Combining Scenario Workshops and Participatory System Dynamics Modelling to Study Food Security. A case study with farmers in Zambia

Maria Eduarda Bruel de Salles Ferreira
Licenciada em Engenharia do Ambiente

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Orientador: Prof. Nuno Videira, Professor Auxiliar, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa
Co-orientador: Prof. Birgit Kopainsky, Associate Professor, University of Bergen

Presidente: Prof. Doutora Paula Baptista da Costa Antunes
Arguente: Doutora Rita João Duarte Lopes
Vogal: Prof. Doutor Nuno Miguel Ribeiro Videira Costa

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Resumo

A segurança alimentar é uma questão mundialmente conhecida tanto a nível económico, político e, também, científico, que afeta principalmente os países em desenvolvimento. Alcançar a segurança alimentar é um processo muito complexo que envolve não só a habilidade e capacidade para a agricultura, mas também uma adaptação constante aos fenómenos naturais, como, por exemplo, os padrões de precipitação. O conhecimento limitado e o restrito acesso à informação e tecnologias, são fatores que reduzem a capacidade das comunidades agrícolas locais para alcançar a segurança alimentar. Além disso, existem poucos métodos e ferramentas adequados para envolver os stakeholders, tais como os agricultores, no desenvolvimento e avaliação de políticas alimentares e os seus respetivos efeitos a longo prazo em todo o sistema.

O objetivo principal desta dissertação é investigar como o uso de métodos mistos - cenários e modelação participada em dinâmica de sistemas - são capazes de melhorar a compreensão através de uma visão integrada dos sistemas alimentares, servindo como uma alavanca no processo da tomada de decisão nas questões relativas à segurança alimentar. Ainda, esta dissertação tem como objetivo responder as seguintes duas questões: i) Como cenários e a dinâmica de sistemas podem ser usados em conjunto para estudar possíveis futuros de segurança alimentar envolvendo agricultores locais em países em desenvolvimento? ii) Num contexto de agricultura de subsistência, em países da África-Subsaarianos, quais são as possíveis políticas e respetivos caminhos para evitar situações indesejáveis e estimular as desejáveis? Para este propósito específico, um grupo de agricultores de subsistência na Zâmbia foi analisado como caso de estudo.

Primeiramente, um workshop foi realizado, onde o cenário de pouca pluviosidade e nenhuma ajuda do governo foi desenvolvido, sendo este considerado um cenário indesejado. Com o objetivo de alcançar a segurança alimentar, os participantes tiveram que encontrar propostas e caminhos para evitar ou superar esse cenário. Posteriormente, a partir dos dados do workshop de cenário, os diagramas causais foram construídos usando um processo de codificação sistemática. Dado isto, os próximos passos foram analisar as propostas através de uma análise de impacto cruzado, e desenvolver um esboço dos caminhos para estudar a complementaridade e a compatibilidade das propostas. As 11 propostas desenvolvidas neste estudo foram negócios relativos ao carvão vegetal; pecuária; amendoim; jardinagem; empréstimo; trabalhos esporádicos; técnicas para melhorar o solo; arrendamento de casas; parcerias; legislação para a deflorestação e florestação; e bacias de retenção/furos de água. Finalmente, foi possível conceber um Plano de Ação inovador que mostra os caminhos e o ritmo em que cada proposta pode alcançar a segurança alimentar.

Concluiu-se que o workshop de cenários e dinâmica de sistemas podem ser utilizados em conjunto, uma vez que esses métodos se complementam, estimulando o sistema de pensamento e o conhecimento. Os workshops de cenários são um método disruptivo e exploratório, pois permitem desencadear imagens criativas e também plausíveis dos participantes. A dinâmica de sistemas apoia os processos de tomada de decisão, analisando as propostas e os seus percursos, levando à elaboração de planos de ação. Neste caso de estudo, das 11 propostas identificadas, descobriu-se que os trabalhos esporádicos possibilitam um caminho mais rápido para alcançar a segurança alimentar, enquanto o arrendamento de casas seria o mais lento. Além disso, verificou-se que algumas das propostas poderiam ser reforçadas se implementadas em
conjunto, enquanto outras, como o carvão vegetal e a legislação para a deflorestação e florestação, não mostraram esse potencial. Uma pesquisa de acompanhamento com os participantes do workshop mostrou que os mesmos estavam seguindo o plano de ação, o que confirmou a preferência pelas propostas de curto prazo.

**Palavras-chave:** segurança alimentar, workshop de cenário, plano de ação, diagrama causal, Zâmbia.
Abstract

Food security, which affects mainly developing countries, is a worldwide problem that has called the attention of the economic, political and scientific community. Achieving food security is a very complex process that involves not only the ability of farming but also a constant adaptation to natural phenomena, as for example, rainfall patterns. Limited knowledge and access to information and technologies, restrict the capacity of local farming communities to achieve food security. Furthermore, there is a lack of suitable methods and tools for involving stakeholders, such as farmers, in the development and assessment of food policies and their long-term system-wide effects.

The main goal of this research is to investigate how the use of mixed-methods – scenarios and participatory System Dynamics (SD) modelling – are capable of improving understanding and an integrative view of food systems, serving as a lever for supporting food security decision-making processes. Additionally, this research aims to answer the following two questions: i) How can scenarios and participatory SD be used together to study plausible futures of food security involving smallholder farmers in developing countries?; ii) What are the possible policy pathways to avoid undesirable situations and to stimulate desirable ones, in a context of subsidence farming in Sub-Saharan African countries?. For this specific purpose, a group of smallholder farmers in Zambia was analyzed as a case study.

First, a workshop was implemented in which a scenario of poor rainfall and no government help was developed. In order to achieve food security, participants had to find policy proposals and pathways to avoid or to overcome this undesired scenario. Subsequently, from the scenario workshop data, causal loop diagrams (CLD) were built using a systematic coding process. The next steps were to analyse policy proposals through a cross-impact analysis and develop an outline of pathways to study the complementarity and compatibility of such proposals. The 11 policy proposals were Charcoal Business; Livestock Business; Groundnuts Business; Gardening; Loan; Piecework; Land (productive land); Rental Business; Partnership; Legislation for Deforestation/Afforestation; and, Retention Basins/Drilling Boreholes. Finally, it was possible to design an innovative Action Plan that shows the pathways and the pace at which each proposal may achieve food security. It was concluded that scenario workshop and participatory SD may tightly coupled since these methods complement each other, stimulating system thinking and co-creation of knowledge. Scenario workshops are a disruptive and exploratory method, as it allows to elicit creative and plausible images from participants. Participatory SD supports decision-making processes by analysing policy proposals and its pathways, leading to the elaboration of joint action plans. In the Zambian case, from the 11 plausible policy proposals, it was found that Piecework enables a swifter path to achieve food security, while Rental Business would be the slowest. Additionally, it was found that some of the policy proposals could be reinforced if implemented together, while others, such as Charcoal Business and Legislation for Deforestation/Afforestation, did not show such potential. A follow-up survey with workshop participants showed that they were following the Action Plan, confirming the preference for the short-term policy proposal pathways.

Keywords: food security, scenario workshop, action plan, causal loop diagram, Zambia.
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Glossary and Abbreviations

AGORA  microfinance operator-investor that builds microfinance institutions in frontier markets
BAU  Business-as-usual
CFU  Conservation Farming Unit
Chibwantu  Fermented maize drink
CIN  Conversation Identification Number
CLD  Casual Loop Diagram
DAPP  Development Aid from People to People
DV  Deliberative Visioning
FAO  Food and Agriculture Organization
FISP  Farmer Input Support Program
FRA  Food Reserve Agency
GMB  Group Model Building
GT  Grounded Theory
HDI  Human Development Index
IFRCRCS  International Federation of Red Cross and Red Crescent Societies
ISA  Integrated Sustainability Assessment
Kapenta  Fish
LP  Leverage Point
MIN  Map Identification Number
MM  Mediated Modelling
Nshima  Maize flour
OSAWA  Own Savings for Asset and Wealth Creation
PRA  Participatory action research
R-SNDP  Revised Sixth National Development Plan
Samp  Ground Flours
SD  System Dynamics
SSA  Sub-Saharan Africa
TB  Tuberculosis
UN  United Nations
UNDAF  United Nations Development Assistance Framework
WFO  World Food Programme
1. Introduction

1.1. About the topic

Food security is a worldwide problem that has called the attention of governments and the scientific community, affecting, in particular, the developing countries (Giraldo et al., 2008). Food security exists “when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (Food and Agriculture Organization, 1996). This term was introduced in the World Food Conference in 1974 (Giraldo et al., 2008). Rosegrant et al. (2003), global food security will remain a worldwide concern in the next 50 years and beyond; moreover, the eradication of extreme poverty and hunger was included as one of the 17 United Nations Sustainable Development Goals in 2015.

Food crisis has been part of the food history since early antiquity. Modern crisis, for instance, the international food crisis that occurred during the 70s, the 2007-2008 food security crisis and the period that we are currently experiencing are of a very different nature. They generally are not crisis due to food shortages, as global food availability is largely sufficient to feed all the world’s population, and the infrastructure is in place to bring commodities to the areas where there may be a localized shortage. Rather, current crises are related to food access for a mass of people who live in poverty and do not have enough resources to purchase the food they need (Maetz, 2012).

In 2006, 39 countries in the world were considered in an emergency state, due to their food insecurity, where 25 were in Africa, 11 in Asia and Near East, two in Latin America and one in Europe (FAO, 2006). Between the years 2012 and 2014, more than 805 million people in the world were considered undernourished, where almost 791 million were from developing regions (FAO, 2014). To achieve food security, there is a very complex path that involves not just the capacity of farming but also a constant adaptation to natural phenomena. The capacity of farming can be related to agricultural technology, tillage methods, storage capacity, among others. Whereas, the natural phenomena are influenced by climate change, for example, rainfall patterns and oscillation of temperature (Mapfumo et al., 2013).

Zambia is a Sub-Saharan country where agriculture faces challenges due to the climate change, so the food security in this country is not guaranteed (Saldarriaga et al., 2013). According to Mapfumo et al. (2013), the limitation of knowledge and access to information and technologies, restrict the capacity of local farming communities to respond and adapt to climate change issues.

