local varieties due to the importance they attach to the local varieties. These varieties have good tastes, mature faster, can tolerate drought, pests and diseases, does not require much fertilizers in order to do well as compared to the hybrid varieties and above all one requires little of their added value (flour) in order to get satisfied. The seeds can also be generally shared among the farmers in case of shortage. Many of the farmers thus plant the local varieties during the short season so as to keep it 'pure' by preventing cross-pollination with the hybrid varieties.

Additionally, some farmers prefer to store their maize, either local or hybrid varieties in a traditional way. For example, Praxides Alusa always stores he seeds in a gourd that she has been using for a long time. She first dusts with ash before storing them. However, she is aware of other storage ways introduced to her by MVP.

Figure 6 Praxides showing a gourd where she stores her seeds. Source: field photo, January 2014

7.6. REBUILDING SOCIAL NETWORKS

Struggle for autonomy in order to reduce dependency is characteristic of peasant farmers (Van der Ploeg 2010). In this case, the farmers in Sauri are now struggling to co-produce by their own means through the use of resources available to them and by distancing themselves from the formal ways of organisation as introduced by MVP. The project kept most farmers very busy with the project activities especially within the first years of implementation such that they reduced activities of their initial groups and some of the groups even disintegrated, such as Luero women group.

Farmers realized that the formal groups that the MVP introduced to them such as the cooperatives, sector groups, loaning schemes all could not adequately address their problems. In fact according to many respondents, the farmers experienced a great loss when operating through the formal groups. Some of them thus chose to disengage and form their own groups that would be more beneficial in the end. Two examples of such groups are shortly described below.

(i) Sinane Widows and Widowers Group

> *"The death of a spouse usually increases the need for support and companionship" (Lamme et al. 1996 :336).*

Despite farmers distancing themselves from the formal MVP organisations, the project gave some of them an idea of what kind of groups to form and what to engage in within the groups. Sinane widows and widower group is composed of men and women who have lost their spouses. Majority of the group members are women. The group was started after MVP's initiative to build houses for the widows through the Community Driven Housing Project for the Widows in 2005.

It was through this initiative that the widows got the idea of getting together to do something for themselves in unity. Thus despite the project attempting to support the needy widows by building them better houses, this external help was not enough. Some of the widows found it better to come together and be united for their own good. They thus formed Sinane widows and widower group and this was mainly aided by a student researcher who gave them the motivation to grow on their own. In this group, the members make various artefacts like stools and mats and they also grow vegetables for sale to generate income in order to help uplift themselves.

Figure 7 Sinane Widows and Widowers group during one of their weekly meetings. Picture by author, December 2013

(ii) Injili group

This is a Christian group formed in 2010 in which Sara (a respondent from Luero village) belongs to. Members of this group are all farmers who have fallen out the MVP formal organisation and have sought to organise themselves and do activities from their own initiatives that can uplift their status. They usually have merry-go-round whereby they contribute certain amount of money for each member in turns. They also rear chicken and they have hired a farm where they grow various vegetables for sale. At the time of interview, Sara mentioned that they were going to sell their produce and use the money to buy sheep which gives an indication of the growth ideas of the group.

Sara emphasises that the group is very useful and important to her because benefits are equally distributed and the money she gets from the merry-go-rounds (in lump sum) greatly uplifts her. She finished by saying -:

> '*If we work hard in our current Injili group, we can do a lot of things for ourselves even more than what the MVP did. All is possible and I believe with time we will uplift ourselves without having to rely on other people who frustrate us'.*

Apart from these two groups, there are several similar groups formed by the local people and most of which followed the MVP's failure to address their needs as anticipated. These include Geno Youth group that operates parallel to MVP and brings young people together to enlighten and pull available resources to benefit themselves.

7.7 CONCLUSION

This chapter has dealt with two parts of farmers' interactions with and reactions towards the introduced mode of crop production. These include new technologies for production and new ways of community organisation such as new systems and structures mainly for facilitation of access to credit and markets. Mismanagement and corruption (through embezzlement of resources) at the farmers' expense have led to farmers' distancing from the formal community organisation introduced by MVP. Farmers have experienced losses within the formal organisational structure especially with the cereal bank and cooperatives.

Such de-linking from the formal system has seen most farmers revert to use of traditional methods of crop production due to various reasons. First, they do not feel obliged to grow hybrid maize which is a 'requirement' for payback after acquiring inputs through the cooperatives or any other formal institution. Second, some face financial and labour constraints which are somehow related in the sense that without money one cannot access inputs nor hire labour to fulfil the labour intensive use of the technologies. Thirdly, they can easily acquire local maize seeds whenever they need them through informal networks and lastly, the need to produce for subsistence, especially the women within households.