While there has been considerable progress in understanding the sensitivities of crop yield to climate change, assessments of climate change effects on food security remain rather limited (Gregory et al., 2005). It has been proven that anticipation of risks and adaptation guidelines increase the capacity of adaptation to such complex events. However, evaluations of adaptive capacity related to climate change are normally mainly focused on the public sector, forgetting the individuals and private sector (Glaas et al., 2015). Moreover, climate change adaptation is primarily considered as a local
phenomenon, which therefore largely requires local responses (Mapfumo et al., 2013). Stakeholders involvement at all levels, from governments to local populations, is crucial to develop better strategies at the community scale. They can be involved in mainly two different ways: individual in-depth interviews and workshop group activities (Kok et al., 2006).

To achieve food security, or to develop a better future in general, it is necessary to be able to imagine it and, therefore, scenarios workshops can play a crucial role in such processes. Scenarios are considered an effective tool because they can synthesize and communicate information in a graphic and attractive form (Alcamo, 2001). Scenarios workshops involve different stakeholders in order to deliberate policy pathways (i.e. action plans) to achieve their goals. This mechanism has the power of evaluating various possible future events, thus the development of policies for those situations (Kallis et al., 2009). Moreover, the data usually extracted from scenarios are qualitative, which offers an important source for building simulation models in system dynamics (SD) through a coding process (Kim & Andersen, 2012). SD tools, namely participatory SD modelling, may also support decision-making process and the formulation of strategies, helping to study and integrate knowledge in complex systems through causal loop diagrams (CLD) (Hager et al., 2015). Even though these methods complement one another, they are rarely used together (Olabisi et al., 2010). Considering this gap and the benefits mixed-methods can bring, it is relevant to develop more studies combining these two methods regarding food security.

Within this context, this study aims to explore the combination of these two methods – scenario workshop and participatory SD modelling – in order to involve smallholder farmers from a developing country, who do not normally have an active voice in decision-making and development of strategies. The research also intends to fill the literature gap regarding the combination of these two methods; and, lastly, the outcome of it.

1.2. Objectives and research questions

The main goal of this research is to explore how the use of mixed-methods – scenarios and participatory SD modelling – are capable of improving understanding and an integrative view of the system serving as a lever for supporting food security decision-making processes. With the combination of those tools, it is expected to anticipate and to be better prepared for future events, thus increasing the adaptation capacity. The central questions guiding the current research are:

- How can visioning and participatory SD be used together to study plausible futures of food security involving smallholder farmers in developing countries?
- What are the possible policy pathways to avoid undesirable situations and to stimulate desirable ones, in a context of subsistence farming in Sub-Saharan African countries?

The pursuit of these research questions and the resulting insights are expected to contribute to enhancing and enriching the set of tools available for a holistic and inclusive analysis of food security.
and the design of corresponding policy options, by integrating scenarios and participatory SD modelling approaches. The questions will be addressed with the analysis of a case study developed in Zambia.

1.3. Organization of the thesis

The thesis is structured in the following five main chapters:

1) **Introduction**: Consists of the framework of the research, underlying the food security problem in the world and sub-Saharan Africa, namely in Zambia; and the methods under study, which are visioning and system dynamics in a participatory workshop. Furthermore, it contains the objectives and research questions, and a synthesis of the thesis organization;

2) **Literature Review**: Presents the relevant literature and theoretical principles of the study which are: food security in developing countries and in Zambia; visioning, scenarios and backcasting; participatory system dynamics modelling; and mixed-method approaches. The last three topics are methodologies that can be applied when studying food security, to illustrate this, relevant studies were reviewed in the context of food security;

3) **Methods**: Presents the methodology used in each stage of this research: data collection and analysis – System Thinking (ST) workshop, in 2015, preparation of the scenario visioning workshops in 2016, workshops and data collection; and data processing and analysis – coding method, cross-impact matrix, outline policy proposals pathways, action plan and follow-up;

4) **Results and discussion**: presents and discusses the outcomes of the study. Firstly, the presentation of the case study. Subsequently, the results that are based on the workshops conducted in Zambia in 2015 and 2016 and their data processing and analysis.

5) **Conclusions**: The last chapter presents the conclusions, including a critical review of the developed work and the obtained results. It also contains suggestions for future research.
2. Literature Review

2.1. Food Security in developing countries

Food systems are complex and dynamic systems, involving biophysical and social factors linked through feedback mechanisms, including all the activities involved in the production, processing, transport, and consumption of food. These mechanisms influence systemic outcomes, namely food security, environmental and social welfare over time (Saldarriaga et al., 2014; The Oxford Martin Programme on the Future of Food, n.d.).

According to Saldarriaga et al. (2014) and Gregory et al. (2005), food security can be described through the behaviour of food availability, access to food and utilization of food; if one of them is stressed, food security is diminished. Food availability refers to the amount, type and quality of food a unit has at its disposal to consume, either through local production, distribution, or exchange of money, labour or other items of value. Access to food is how each consumer can afford available food and if they have the possibility to meet their food preferences; ‘preferences’ is here interpreted as food that is socially and culturally acceptable and consistent with religious and ethical values (Pinstrup-Andersen, 2009). Lastly, the utilization of food is the ability to consume and benefit from food, nutritional and social values of safety.

Food security assessments are made to understand how severe food insecurity is and the reasons why, determining if there is a need for an intervention, and also helping to predict upcoming food insecurity levels or the duration of an insecure food period. These assessments focus on some parameters, such as how people try to maintain a secure food environment for themselves, and whether they succeed, how people make their living, how they meet their food needs, what resources they have available, and who can access these resources and whether this access changes over time (IFRCRCS, 2006).

Food security can be analysed at different levels: national, household, and individual. These levels should be analysed separately since, for example, if a country which is considered food secure, it does not mean that the household level is also food secure. National food security is used to measure the extent to which a country has the means to make available to its people the food needed or demanded, irrespective of whether the food is domestically produced or imported. Meanwhile, a household is considered food secure if it has the ability to acquire the food needed by its members to be food secure. At last, individual food security results in good nutrition depending on a set of non-food factors such as sanitary conditions, water quality, infectious diseases and access to primary health care. Thus, food security does not assure nutritional security. Figure 2.1 presents the related factors of food security expressed in terms of supply, demand and stability related to national needs (Thompson & Metz, 1999 in Giraldo, et al., 2008; Pinstrup-Andersen, 2009).
As reported by Gregory et al. (2005), food security depends on robust food systems that comprehend issues of availability, access and utilization, not merely production alone, and consequently, the nature of key research issues changes as questions more related to food security are formulated (Figure 2.2). Surveys with a set of questions addressed to potentially food insecure households are often used to estimate food insecurity scores, through statistics (Coleman-jensen et al., 2014; Pinstrup-Andersen, 2009).

Figure 2.1 Levels to assess food security (Source: Thompson & Mets, 1999 in Giraldo et al., 2008)

Figure 2.2 The changing nature of key research issues and frequently asked questions at a range of different scales moving from crop production to food security (Source: Gregory et al., 2005)
Urbanization and globalization are causing rapid changes to food systems, which increases stakeholders’ needs for adaptation to continuous change, especially when it combines growth and more demanding population, among exogenous causes, such as climate change (Gregory et al., 2005; Hager et al., 2015; Saldarriaga et al., 2014). Even so, food systems are not equally vulnerable to environmental changes because the capacity to cope with existing variability in biophysical and socio-economic systems differs from the ability of humans to perceive environmental changes and to adapt food systems (Gregory et al., 2005).

In developing countries, climate change has a large influence on several dimensions, such as economics, politics and agriculture. In warmer or tropical countries, climate change may result in more intense rainfall events between prolonged dry periods, as well as reduced or more variable water resources for irrigation, promoting pests and diseases on crops and livestock, likewise soil erosion and desertification (Rosegrant & Cline, 2003; Vervoort et al., 2014). Climate change events not only can affect the crops productions but also can bring diverged actions and interests from stakeholders, affecting all the food system, for instance, changes in the market and food prices that can restrict the access to food from low-income populations (Gregory et al., 2005). Another big challenge to food security is that 95% of morbidity and mortality cases associated with human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) are in developing countries, reducing the capacity of the affected population to work and produce or buy food (Rosegrant & Cline, 2003).

The relative importance of climate change for food security differs between regions. For instance, in southern Africa, the climate is among the most frequently cited drivers of food insecurity because it acts both as an underlying, ongoing issue and as a short-lived shock. For this reason, the policies to assure food security should be studied specifically for each region (Gregory et al., 2005). As it was mentioned before, Zambia is a country which faces food insecurity, where 11% of the population in 2016 was considered food insecure (Food Security Information Network, 2017). Figure 2.3 indicates the ten facts that shed light on the hunger situation (World Food Programme, 2015).

As reported by Saldarriaga et al. (2014), farmer’s food security in a household dimension is diversified during the year, as well as their food categories (Figure 2.4). The period where farmers assure more food security is normally from March until April, however, this period can last longer depending on the previous rainfall patterns. In the beginning of March, some of the farmers affirm having enough food for consumption. During the period from August until October, there are farmers who need to start harvesting for their consumption, while others still have food for those months. The period from February to March is considered critical, since some of the farmers barely had enough food, because of the late harvest in the present year and a reduced production in the last year. Finally, the variety of food available is generally considered poor and the season which has the most variety of food and most secure is the cold one (see “mupeyo” in Figure 2.4).
In Zambia, the farmer’s nutrition is based mainly on maize foods during the year, even though they do not have much diversity. Wild vegetables and fruits also make part of the dietary of farmers in Zambia, but on a smaller scale than maize. Nevertheless, farmers having livestock are more likely to do livestock business in order to pay personal expenses, instead of using them for consumption (Saldarriaga et al., 2014).
Moreover, households in Zambian areas that experience lower than average rainfall have lower levels of daily caloric intake as well as lower food and non-food expenditures. A recent cash transfer programme aimed to support 20,000 ultra-poor households, helping to mitigate the negative effects of climate shocks on food security, but it was not sufficient to fully overcome them (FAO, 2016).

Achieving food security needs robust policy and investment reforms on multiple fronts. This invokes the necessity to engage all stakeholders, from different levels and sectors, in decision-making processes, not only for giving voice to the disadvantaged community but also to increase their knowledge (Gregory et al., 2005; Rosegrant & Cline, 2003; Vervoort et al., 2014). Moreover, the combination and integration of different types of knowledge and education, such as intuitive, traditional and science-based, benefits the implementation of strategies to achieve food security (Saldarriaga et al., 2013). Nevertheless, there is a lack of tools or methodologies suitable for assessing the effects of long-term policies in tool systems and a shortage of holistic system models to facilitate intervention and understanding at the subsistence farmer’s level (Giraldo et al., 2008; Guma et al., 2016).

System Dynamics (SD) is an example of an approach which can help the process of gaining knowledge in order to analyse food systems. When using a modelling process it is possible to study and integrate knowledge in those complex systems to assist in a decision-making process (Hager et al., 2015). According to Oyo et al. (2016) and Giraldo et al. (2008), many researchers and institutions have built models for projecting and predicting global food security, focusing on the future demand for food, supply and variables related to food systems at different levels.

Usually, the models developed around food security use correlations to explain relationships, but the introduction of a systemic approach is arguably preferred in their formulation, and the reasons are: helping to understand the structural causes of a certain issue; the focus on causation between variables; and the evaluation of policies and their long-term consequences. Such SD models can be designed to allow the user to analyse and manipulate its internal structure as well as to study the relationship between the structure and the behaviour of the model (Giraldo et al., 2008).

2.2. Visioning, scenarios and backcasting

Visioning, scenarios and backcasting are all considered prospective methods, i.e. tools to study and analyse “forward views” or “images of the future”, which are related to each other and can be used for the same study purpose (Voros, 2006). Foresight tools assist the exploration of the future possibilities, deliberating their opportunities in order to develop policy strategies (Featherston & Doolan, 2005). Voros (2006) states that prospective methods can be classified by their “modes of thinking”, such as evolutionary methods, in which the development is considered relatively continuous from a starting point; and/or revolutionary methods, that the evolution is essentially discontinuous and disruptive, without a mandatory association between the starting point. The next sections will further explain each approach.
Visioning

Visioning is considered a key method in sustainability research and problem-solving, for instance in transformational sustainability science or in planning for urban sustainability, having a strong presence in the early futures literature (Voros, 2006; Wiek & Iwaniec, 2013). Therefore, visioning can be used in activity planning, organizational change and to formulate an overarching development vision or strategy (Keller, n.d.).

Modern visioning approaches emerged during the 1980s and 1990s with the incorporation of systems thinking and participatory engagement (Wiek & Iwaniec, 2013). Deliberate Visioning (DV) is normally a two-staged method consisting of vision-making an action planning: the first one the stakeholders find a common vision about the subject requested, while in the action plan part participants discuss how to achieve that vision (Kallis et al., 2009). This approach stimulates stakeholders to envision new visions, without paying so much attention to the constraints of current reality, indicating that this is a revolutionary method (Voros, 2006).

Visions are a subgroup of scenarios (possible future states) and demarcated from predictions (likely future states). Furthermore, a vision is different from the pathway that leads up to the vision. Accordingly, visioning is the process of creating a vision, i.e., a representation of a desirable future state, as opposed to scenario building, forecasting and backcasting (i.e. pathways to desirable future states). Visions can be operationalized in specific (qualitative and quantitative) goals and targets (Wiek & Iwaniec, 2013).

Participatory visioning has different roles, such as psychologically, since participants deliberate and work together to find a desirable future which aims to motivate stakeholders; procedurally, because this method helps the mediation and to reach a consensus among the participants; it facilitates the analysis and evaluation of policies in an incorporated form; and, lastly, it bears the common objectives that can help designing pathways to achieve the desired vision (Kallis et al., 2009). Moreover, the visioning process should be implemented before decisions are made and after the problem and situation analysis (Keller, n.d.).

To promote the elaboration of collaborative visions, there are several available methodologies, such as scenarios workshops (SW), future search (FS) and community visioning (CV). A comparison of these methods is presented in Table 2.1 (Kallis et al., 2009).
Table 2.1 Comparison of three deliberative visioning methods (Source: Kallis et al., 2009)

<table>
<thead>
<tr>
<th>Method</th>
<th>Tools</th>
<th>Deliverables</th>
<th>Duration</th>
<th>Participants</th>
<th>More info</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW</td>
<td>Scenarios Facilitated group discussion</td>
<td>Future Scenario Vision Statement Action Plan</td>
<td>2-2.5 days</td>
<td>Stakeholders 36 max</td>
<td><a href="http://www.cordis.lu/easw">www.cordis.lu/easw</a></td>
</tr>
<tr>
<td>FS</td>
<td>Milestone map Mind map Facilitated group discussion</td>
<td>Vision statement Implementation programme and partnerships</td>
<td>2-2.5 days</td>
<td>Stakeholders 40-80+</td>
<td><a href="http://www.futuresearch.net">www.futuresearch.net</a></td>
</tr>
<tr>
<td>CV</td>
<td>Community scanning Scenarios Indicators Facilitated meetings and sub-group committees</td>
<td>Civic index Vision statement Key performance areas Implementation plan</td>
<td>5 events (1-2 days each) and in-between work</td>
<td>Stakeholders and individuals 200+</td>
<td><a href="http://www.ncl.org">www.ncl.org</a></td>
</tr>
</tbody>
</table>

As it is shown in the previous table, the DV methods differ in terms of the facilitation tools used, the number of participants and their duration. Nevertheless, they share a considerable advantage – all participants have the same rights, i.e. without respecting a hierarchy. This is considered a benefit because it blends knowledge, formal and informal, from stakeholders with different backgrounds (socially, economically, politically), which can lead to unforeseen visions and action plans (Kallis et al., 2009). Further benefits include participants’ motivation and the assistance in building a common ground and developing written and visualised statements of a community’s long-term goals and strategic objectives for sustainable planning (Keller, n.d.).

On the other hand, a shortcoming of these methods can be the influence of the organizers and facilitator in this process. The organizers and facilitators are fairly involved, for instance having the role to create the initial scenarios or mediating the activities, and by default, they can add their personal insights and preferences (Kallis et al., 2009).

According to Weisbord (1993) in Kallis et al. (2009), DV is perceived as a “fresh, level playing field where policy-makers, powerful interested and weaker or marginalized groups are equal partners, willing to take up innovative actions that breakthrough past quo”. Alternatively, cited by Kallis et al. (2009), there are some other authors who do not believe in this concept, affirming that DV can lead even to conflicts between stakeholders.

**Scenarios**

The name ‘scenario’ in theatre mentions the sequential projections and actions in the back part of the stage, which interact with the actors in a scene. The meaning ‘scenario’ in this dissertation is not far away from the earlier definition but has some other particularities: they can be considered images of alternative futures. This does not mean that these are the most probable, so they are not considered
predictions of the future (Alcamo, 2001). As said by Voros (2006), this method is contemplated as the “best-known of prospective methods”, probably because it requires narrative and visual forms, which increases human predisposition to remember them.

Scenario-based approaches are particularly useful when addressing the considerable uncertainty about future trajectories in complex systems (Figure 2.5). Moreover, scenarios can serve a range of different purposes: science and research, education and information, strategic planning and decision-support. Within science and research, for example, scenarios can help explore the understanding and dynamics of a system by exploring the interactions and linkages between key variables or driving forces as the scenario plays out. In the wider context of education and information, scenarios can provide a useful tool for ordering, conveying and/or illustrating different perceptions about alternative future environments. Lastly, scenarios may highlight upcoming choices to be made and their long-term consequences, supporting strategic planning and decision-making (Zurek & Henrichs, 2007).

Figure 2.5 Uncertainty vs. complexity of scenarios (Source: Zurek & Henrichs, 2007)

The scenarios methodology is grounded in system sciences (Vervoort et al., 2014) and should represent a plausible and a pertinent set of perspectives of the future, i.e. possible future states, not just one desirable or undesirable vision (Alcamo, 2001; Wiek & Iwaniec, 2013); which is the major difference when it is compared to visioning that just considers a single vision (Voros, 2006). With the development of this tool, it is possible to materialize mental models, analyse them, and explore their uncertainties (Featherston & Doolan, 2005). Generally, scenario-construction techniques are categorized as an evolutionary method due to its continuous process (Voros, 2006) and, at the same time, are particularly useful in a context of unpredictable and uncontrollable events which could modify the future state of a system (Olabisi et al., 2010).

The main objectives of scenario planning are to adjust mental models of decision makers, having the possibility to consider other new perspectives, generating a shared language and models, developing the ability to translate expert opinion into a format comprehensible also to non-experts and so to
stimulate the debate and systemic thinking among them, in order to develop policy and planning strategies. Furthermore, scenarios have the potential of being a less rigid and more open method of exploring the future (Featherston & Doolan, 2005; Hojer & Mattsson, 2000; Olabisi et al., 2010).

This tool has many benefits for environmental studies. Namely, it can create awareness about the future; provide images from the alternatives policies pathways and study their strengths and weakness; it can also combine qualitative and quantitative information and can represent both forms of data; lastly, it can be used to help stakeholders to reach a decision. Pursuant to Featherston et al. (2005), “scenario planning relies on an understanding of today to explore what might happen in the future”. Scenario workshops are a manner to involve stakeholders, opening up the possibility to create a common vision, motivate social interaction and debate, building and integrating knowledge by consulting local experts, which may boost new and different points of view when combining different types of knowledge (Kanter et al., 2016; Kok et al., 2006).

Scenarios have many forms, that are chosen depending on the purpose of each scenario exercise – ‘quantitative’ vs. ‘qualitative’, ‘base-line’ vs. ‘policy scenarios’ or, even, ‘exploratory’/‘descriptive’ vs. ‘anticipatory’/‘prescriptive’.

‘Qualitative’ scenarios, as the name implies, are expressed by words or visual symbols, they can be represented usually by storylines, but also diagrams, sentences or outlines. As this type of scenario is not represented by numbers, qualitative scenarios are considered less accurate than the quantitative ones. However, this type of scenario has benefits such as the fact that they are very accessible and easy to understand for any kind of stakeholder and they can represent several insights at the same time. On the other hand, ‘quantitative’ scenarios take the shape of graphs and tables with numerical data, which are more technical and objective due to the form of models’ equations, inputs and coefficients. This type of scenario has some drawbacks, for instance, they tend to represent only one point of view about how the future will develop, they are based on assumptions of computer models and, lastly, this sort of scenario is not so accessible to understand by non-experts. Quantitative scenarios can be used to analyse the consistency of qualitative scenarios and normally they are frequently published in the scientific literature so they have to go through scientific evaluations and peer reviewing (Alcamo, 2001; Zurek & Henrichs, 2007).