In order to cope up with the changing phase of farming (especially the need to use fertilizers) which seems irreversible since the soils are now ´used´ to fertilizers and production is increasingly low without their use, most farmers are engaged in hybrid practices. Growing of hybrid seeds is alternated to that of local maize varieties such that the hybrid seeds are planted during the long season while the local maize are planted during the short season. Some other farmers whole closely adhere to culture use the hybrid seeds but in the traditional way, for instance, observing the seniority principle which implies that they have to wait for the senior person in the household to plant first before they can plant which can be termed as cultural hybridization.

Additionally, some farmers use lower quantities of fertilizers as well as manure in their farms with the hope that they can still get some harvests. This is contrary to the hybrid package prescriptions of use. Since buying of hybrid seeds every season is expensive, some farmers recycle the use of hybrid whereby they use the seeds over several seasons through their own unique local ways of preservation. They claim to be making their own hybrid seeds. Moreover, farmers form their own groups where they can work together and be productive with the hope of boosting their living standards.

CHAPTER 8 CONCLUSIONS

> *"…farmers began moving backwards to a point where they have now gone back to poverty-where they were before".* Tom, a respondent from Luero village

This study conceptualizes MVP as a planned development and focuses mainly on the way farmers interact with introduced crop production technologies as well as how they relate with the new organisational system (production and marketing structures) in SMV which is located in Siaya County in western Kenya. The actor-oriented approach used in this study captures the community heterogeneity in terms of varied responses to introduced technologies. The central concepts (main processes) in this study are interlocking, reassembling/re-designing and distancing. These are the concepts/processes that emerge from the literature of planned development as well as my fieldwork in Sauri. Farmers interact differently with planned interventions as they have agency. MVP, just like most planned development projects, only focus on interlocking as the only outcome of interventions ignoring that reassembling/re-designing and distancing processes are also part of development.

The historical depth concerning these processes in Luoland reveal that not every intervention that was brought to the people was taken for granted. For instance, the Luo people resisted production of cotton crop because it interfered with food production which they needed most. Again, even the Swynnerton Plan that included privatisation of land which involved issuing of land title deeds was resisted by the Luo people as they had their customary way of land adjudication. Land was shared according to the customary laws. The bottom-line is that people have been subjected to various interventions in the past but these have always been understood within the context of the mentioned processes.

MVP as a planned development has followed similar trajectory of planned development regardless of the incorporation of top-down and bottom-up approaches. One of the limitations of the study is difficulties in accessing MVP data. MVP does not give independent researchers access to their records, part of which I see as a way of trying to conceal negative aspects of the much celebrated MVP which was aimed at mainly poverty alleviation. I see MVP as a social process where the outcomes of the project are influenced by the actors while at the same time the project to some extent shapes the behaviour of the actors involved. Therefore, this study sought to find out the mechanism through which MVP transmits its crop production technologies and how farmers interact with them.

In chapter 5, I elaborated on the strategy used by MVP in implementation of its activities in Sauri. The notion of free gifts emerges clearly as 'a bait' to get to introduce farmers to new technologies and also create 'appetite' for them. The organisational package was part of the strategy to for ensuring sustainability of the project activities. However, farmers engage with such arrangements differently as individuals and in relation with other social actors. The project has been shaped by interactions of various social actors involved with MVP.

The interface between the farmers' traditional practices and that introduced by MVP as well as previous interventions in Sauri such as ICRAF has lead to development of hybrid practices and

cultural hybridisation (blending of two or more cultures). These practices are seen in the way farmers reassemble the introduced technologies to make them fit within their limits. For instance, Luo culture requires the eldest member of a household to plant and harvest first before any other member so as to bless the land. This is done in order of seniority. However, hybrid maize package call for planting to be done immediately the rains fall or shortly before they fall. Combinations of these two requirements result in modification to certain extend. The younger household members have to wait until the eldest plant so that they can also follow suit. By so doing, it implies planting of hybrid ('modern technology') the traditional way and this partly explains why MVP does not fit into the culture of the local people. Additionally, both hybrid and local varieties are grown separately by men and women which again is a mixture of traditional and modern practices at the household level.