Another useful way to classify scenarios is between ‘exploratory’/‘descriptive’ and ‘anticipatory’/‘prescriptive’ types. The first type mentioned is when a scenario starts in the present and explores leanings into the future, describing in words, numbers and/or images (Vervoort et al., 2014); while the second, also known as ‘normative’ begins in a suggested vision of the future and then come back to the present to visualize how this future could develop, the vision of the future can be both positive or negative and even neutral. In addition, exploratory scenarios claim fewer assumptions about the future than the anticipatory ones (Alcamo, 2001).
Furthermore, there is another way to classify scenarios: ‘base-line’/‘business-as-usual (BAU)’ or ‘policy scenarios’. The ‘BAU’ scenarios describe the future alternatives without any intervention of a new policy, which is very useful to detect policies that could be implemented in the current time and after to compare and study the efficiency of those policies. In contrast, ‘policy scenarios’ portray the future effects of defined policies (Alcamo, 2001).

All of the above types of scenarios related to environmental studies can act as a bridge between science and policy, consisting of five principal elements: description of the step-by-step changes; driving-forces; base year; time horizon and steps; and also, a storyline. The first element describes the step-wise changes that will occur in the future condition, which can be represented by a diagram, for example. The driving-forces are factors that originate pressures which will influence a state that will lead to an impact in the system, for instance, the driving-forces of food insecurity can be population or climate change. The ‘base year’ indicates which year the scenario starts. The ‘time horizon’ is the length of time included in the scenario, while the ‘time steps’ are the number of time periods between the base year and the last one. This time horizon often varies depending on the objectives of a scenario. Finally, the storylines are narratives that describe what may happen in each scenario including the driving-forces and other scenario characteristics (Alcamo, 2001; Zurek & Henrichs, 2007).

In consonance with Kallis et al. (2009) “scenario-discussion and visioning involves deliberation over general aspirations and desirable future images, but not detailed analysis of their feasibility”, and Featherston et al. (2005) “the literature of scenario planning offers little in the way of guidance about how this can be done”. According to Olabisi et al. (2010), scenario techniques have other challenges: they are difficult to compare due to their qualitative nature, they can be disconnected from quantitative information about trends or patterns which have influence over future conditions.

**Backcasting**

The Backcasting method was developed in the late 1970s used as a normative future study in the energy area. Since then, this tool is used also for studying and planning sustainability, transportation, conservation, spatial planning, among others (Brunner et al., 2016). Nevertheless, according to Kanter et al. (2016), sustainability studies using this tool have been mainly focused on the energy sector and greenhouse emissions, being few related to agriculture and food sector, deserving further exploration. In the year 1974 backcasting was described as the “most common approach to practical statistical forecasting” (Gold, 1974).

This approach first creates a future normative vision and then comes backwards in time towards the present to detect how this vision could be reached and proceeds to build an action plan – policies, pathways, follow-up activities – to meet that desirable version of the future (Kanter et al., 2016; Robinson, 1982). With a special focus on the importance of systems thinking and motivation, this approach also emphasizes the role of team learning and shared leadership in corporate visioning (Wiek & Iwaniec, 2013). Moreover, this tool enables users to define solutions, priorities and necessary steps to achieve the desired vision, being more concerned with how desirable futures can be attained (Kanter
et al., 2016; Robinson, 1982).

On the other hand, backcasting has shortcomings, such as practical backcasting yields forecasts which have never been tested through comparison with subsequent actual outcomes, leading to assumptions and consequently gaps; when looking backward some data points can be considered ‘unrepresentative’ and, hence, to be ignored; it is not possible to cover some abnormal events, for example, strike and wars, that can totally change the paths; it is not likely to use backcasting as an ostensibly neutral justification for policy decisions; and, lastly, backcasting analyses cannot play the same legitimizing role that predictive analyses do, since the former does not show what will happen but what might happen, given certain conditions and choices (Gold, 1974; Robinson, 1982, 1988).

Backcasting is considered, as reported by Voros (2006), a mixed prospecting method since they are considered revolutionary but also evolutionary. This prospecting nature is revolutionary because normally starts involving a visioning method (revolutionary), and after the creation of continuous pathways to achieve the vision, i.e. evolutionary. Likewise scenarios, they can be considered normative or explorative. Both types may be can be used in conjunction, to evaluate the feasibility of policies, plans and strategies (Vervoort et al., 2014).

When backcasting methods are compared to forecasting the main difference is that the first one indicates the relative consequences and viability of diverse policy goals instead of showing how the future is expected to be, while the second uses quantitative models to predict the future based on trends of the past and present (Kok et al., 2006; Robinson, 1982). Another difference is that a good backcasting originates divergent alternatives, i.e. multiple futures from a common present; while a good forecasting converges to the most likely future and studies its level of possibility (Robinson, 1982). Besides, backcasting is a method which is closely connected to the purposes of the policy, making it more of an appropriate tool for policy planning, which may also be used as a complementary tool for forecasting scenarios (Brunner et al., 2016; Kanter et al., 2016; Robinson, 1982). Lastly, when both methods are iterated is called middlecasting (Kok et al., 2006). Figure 2.6 illustrates how forecasting, scenario planning and backcasting approach.

![Figure 2.6 Backcasting, forecasting and scenario planning approaches (Source: Backcast Partners, n.d.](image_url)
Table 2.2 presents a review of these approaches assessing Food Security issues, summarizing the research goals, methods and outcomes. In some of the studies, the material results were not explicit in the reviewed literature, just the methodological process and its outcomes, for instance in Metson et al. (2016) and Mapfumo et al. (2012). Table 2.2 also contains studies using visioning.

The three studies aim different objectives and also use different methods, however, the three case studies work and have the participation of stakeholders. Mapfumo et al. (2012), aims to investigate how Participatory Action Research (PAR) methodology, which is characterised by iterative planning-action-reflection cycles, combined to a field-based farmer learning centres, can increase the adaption capacity of smallholder farmers to climate change. Being that, one of the exercises was visioning, which showed that smallholder farmers could associate concepts in order to build an action plan. On the other hand, Kanter et al. (2016) used the backcasting method to build an action plan regarding the Uruguay’s beef sector, in order to develop policies according to Sustainable Development Goals (SDGs). Lastly, Iwaniec et al. (2016) have interactive workshops and group learning, in order to explore visions, scenarios and pathways of social transformations towards food and water security related to phosphorus. The variety of this literatures subjects and the way the studies were conducted, show that scenarios, visioning and backcasting are flexible methods which can help the involvement of a large variety stakeholders.
Table 2.2 Review of Scenarios and Visioning studies for assessing Food Security issues

<table>
<thead>
<tr>
<th>Study title</th>
<th>Authors</th>
<th>Local</th>
<th>Research objective(s)</th>
<th>Methods description</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participatory action research (PAR) as an entry point for supporting climate change adaptation by smallholder farmers in Africa</td>
<td>Mapfumo, Adjei-Nsiah, Mtambanengwe, Chikowo and Giller (2012)</td>
<td>Sub-Saharan Africa – Ghana and Zimbabwe</td>
<td>Investigate the potential of PAR methodology (iterative plan-action-reflection cycles), coupled with a new concept of field-based farmer learning centres to build adaptive capacity of smallholder farmers to climate change</td>
<td>The sequence of methods was the following: 1. Diagnosis of agricultural problems and sources of vulnerability to climate change 2. Understanding problems linkages and prioritizing adaptation options with communities 3. Analysis of the issues by the communities - during the first year: activities (drama, role plays) to communicate the stakeholders’ current situations versus desired changes. - Experimentation and sharing of knowledge on soil fertility management - Workshops with stakeholders to explore potential action points for climate change adaptation 4. Implementation and evaluation of prioritised adaptation options</td>
<td>From the visioning activities, the stakeholders could associate:  - Combination of declining soil fertility, poor seasonal rainfall distribution and droughts were major factor undermining food household security  - Conflicts between the stakeholders  - Declining soil fertility was in the core of the community conflicts  The PAR methodology was considered successful in this case study</td>
</tr>
<tr>
<td>Translating the Sustainable Development Goals into action: A participatory backcasting approach for developing national agricultural transformation pathways</td>
<td>Kanter, Schwoob, Baethgen, Bervejillo, Carriquiry, Dobermann; Ferraro, Lanfranco, Mondelli, Penengo, Saldias, Silva and Lima (2016)</td>
<td>Uruguay</td>
<td>Present backcasting approach and methodological toolkit for countries to develop policy roadmaps towards 2030 using local tools and expertise that could help transform national agricultural sectors in line with the Sustainable Development Goals (SDGs) through the case study of Uruguayan beef sector as a case study</td>
<td>Methodology: Participatory approach involving key stakeholders (farmers, government, academia) making use of local tools and expertise to develop realistic targets that are consistent to SDGs and Backcasting method to build an action plan with pathways that meet those targets 1. Selection of indicators (environmental, agronomic, socioeconomic) that can be used to evaluate and to monitor the progress in the agricultural sector, through several debates with stakeholders 2. Determinate the indicators current values and determine the 2030 target ones</td>
<td>Set of targets for Uruguay’s beef sector in line with the SDGs which can be used for developing policies, through the involvement of different types of stakeholders – strategic matrix for transformation of Uruguay’s beef sector (targets, levers and roadblocks). “This case study marks the beginning of a new approach to achieving sustainable development goals in the agricultural sector”</td>
</tr>
<tr>
<td>Study title</td>
<td>Authors</td>
<td>Local</td>
<td>Research objective(s)</td>
<td>Methods description</td>
<td>Outcomes</td>
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<tr>
<td>P-FUTURES¹: towards urban food &amp; water security through collaborative design and impact</td>
<td>Metson, Iwaniec and Cordell (2016)</td>
<td>Malawi, Vietnam, Australia and USA</td>
<td>Work with stakeholders to explore visions and pathways of social transformation towards food and water security related to phosphorus</td>
<td>The study process was: Seed phase (6 months): create relationship among stakeholders and design a research approach to social transformations for the project. The workshops engaged more than 95 participants across the four local studies: 1. Mapping the current situation and existing goals: sharing and understanding knowledge and common goals through facilitated system mapping activities 2. Vulnerability assessments: identify the vulnerabilities of each local study and aspects of the phosphorus challenge using the maps created before 3. Visions and pathways: develop participatory visions and pathways for sustainable food and water systems through the system maps Asses implementation strategies: participants’ envisioned implementation strategies</td>
<td>Seed phase outcomes: • Build capacity for social transformation • Diverse stakeholder within a local learning from one another • Explore local vulnerabilities and desirable visions &amp; pathways • Web-platform for public dissemination &amp; partner sharing • Co-development of full proposal &amp; transdisciplinary approach</td>
</tr>
</tbody>
</table>

¹“P-FUTURES is a cross-city initiative designed to address phosphorus security challenges and opportunities, funded by the International Social Science Council Transformations to Sustainability programme” (Metson et al., 2016)
2.3. Participatory System Dynamics modelling

System Dynamics can offer a formal method to fill in what is missing in the visioning statements, advising scenarios, exploring, testing and informing systems in different scales through the development of models from the real system. SD is a problem-oriented multidisciplinary approach that explores the structure of a system and the causes for its behaviour, by incorporating positive and negative feedback loops and nonlinear relations between variables, which can also be used to construct preliminary hypothesis about the future through causal assumptions (Featherston & Doolan, 2005; Olabisi et al., 2010). The underlying concept of SD implies that the understanding of complex system’s behaviour – such as national food insecurity – can only be achieved through the coverage of the entire system rather than isolated individual parts (Collin 1997 in Giraldo et al., 2008).

The misalignment between the objective reality and the subjective reality is the source of ineffective decisions, and SD attempts to improve decision making by making subjective mental models explicit and testable through simulation (Kim & Andersen, 2012). SD models are based on a set of discrete difference equations, i.e., differential equations with a fixed time step that are recursively solved, where the current state of a variable depends on the previous system state. Through these equations, it is possible to describe, analyse and simulate the macro-level behaviour of complex adaptive systems (Monasterolo et al., 2015).

In SD, Causal Loop Diagrams (CLDs) are used as one of the diagramming tools to capture the structure of systems. CLDs give a broad and flexible representation of the feedback structure of a model, using simple elements such as variable names and arrows representing causal links between two variables (Sterman, 2000). Causal links may be marked as positive ‘+’ or negative ‘-‘, depending if variables change in the same (‘positive link’) or opposite (‘negative link’) direction. Feedback loops formed around two or more variables may be labelled as reinforcing (‘positive loop’) or balancing (‘negative loop’) (Videira et al., 2012). In other words, CLDs are an important tool for evidencing the hypothesis assumed in the model, it draws mental patterns and relevant feedbacks to problem solution which contains system elements relevant to the system (Guma et al., 2016).

Participatory SD modelling is the use of a SD perspective in which stakeholders or clients participate to some degree in different stages of the process, including problem definition, system description, identification of policy levers, model development and/or policy analysis (Stave, 2010). Therefore, participatory SD modelling approaches have potential to promote learning and co-production of knowledge and commitment towards the implementation of decisions, thus leading to an improved analysis of complex issues underlying environmental and sustainability decisions (Videira et al., 2012). There are two key approaches which promote the involvement of stakeholders in a SD process for environmental and sustainability issues: group model building (GMB) and mediated modelling (MM) (Stave, 2010). The GMB signals the intent to involve a relatively large client group in the business of model formulation and not just conceptualization (Richardson & Andersen, 1995). While MM is a
participatory tool for adaptive and collaborative management aiming to promote learning and consensus building among stakeholder groups (van den Belt, 2004 in Videira et al., 2012).

Olabisi et al. (2010) affirm that the process of building a SD model with the collaboration of stakeholders has a special importance during the participatory modelling approach since it facilitates the comprehension of the system under study and gives the possibility to test strategies by running the model. A simulation model explores the behaviour over time and analyses its changes when different policies and management are applied, generating interesting insights (Guma et al., 2016; Saldarriaga et al., 2014).

A typical SD model building process involves the following steps: defining system boundaries, identifying variables, the relations between them, and identifying feedback loops and leverage points (Olabisi et al., 2010); along all the steps: conceptualization, formulation, testing and implementation (Luna-Reys & Andersen, 2003 in Kim & Andersen, 2012). According to van den Belt (2004) in Olabisi et al. (2010) in some participatory SD, stakeholders with expertise in the system under study participate in the model building process and a facilitator guides participants through the model constructions so that they are able to influence the structure of the jointly developed model.

Participatory SD modelling may have some drawbacks, for instance when the models do not represent the views of those who designed them. Models may also be limited in their ability to reflect unexpected behaviour exogenous causes (Olabisi et al., 2010). The following table (Table 2.3) contains some studies where SD modelling was applied to assess food security issues, with and without stakeholders involvement.

Bach and Saeed (1992), investigate the effect on the agricultural resource system of planned policies to maintain food self-sufficiency in a central-planned economy, through the use of a SD model, this was not a participatory SD modelling as the following cases, however, it describes how the model was manipulated to find the conclusions. Later, in 2014, Saldarriaga et al., focused on the stakeholders to develop the SD model, investigating the dynamic decision-making and their capacity to adapt. Finally, Guma et al. (2016) also involved the stakeholders’ participation to study food security, followed by the simulation of the SD model built. Concluding, there is an evolution from not involving the stakeholders to the increase of their participation in the SD modelling; additionally, it is possible to recognize the importance of the participatory SD modelling to the studies and access to new perspectives.
## Table 2.3 Review of SD Modelling applications for assessing Food Security issues

<table>
<thead>
<tr>
<th>Study title</th>
<th>Authors</th>
<th>Local</th>
<th>Research objective</th>
<th>Methods description</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food self-sufficiency in Vietnam: a search for a viable solution</td>
<td>Bach and Saeed (1992)</td>
<td>Vietnam</td>
<td>Asses the effect on the agricultural resource system of the past and presently planned policies to maintain food self-sufficiency in a central-planned economy</td>
<td>SD model of the food production system incorporating relationships concerning population, food production and soil ecology. The values/parameters of the CLD were manipulated using computer simulation in order to study policies – testing the model</td>
<td>Short-run guidelines to increase production appear to be detrimental to maintaining food security in a long-term: Sustainable food production – incorporate soil conservation and improvement, and population controls</td>
</tr>
</tbody>
</table>
| Dynamic decision making in a coupled social – ecological systems. Smallholder farmers’ goals, resources and constraints in improving food security and adapting to climate change in Zambia | Saldarriaga, Nyanga and Kopainsky (2014) | Zambia   | Combining qualitative interviews with quantitative SD modelling in order to study farmers’ dynamic decision making and their adaptive capacity regarding food security | • Focusing on smallholder farmers stakeholders, collecting interview data on the multiple decisions they make in the course of a year through the ‘food security wheel’ designed by the authors  
• Development of a SD model to support decision makers with reference to food security  | Behaviour patterns of food security throughout the year and decisions based on it such as:  
• Getting inputs, pre-tillage, tillage, liming;  
• Planting;  
• Weeding and spraying;  
• Harvest crops;  
• Drying and shelling maize;  
• Borrowing money;  
• Working off-farm;  
• Selling food crops;  
• Selling animals, buying food  
• Exchanging food.                                                                                                                                                                                                                   |
<table>
<thead>
<tr>
<th>Study title</th>
<th>Authors</th>
<th>Local</th>
<th>Research objective</th>
<th>Methods description</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household Food Security Policy Analysis: A System Dynamics Perspective</td>
<td>Guma, Rwashana and Oyo (2016)</td>
<td>Uganda</td>
<td>The study aims to investigate food security challenges and evaluate policies and intervention strategies for better livelihood at household level</td>
<td>Development of a SD model through the following steps: • Dynamic Synthesis Methodology (DSM) • Questionnaires • Interview guide Simulation and testing policies</td>
<td>The model (composed by four sectors: population and land, food consumption, food production, and food sales) demonstrates a balance between food stock, seeds preserved, seeds for sale and consumption from crop harvest throughout the food cycles. The policy guidelines are: • Utilize the scarce land resource • Advocate for food production oriented activities • Additional support to farmers • Promote and develop rural financial markets • Provision of credits for consumption stabilization This research makes contribution to the literature by evaluating dynamic synthesis methodology and FS policy discussions from a feedback point of view</td>
</tr>
</tbody>
</table>
2.4. Mixed methods approach

Both scenarios and participatory SD modelling approaches emphasize the dynamic and uncontrollable nature of complex socio-ecological systems and the significance of multiple feedback mechanisms. These two methods complement one another but are rarely used together (Olabisi et al., 2010).

As Tabara et al. (2008) claim that integrated sustainability assessment experiences show that new and more reflective tools are still needed to promote a systemic perspective on complex issues and focus more explicitly on social actors and agency. In order to reduce policy implementation failures and improve their formulation, participatory policy-making and assessment processes can be integrated (Videira et al., 2012), since these two techniques are particularly valuable for assisting communities in dealing with the consequences of natural resource use decisions over the long-term, given both anticipated and unanticipated changes (Olabisi et al., 2010).

According to Featherston et al. (2005), both methods described above share the same basic characteristics, which are mental models. Moreover, SD and scenario planning are also not considered static approaches, which make them useful to understand the causes of systemic behaviour in a developed system and explore the spaces it might proceed to in the future. Furthermore, the scenario planning and SD are knowledge-centred, i.e., the learning process is considered more relevant than its products, i.e., scenarios or models built during the process.

On the other hand, the major differences between these two techniques are the formality and objectivity of each other and the timeframes which they focus on. While SD is considered more objective, more formal addressing mental models and focuses more on the present system; scenarios are more subjective (which can lead to misinformation), more dedicated to informing mental models, and focuses on the events of the future often during a horizon between five to 25 years (Featherston & Doolan, 2005).

Ultimately, both methods can work together, as reported by Featherston et al. (2005) “Scenario planning’s approach of mapping out a system and system dynamic’s ability to specify the causes of behaviour observed within a system”. Hence, they can complement each other and test stakeholders’ ideas as it was mentioned before. The simulation modelling can outline scenarios in a quantitative form, inducing to a more concrete analysis, or test the consistency of participants’ assumptions, for example (Vervoort et al., 2014). Additionally, scenarios have the capacity to accommodate external drivers while SD models frequently cannot (Olabisi et al., 2010).