The interventions introduced in Sauri have created tension, misunderstanding and conflict between the community members in struggle for resources. For instance, the strategy that ICRAF used to introduce and disseminate agro-forestry technologies resulted in tension and conflict within the community. ICRAF identified some target persons (agents) through which the technologies were exemplified. The community members saw an element of favouritism in the operations of ICRAF since its agents got to benefit a lot hence creating imbalances of resource distribution. This aroused tension between the agents and the rest of the community members due to jealousy. MVP has similarly followed the same route especially now when it is phasing out. Some members of the community have been projected as master/lead farmers from whom other members can emulate as regards to adoption of new technologies. Again, this does not go well with some community members who feel that resources (gifts) are channelled to these people who only share them among their social relations.

Leadership and social relations play a role in the way uptake of new technologies occur. Despite the efforts by MVP to organise the farmers formally in a way that each member could stand a chance of benefitting, still social and kinship relations that operate in the background have a great impact in interlocking process. The existing leaders are made the entry point of interventions and this means that resources that are meant for the community from projects pass through them for distribution to the other members of the community. Most resources and project benefits rotate around kinship lines and social relationships especially in Luero village, which was the centre of MVP and ICRAF activities, but also in the rest of Sauri MV. The leaders began to pull resources (inputs) towards themselves and around their social links especially when resources began to get scarce in terms of withdrawal of free inputs. Some leaders actually accumulate resources unfairly-at the expense of their fellow community members.

MVP has effectively created awareness of the new crop production technologies in Sauri community. Even though some farmers were sceptical that the interventionists would end up taking their land which made them keep off about the new technologies at the initiation of the project, MVP's strategy was inclusive. All farmers witnessed the 'miracle' of the use of hybrid seeds and fertilizers as experienced through the bumper harvest within the first year of intervention. This got all other farmers interested in the inputs which again, were offered for free along with knowledge of how to apply them. When finally most farmers gradually withdrew from their commitment to MVP and formed own groups or started to operate individually in their own ways, they still at one point make use of the knowledge acquired from the project.

One of the unintended outcomes of MVP is that in as much as it tried to employ 'sustainable' measures to create change in the community, it also attracted a different group of people to the community who include researchers who view the project critically. The result is that they have had impact on the local people. They have enlightened them about the 'flaws' of MVP and how best they can bring about change by themselves without having an external agent introduce change to them. An example of this kind of outcome includes a youth group (Geno Youth Group) that was born out of such inspiration and operates parallel with MVP. The project also triggered ideas in the farmers' minds on different informal organisations that they could engage in to earn a living. One of these groups is Sinane Widows and Widowers group. It began as a result of MVP's initiative to build houses for widows who later on got the idea of coming together to help each other outside the project.

From estimation out of my data and the number of respondents that I interviewed, I can say that 70 percent of the farmers have been involved with the new technologies through reassembling and distancing while 30 percent have interlocked with the introduced crop production technologies and the formal organisational system. Looking at it at the project level, all the social actors involved like the farmers, farmers' organisations and cooperatives (marketing system), credit bank (equity bank), fertilizer and seed companies, NCPB, national government (extension office) and the MVP staffs all have their own interests. They struggle for control over resources that are available and made available by MVP for their own benefits.

MVP injected a lot of resources in Sauri in the hope of transforming the 'village' to a modern village where mainly poverty would be a thing of the past. However, this has not been the case. MVP may not amount to much in regards to eradication of hunger especially if no further funding will be available to facilitate provision of 'gifts'. Its strategy was based on free inputs in exchange of adoption of which withdrawal from provision of free inputs has seen farmers get involved in reassembling and distancing processes. In the eyes of the farmers, the poverty situation is it was even before MVP was initiated. However, it is clear that majority of the farmers have knowledge about 'modern' farming as imparted by MVP.

Agrarian change is gradual; it may not happen within the specified project duration. MVP was designed such that by 2015, Sauri will be an 'island' of success to prove that MDGs are achievable. This has not been possible. Again, agrarian transformation largely comes from within. There is much struggle at the village level over resources and generally people's livelihoods whereby the processes of interlocking, reassembling and distancing constitute part of agrarian development. This implies that technological change in agriculture is not just a technical process, but a socio-technical one.

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APPENDIX-A LIST OF RESPONDENTS (PSEUDONYMS)

Key Informants

1. Agricultural extension officer
2. MVP staff
3. MSC manager
4. NCPB manager
5. Bar Sauri Primary School headteacher

Respondents

6. Omolo Ogola
7. Tom Oloo
8. Alex Owino
9. Praxides Alusa
10. Nancy Odede
11. Sarah Jalang'o
12. Gedion Majuma
13. Annet Ojuang'
14. Sammy Muga
15. Harietta Magero
16. Moses Ramogi
17. Naliaka Mariga
18. Phelomena Omuga
19. John Omire
20. Ooko Opiyo
21. Joshua Were