In this dissertation, both methods are combined for the same purpose in order to potentiate and fill the above mentioned gaps. Table 2.4 represents the review of some other case studies related to the mixed method of these two approaches in the study.
Featherson et al. (2005), investigated the use of SD to inform scenario planning, through several workshops involving stakeholders. In this case, the participants had a scenario workshop which originates a CLD, this map was tested using the SD tools and compared to the reference modes. However, the authors found that this case may not have reaped the full benefit from integrating these methods and considered that the value of this study was the process, not its products. Olabisi et al. (2010) also combine methods, participatory SD modelling with scenario visioning, in order to build an action plan. In this case, the authors affirm that both methods can be used together and describe the advantages of this combination. Lastly, Videira et al. (2012) investigate the exploration of the use of qualitative SD tools and participatory modelling approach, generating positive outcomes such as the involvement of a representative group of stakeholders. From these three cases, it is possible to see the evolution over time, furthermore, these had similar methods and research objectives.
<table>
<thead>
<tr>
<th>Study title</th>
<th>Authors</th>
<th>Local</th>
<th>Research objective</th>
<th>Methods description</th>
<th>Outcomes</th>
</tr>
</thead>
</table>
| Using System Dynamics to Inform Scenario Planning – A case study | Featherston and Doolan (2005) | Australia | Investigate the use of SD to inform scenario planning and improve the rigour of the process. The case study is an organization for disable people. The scenario planning exercise was to explore the different possible visions for the future, in order to expand the capacity of the organization | Workshops involving the stakeholders in order to gather information for building a SD model.  
  - 1st and 2nd workshops: identify and explore the trends and drivers of the organization and industry environments and scenarios development  
  - 3rd workshop: map the system (CLD) from the scenarios exercise  
  - 4th workshop: activities to demonstrate how the scenarios can be used to help policy development  
  - Post-workshop: use the system maps (CLD) to understand how the system works and compare to the reference data collected by the organization – CLD validation | SD approach did address issues that remained unanswered by the scenario planning; This particular study it may not have reaped the full benefit from integrating these methods since SD was just used to address a specific problem |

"Scenario planning was used to explore the organization's entire environment system and understand how it might evolve"  
"SD however, despite being capable of exploring such broad system applications, was applied to a very specific problem with limited system scale"
<table>
<thead>
<tr>
<th>Study title</th>
<th>Authors</th>
<th>Local</th>
<th>Research objective</th>
<th>Methods description</th>
<th>Outcomes</th>
</tr>
</thead>
</table>
| Using Scenario Visioning and Participatory System Dynamics Modelling to Investigate the Future: Lessons from Minnesota 2050 | Olabisi, Kapuscinski, Johnson, Reich, Stenquist and Draeger (2010)       | USA (Minnesota)                            | The three purposes of this exercise are:  
• assist regional leaders in making strategic decisions that would make their communities sustainable;  
• to identify research gaps that could impede the ability of regional and state groups to plan for the future;  
• to introduce more systems thinking into planning and policy-making around environmental issues.                                                                 | Combining participatory SD modelling with scenario visioning; participatory SD modelling was used to examine selected scenarios for their consistency or inconsistency with current data trends, and to compare scenarios using quantitative measures. In turn, scenarios allowed researchers and community partners to explore surprising and “game-changing” events that can arise exogenously to the Minnesota system and could not have been modelled:  
• Regional scenario visioning workshop: scenarios and backcasting method to build an action plan  
• Follow-up surveys  
• Building CLDs: organizers constructed a CLD depicting scenario-specific relations between variables as envisioned by the participants  
• Statewide workshop: scenarios + modelling                                                                 | Scenarios and modelling complemented one another, and that both techniques allowed regional groups to focus on the sustainability of fundamental support systems (energy, food, and water supply). The process introduced some creative tensions between imaginative scenario visioning and quantitative SD modelling, and between creating desired futures (a strong cultural norm) and inhabiting the future (a premise of the Minnesota 2050 exercise) |
| Mapping Maritime Sustainability Issues with Stakeholder Groups            | Videira, Lopes, Antunes, Santos and Casanova (2012)                      | Portugal                                   | Exploration of the use of qualitative system dynamics tools and participatory modelling approach to support scoping stages of an integrated sustainability assessment (ISA) process; Exploration of the potential of CLD as tools for mapping maritime sustainability issues with stakeholder groups at the initial ‘scoping and abstraction’ stages of an ISA process | The methodology follows these steps:  
1. Scoping & abstraction: mapping and sharing understanding of current sustainability issues and policy responses through interviews, CLD and participatory modelling workshop.  
2. Envisioning & goal setting: develop shared future vision and corresponding objectives and sustainability criteria through visioning workshop and indicators  
3. Model formulation: collaborative development of simulation model through participatory modelling workshops and interviews with stakeholders  
Simulation and assessment: analysis of alternative scenarios and assessment of policies through participatory modelling workshops and interviews with stakeholders                                                                 | The process generated positive outcomes at individual and group levels, stimulating basic system thinking knowledge and skills:  
• Involved a representative group of stakeholders;  
• ST tools helped to structure discussions and analyse problems;  
• Creation of a common language  
• More integrated view of maritime issues;  
CLD is a useful tool for problem conceptualization                                                                                           |
3. Methodology

In the methodology section, the methods and instruments used for this study will be explained – how the workshops from 2015 and 2016 were designed and how the data were collected, analysed and processed.

3.1. Data collection and analysis methods

The methodology of this document provides the tools to answer the research questions. Moreover, the combination of the following tools will honour the title of the thesis – combining scenario workshops with participatory SD modelling. The following scheme (Figure 3.1) represents the stages of this thesis and their outlines.

![Figure 3.1 Overview of research process and deliberative and analytical steps](image)

The scheme presents dotted lines and continuous lines. The first set represents the stages of the process in which the author of the thesis did not intervene, on the other hand, the continuous lines symbolizes the stages where the author contributed directly, such as the preparation of the scenario workshop and the data processing and analysis. The following figure is a visual representation of the workshops and their expected outcomes, that will be further explained in this chapter.

![Figure 3.2 Overview of the workshops 1 and 2 and their outcomes](image)
3.1.1. System Thinking workshop 2015 (Hager et al., 2015)

The first workshop conducted by Hager, Kopainsky, & Nyanga (2015) aimed to study the knowledge change within smallholder farmers in Zambia as an outcome of system thinking (ST) group interventions and qualitative system modelling. Moreover, all the participants who held the workshops A and B, in 2016, were also in the first one. The research questions and the analytical framework are presented in Figure 3.3.

System models are described as “conceptual artefacts and interpretative maps of understanding inductively derived from interview data” and “transitional or boundary objects (…) jointly created during a system thinking intervention offering specific affordances to the learners” (Hager et al., 2015). While conceptual change is “broadly understood as a process of learning and knowledge development” (Hager et al., 2015).

This case study uses a mixed-method approach due to the qualitative nature of the research questions, the reduced sample and the quite natural context of the analysis. The knowledge analysis has the purpose to recognize, trace and investigate the integration of knowledge in categories, apprehended by the stakeholders during the workshop. Moreover, two dimensions of interaction were taken into consideration: group interaction and the interaction of the participants with the model (model interaction) (Hager et al., 2015).

![Figure 3.3 Research questions and analytical framework of conceptual knowledge change in the course of a systems thinking group intervention using qualitative system models (Source: Hager et al., 2015)]

The workshop process was designed in six steps: pre-workshop considerations, phase one, phase two, phase three, phase four and post-workshop interviews. The first step was before the workshop was held, i.e. the preparation for the workshop, starting with a basic casual loop diagram of food security created in a previous activity (Figure 3.4).
The group was divided into two groups and it lasted 2.5-3.5 hours each. The next table shows the activities of the workshop in each phase.

### Table 3.1 System Thinking workshop 2015 phases (Adapted from Hager et al., 2015)

<table>
<thead>
<tr>
<th>Workshop phase</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Discuss the variables of the CLD starting point, using pictures and objects to represent them (Figure 3.4)</td>
</tr>
<tr>
<td>2</td>
<td>Link the variables until the two main feedback loops were complete</td>
</tr>
<tr>
<td>3</td>
<td>Use glasses of water to illustrate the dynamic of the feedback loops on the variables. The glasses were filled up with water to represent the desirable quantity of each stock variable.</td>
</tr>
<tr>
<td>4</td>
<td>Discuss the process of filling up and draining down the glasses – identify the processes that increase or reduce the stocks, respectively</td>
</tr>
</tbody>
</table>

**Post-workshop interviews**

One week after the workshops a questionnaire was made with the following topics:

- structural components of the system of interest
- policy options to avoid unfavourable stock levels as well as dynamic implications
- the use of objects, pictures and visual diagram properties
- potentially unsolved disagreements throughout the workshops discussion
- unexpected moments during the workshop
- new insights and lessons Learned
- the participant’s feedback of the workshop when it is compared to more traditional participatory methods

The data collection was made by video and audio. Subsequently, the information was translated and written from Tonga to English into transcripts. Finally, the data analysis method was held in two parts: analysing mediated conversational action, to answer the questions B1 and B2, through the Conversational Argument Coding Scheme (CACS) by Canary and Seibold (2010), which allows for a close look into verbal communicative interaction between participants; and analysing conceptual change towards shared system understanding, which answer the research questions A1 and also B2 (see Figure 3.3).
3.1.2. Preparation of the Scenario Workshop

The Scenario Workshop was created in order to continue the line of studies of the previous workshop explained above, and the CLD resulted from it is used as a base/starting point (see Figure 4.4) during this second study. According to Kallis et al. (2009) the methodology of a Scenario Workshop follows the next steps:

![Figure 3.5 Scenario Workshop methodology steps (Adapted from Kallis et al., 2009)](image)

This methodology normally lasts two days and includes stakeholders who represent larger constituencies – policy-makers, business representatives, scientists and citizens; involving them in assembly debates, activities, presentations, organized by specialised facilitators. The organizers structure the objectives and also select the stakeholders (Kallis et al., 2009).

In this case, the process of the preparation of the workshop has other methodology steps, since the time was limited – each workshop last approximately four hours – and the group was already chosen due to the previous workshop but held this second workshop in an aleatory way – one of the organizers was driving a car and collecting the participants. The main objective of this workshop was to educate the community regarding food security. The next scheme shows the Scenario Workshop steps adapted to the conditions and limitations of the study:

![Figure 3.6 Scenario visioning Workshop steps of the case study](image)

The first step is similar to the original methodology and the scenarios were prepared based on the goals of this case study. The axes were related to dimensions which have mainly concern, the climate change (X-axis) and government (Y-axis): if the climate change would have a slow or high pace and if the...
government would be proactive or reactive to these events with regard to the specific issues of food security and agriculture. Moreover, the scenarios were explorative and qualitative, where their storylines were written according to the reality of the country. Contrary to the original methodology, the participants were all representing the same sector, which is smallholder farmers.

The next steps were supposed to be done during the workshop, and some were added to the original methodology (Figure 3.5), such as the Lessons Learned by the participants, which is a recap of the previous workshop map/CLD and to introduce more variables and relations between them; and the possibility of each participant to choose his/her desirable scenario. In the sixth stage, the participants could add, remove or replace elements from the scenarios; then, in the seventh step, the participants should answer the question “What should I do in the present to achieve that vision?” and respect the normative backcasting method. Lastly, the final step aims to build and Action Plan and also to find unintended consequences from each proposal in the pathways. The original script formulated by the author of this dissertation is presented in Appendix 1.

3.1.3. Workshops and data collection

The initial sources of the research are in video, audio and photography formats. After capturing in these formats, the data was translated from Tonga to English and written down in form of dialogues, identifying each one of the stakeholders and interviewers – transcriptions (Appendices 2 and 3).

3.1.4. Follow-up

The main purpose of the Follow-up interviews/questionnaires is to trail how each participant was acting after the Scenario Workshop. The follow-ups were conducted in Tonga, through an audio-visual material, and translated into English, similarly to the workshops.

After the Scenario Workshop, three follow-ups were held, in May (1st), June (2nd) and October (3rd) 2016; the last one has the transcription in Appendix 4. The main subjects were Livestock, Cash, Food Security and Land; and the spaces to complement/answer were the action taken for each of the subjects, the reasons of taking or not taking the actions, and the next plans (what happens next/way forward). Table 3.2 represents a sample of the full table (Appendix 5), which includes all the participants who collaborated in the follow-up activities and per workshop group (A or B).
### Table 3.2 Follow-up table

<table>
<thead>
<tr>
<th>Participant</th>
<th>Follow-up</th>
<th>Action taken</th>
<th>Reasons</th>
<th>What happens next/way forward</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestock</td>
<td>1st</td>
<td>• Bought some livestock • Bought salt (medicine)</td>
<td>• Lost many livestock in the previous year • Salt is used for deworming (disease prevention)</td>
<td>• Buy cows and chickens</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>• Bought salt (medicine)</td>
<td>• Salt is used for deworming</td>
<td>• Sell goats in order to buy iron sheets (for the roof of the house) – livestock business</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash</td>
<td>1st</td>
<td>• N/A</td>
<td>• Busy harvesting</td>
<td>• Keep cash in the asset form</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>• Joined OSAWA (lending group)</td>
<td>• Get a loan</td>
<td>• To buy iron sheets (for the house)</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Food Security</td>
<td>1st</td>
<td>• Avoided Carelessness</td>
<td>• To sell food when the price rises</td>
<td>• Reserve a big amount of food so after she can hire labour (piecework) and reserve some for household consumption</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>• Reserved more maize</td>
<td>• To sell food when the price rises</td>
<td>• Sell maize</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1st</td>
<td>• N/A</td>
<td>• Still harvesting</td>
<td>• Cut down trees on a dormant land in order to burn them, so the ashes can be used to improve the soil fertility</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>• N/A</td>
<td>• No manure</td>
<td>• Practice crop rotation</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### 3.2. Data processing and analysis

#### 3.2.1. Coding Method

The coding method is used to process and systemize qualitative data. In this case, the qualitative information comes from the scenario workshop, in form of transcriptions of its conversations. Even though this method was not made especially for SD modelling, it can support the qualitative data for building CLDs and models, being especially important when the text data are neither collected by the modeller nor intended to be used for the SD modelling purpose. The method developed in this study employs a grounded theory approach, to identify problems, key variables, and their structural relationships from purposive text data (Kim & Andersen, 2012). Grounded Theory (GT) is a research methodology, developed in the context of social research and inspired by the interpretative paradigm, which aims to generate theory through the analysis of data and explore it (Faggiolani, 2011). Table 3.3 describes the coding process.
Table 3.3 Summary of coding process (Source: Kim & Andersen, 2012)

<table>
<thead>
<tr>
<th>Description of the process</th>
<th>Main tool</th>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Discovering themes in the data</td>
<td>Open coding</td>
<td>Raw text data (Appendix 2. Workshop transcription A and Appendix 3. Workshop transcription B)</td>
<td>Definition of problem and system boundary; selection of relevant data segments</td>
</tr>
<tr>
<td>2. Identifying variables and their causal relationships</td>
<td>Open coding; casual links</td>
<td>Data segments (each Segment = one argument + supporting rationales)</td>
<td>Coding charts (Appendix 6. Coding Charts workshop A and Appendix 7. Coding Charts workshop B)</td>
</tr>
<tr>
<td>4. Generalizing structural representations</td>
<td>Axial coding; causal maps</td>
<td>Simple words-and-arrow diagrams</td>
<td>Final causal map (Figure 4.17 and Figure 4.29)</td>
</tr>
<tr>
<td>5. Linking maps to the data source</td>
<td>Map/data ID numbers</td>
<td>Coding charts and final causal map</td>
<td>Data source reference table</td>
</tr>
</tbody>
</table>

Before starting the coding process, the transcriptions were translated to English and the name of the participants changed to codes, thus the number of the line of each speech, which is called Conversation Identification Number (CIN). Otherwise, all the text content maintained its original form.

The first step is to discover the themes in the data, using the open coding and the raw data, which in this circumstance are the Transcripts A and B. In this case, the problem was already defined, which was finding policy proposals to avoid or to defeat a future scenario with poor rainfall and reduced help from the government; while the selection of relevant data segments was made during the reading and analysis of the transcriptions, regarding the research goals.

The process of identifying variables and their causal relationships resulted in the coding charts, that are shown in Appendices 6 and 7. According to Kim and Andersen (2012), “using a coding chart the data are broken down into small segments that contain one argument about the system state and rationales supporting the argument”. Each concept is represented by a connection between variables, X and Y, for example, and the nature of their relationship polarity – if it is positive, when X increases Y and reinforce the system, or if it is negative, when X increases, decreases Y, balancing the system (Kim & Andersen, 2012). In this part of the process, the coding charts are filled-up with the information about the main argument, the reference from that segment (speaker code, CIN and page), the causal structures (causal variable, effect variable and relationship type), the information source, i.e. in which section of the transcript it was, and a note, if necessary. The following table (Table 3.4) is an adaptation from Kim and Andersen (2012) coding chart.
Table 3.4 Coding Chart example (Adapted from Kim & Andersen, 2012)

<table>
<thead>
<tr>
<th>Cause variable:</th>
<th>Food Surplus</th>
<th>Livestock</th>
<th>Piecework</th>
<th>Avoiding Carelessness</th>
<th>Trees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effect variable:</td>
<td>Cash</td>
<td>Sales “Business”</td>
<td>Cash</td>
<td>Cash</td>
<td>Cash</td>
</tr>
<tr>
<td>Relationship type:</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
</tr>
</tbody>
</table>

Table 3.5 Words-and-arrows diagrams of causal arguments example (Adapted from Kim & Andersen, 2012)

<table>
<thead>
<tr>
<th>Cause</th>
<th>Effect</th>
<th>+/-</th>
<th>Words-and-arrow diagrams</th>
<th>A/B</th>
<th>MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Surplus</td>
<td>Cash</td>
<td>+</td>
<td>Food Surplus → + Sales “Business” → + Cash</td>
<td>A</td>
<td>10</td>
</tr>
<tr>
<td>Livestock</td>
<td>Sales “Business”</td>
<td>+</td>
<td>Livestock → + Sales “Business”</td>
<td>A</td>
<td>11</td>
</tr>
<tr>
<td>Piecework</td>
<td>Cash</td>
<td>+</td>
<td>Piecework → + Cash</td>
<td>A/B</td>
<td>12</td>
</tr>
<tr>
<td>Avoiding Carelessness</td>
<td>Cash</td>
<td>+</td>
<td>Avoiding Carelessness → + Cash</td>
<td>A</td>
<td>13</td>
</tr>
<tr>
<td>Trees (short term)</td>
<td>Cash</td>
<td>+</td>
<td>Trees → + Charcoal → + Sales “Business” → + Cash</td>
<td>A/B</td>
<td>14</td>
</tr>
</tbody>
</table>

Table 3.5 was adapted from Kim and Andersen (2012) and has the cause, effect and polarity from Table 3.4. Additionally, the A or/and B letters indicate which transcription, A or/and B, each argument comes from, and the MIN is the Map Identification Number, so it will be possible to know the origin of the arguments later in the map.

The fourth step is to generalize the structural representations, i.e. transforming the arguments of the previous table in diagrams. In this specific case, the causal maps were built through the coding process, and they can be consulted in the Results and Discussion chapter.
The last step of this coding process is to link all the diagrams into a final SD model. In this case, all the diagrams were connected into two final CLDs (see Figure 4.17 and Figure 4.29). In this later phase, some information could be lost, that is the reason why is important to keep the CIN and MIN numbers to use as references (Kim & Andersen, 2012). Additionally, the last two steps required Vensim tool to structure the maps. Lastly, all this procedure and results can be found in the Results and Discussion division.

3.2.2. CLD analysis – Leverage Points by Meadows

In order to analyse the feedback loops originated from the workshops, the methodology of Meadows (1999) was used. Leverage Points (LP) are “points of power”, i.e. “places within a complex system (a corporation, an economy, a living body, a city, an ecosystem) where a small shift in one thing can produce big changes in everything” (Meadows, 1999). The LP can be identified in the system when it has the power to transcend paradigms, or it influences the mindset of the system (goals, structure, rules, delays), feedback loop control intervention (positive or negative), or even physical elements from the system, for instance, constants, parameters, delays, among others (Meadows, 1999), as it is shown in the next figure. Additionally, the inverted pyramid characterizes the LP from the large effect on the system behaviour to the small problem solving, where the power of transcending paradigms is the highest LP. LP was determined for the Lessons Learned activity conducted at the beginning of the scenario workshop.

![Figure 3.7 Places to intervene in a System (Adapted from Meadows 1999)](image-url)

3.2.3. Cross-impact analysis

This method is similar and based on the document Improving understanding on degrowth pathways: An exploratory study using collaborative causal models from Videira et al. (2014). According to the authors, this tool was an adaptation of cross-impact analysis family of methods. This method aims to
evaluate the impact and sensibility of each segment on each other, in a systematic way, showing how critical the segments can be to the system (Videira et al., 2014).

The cross-impact matrix was used, in this thesis, to evaluate the mutual sensitivity between the policy proposals proposed by the workshops participants. The next table represents this method of analysis.

Table 3.6 Cross-impact matrix method example (Adapted from Videira et al., 2014)

<table>
<thead>
<tr>
<th>Proposal effect:</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>AS</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy proposal A</td>
<td>A</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>100</td>
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<tr>
<td>Policy proposal B</td>
<td>B</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Policy proposal C</td>
<td>C</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>PS</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Value 0 is given when there is no direct effect from the proposal A on C, for example. While, value 1, indicates that a proposal has an influence on the other, such as A on B. Moreover, AS means “Active Sum”, representing the sum of all the values from the same row, and indicates how strongly that proposal effects on or leads the system. Last but not least, PS spells “Passive Sum”, which is how intensely the proposal is influenced by the others and is the sum of the columns values. After all, the percentages are estimated by dividing each sum of a row and column by the major AS and PS, respectively (Videira et al., 2014).

Then, the diagram of the cross-impact is designed, with two axes – the AS (X-axis) and PS (Y-axis) – and their matching points for each policy proposal. This diagram has four quadrants – critical, reactive, buffering and active. Each of these adjectives is explained in detail in the Results and Discussion chapter when analysing Figure 4.30.

3.2.4. Outline policy proposals pathways

At last, an outline table of the policies is made with the insights from all the methodology process. This table represents the pathways in stages – entry points (1), short-term (2), medium-term (3) and long-term (4) – and also unintended consequences from every policy, risks, uncertainties, among others, related during the workshops; in addition, the outline table was based on the Videira et al. (2014). The table (Table 4.5) of this case is shown in the Results and Discussion section.

3.2.5. Action Plan Outline

The action plan is a consequence and the last step of the scenario workshop method, which was explained above. The action plan aims to guide each proposal pathways, in order to achieve the target objective. In this study, the action plan is the result of all the tools used before, and has an innovative design – the segments from the CLD in a vertical form (Figure 4.31)
4. Results and Discussion

In this chapter, the results of the workshops from 2015 and 2016 are presented and discussed, as well as the case study area and participants. The workshop from 2015 refers to the System Thinking workshop which was the base for the case study of the present document. So, related to the Scenario workshops A and B, from April 2016, resulted in the following key outputs: Transcriptions A and B, which are in Appendices 2 and 3, respectively, and have all the dialogue between the interviewers and participants; Coding Charts A and B, with the topics relevant to the present study (Appendix 6 and Appendix 7); Words-and-arrows from the Lessons Learned (Appendix 8) and from the Policy Proposals of the workshop (Appendix 9), they represent the variables and their links in a horizontal form; CLDs, that were built from the previous results, one from the Lessons Learned, and others that contain each Policy Proposal founded in the workshop to overcome the scenario “no rain, no government help”; Cross-Impact Matrix (Table 4.4) from the Policy Proposals and its Diagram (Figure 4.30); Table with the Outline of the Policy Proposals’ pathways (Table 4.5); Action Plan Outline (Figure 4.31) with the pathways for each proposal; and, finally, a Follow-up transcription from some participants (Appendix 4), where the complete table with all the information related to what each person has done after the workshops from April 2016, is presented in Appendix 5.

4.1. Case study

Zambia, also known as the Republic of Zambia, is a landlocked country located in the Southern Africa, and it borders on eight other countries – the Democratic Republic of the Congo, Tanzania, Malawi, Mozambique, Zimbabwe, Botswana, Namibia and, finally, Angola (Figure 4.1), covering 752,612 square kilometres. The capital lies in the south-central and it is called Lusaka. This case study is based on two villages of the Chibombo district, Mpikwa and Chitumbo (Figure 4.2), found around 73 km up north from the capital. These villages have a distance of six kilometres from each other.

Figure 4.1 Chibombo District in Central Province, Zambia, Africa (Adapted from Wikimedia, n.d.)
According to the World Bank in 2016, Zambia has a population of 16.6 million habitants, where 58.2% practice farming activities, wherein this percentage, 51.2% are on a small scale; having an average population density of 22.1 persons per square kilometre in the whole country, while Lusaka Province has 126.8 persons per square kilometre, which is the highest in the country (CSO, 2015). According to the World Food Programme (WFO), Zambia was classified as 139th out of 188 countries on the Human Development Index (HDI)\(^2\) in 2015 (Camelbeeck, 2015).

![Figure 4.2 Chitumbo Village (Source: Kopainsky, 2016)](image)

In 2015, 40.8% of the population were living in extreme poverty (1.25$/day PPP), where 76.6% of the population who habits the rural areas are considered poor, while the urban population was 23.4% (Lusaka Times, 2016). Relatively to the adult literacy level, the percentage is 61.4% (data from 2008-2012) and the average schooling years is 5.5 (data from 2000), as reported by Unicef.

Politically, since 1991, the country has a multi-party democratic governance and is divided into ten provinces. The country got the independence from Britain in 1964, that is the reason the official language is English, among others, including Tonga (CSO, 2015).

This country had an annual urban population growth rate of 4.18% in 2015, more than the double of the World – 2.05% (The World Bank, 2016). Since the year of 2002, this rate has been increasing, what means that there are more people living in this country compared to the previous year, so in order to achieve food security is mandatory to increase the food produced in the country.

\(^2\) “The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimension.” (United Nations Development Reports, 2015)
However, the agriculture has an impasse hence the deficit of inputs, transports, markets and land fertility (Saldarriaga et al., 2013), even though 58% of the land area is potentially good for agricultural production (CSO, 2015). Commonly, farmers are mainly smallholders who cannot have access to inputs, in consequence of the high price and demand. In the meantime, the agricultural procedures and techniques are not the most appropriated ones, leading to a decrease in soil fertility and consequently the production (Hager et al., 2015). Figure 4.3 represents the map of the agro-ecological zones in the country.

![Figure 4.3 Map of agro-ecological zones in Zambia (Source: Mercy Corps AgriFin Accelerate, 2017)](image)

The economy of this country was based on the copper mining industry, but in the 1970s the international prices decreased, leading to an economic crisis (Saldarriaga et al., 2013). Actually, the main objective is to diversify the economy from mining to agriculture, in consonance with the Revised Sixth National Development Plan (R-SNDP) in order to reduce poverty, creation of employment opportunities, and increase food security; further, the agricultural sector in Zambia contributed with 13% of the GDP in 2012 (Zambia Invest, n.d.). Besides, the others two main sectors of this country are manufacturing and tourism.

Rearing livestock is another source of income and to ensure food security, in 2015 in Zambia, 34,4% of the population owned livestock, largely cattle (55,1%), followed by goats (54,6%), pigs (30,9%) and sheep (1,6%). Charcoal production and business, hunting, fishing, and other kinds of resource exploitation are also common in order to increase revenue (CSO, 2015).

Smallholder farmers have the biggest percentage of the agricultural activities – 76% – having from five to ten hectares and cultivating from three to five food and stable crops, mostly. Food crops such as maize (51% of total production by dollar value in 2012), cassava (18%), vegetables (9%), soya beans (7%), groundnuts (5%), wheat (5%) and fruit (4%); and cash crops specifically cotton (44%), sugar cane
(32%) and tobacco (24%) are principal crops in Zambia (Mercy Corps AgriFin Accelerate, 2017). The food crops are mainly for their own consumption, while the cash crops are to generate income.

Furthermore, Zambia is one of the countries of Sub-Saharan Africa which faces challenges related to food security, despite other issues such as undernutrition, chronic poverty, natural disasters and social problems (World Food Programme, 2016), being one of the ten most food insecure countries in the world (Saldarriaga et al., 2013). The main reasons for the lack of food security are the annual urban population growth, the weather oscillations (rainfall patterns, temperature), poor agricultural technologies and techniques, and low educational and health levels.

Zambia is extremely susceptible to drought, because of its geography and since the agriculture is 90% rain-fed (Mapfumo et al., 2013), the climate change can affect the country in a negative way. The last 20 years the rainfall patterns are changing, on the word of FAO, Zambia’s maize production decreased by 12% in 2012/2013 owing to oscillations of weather and a worm infestation. These climatic shocks lead to dramatic consequences, for instance, poverty, keeping malnutrition and limit their possibilities to overcome (World Food Programme, 2016). There are some possible techniques which can help to surpass, for example, crop diversification or planting varieties maturing late, but the price of the seed is much superior to the conventional ones (Hager et al., 2015). Curiously, farmers in this country have procedures to identify if the planting season, which is from October to November, will be good or not, through the analysis of the fruity forest trees and winds; farmers also believe that if the wild trees bear more fruit it indicates hunger (Saldarriaga et al., 2013).

To raise and motivate the agriculture sector, there are some programs and activities from the Zambia’s government, such as Food Reserve Agency (FRA) and Farmer Input Support Programme (FISP), and also from international organizations, like the United Nations Development Assistance Framework (UNDAF), which aims to develop food security. FRA and FISP are the two principal programs from the government and invest 84% in agriculture causes: providing mainly inputs (fertilizer, seeds, for example) through an Electronic Voucher (United Nations Development Reports, 2016).

### 4.2. Preliminary Models – System Thinking workshop in 2015

The results from the System Thinking workshop in 2015 resulted in a complex causal map, as it is shown in Figure 4.4. This CLD was the result of activities in the workshop which elaborated on the initial CLD presented before in Figure 3.4.
The System Thinking workshop also proved that it is possible to integrate local-based knowledge with science-based systemic knowledge, using this approach through model building. The participants also showed they developed an intermediate level of system understanding and reasoning, overlapping knowledge from farming, food and system thinking domains. The figure above, partially answers the A1 question ("What does farmer’s knowledge look after facilitated system thinking group intervention?") (See Figure 3.3). Furthermore, the other research questions, B1 and B2, were answered due to the use of tangible objects, which made the participants increase their notion of causality between the variables and because of the water glass analogy, that made the stakeholders learn about the behaviour of the feedback loops.

4.3. Scenario workshops

4.3.1. Participants

The participants who took part in the Scenario Workshop were mainly smallholder farmers. The smallholding is a small and family-focused farm, whose areas are from less than one hectare to ten hectares. Usually, those farmers work in a family environment and part of the amount produced is designated for their own consumption. In 2012, 80% of the farmland were managed by this kind of farmer in Sub-Saharan Africa and Asia (Food and Agricultural Organization, 2012).
The workshop had two groups of participants, A and B, from the Chibombo district, situated in the Central Province of the country, who were mainly from two villages: Mpikwa and Chitumbo. The workshop groups were randomly formed, thus one of the organizers was driving around the villages and picking up the members. Table 4.1, further in this chapter, holds all the information of the participants, such as their code, gender, village they come from, age, marital status, household size, tillage used (conservation farming and/or conventional farming), level of education, total number of livestock (goat, chicken, cattle, guinea fowls, among others), maximum number of bags with maize (50 kg) sold in a year, number of months they could produce their own food, if they participated in the previous workshop, and, finally, their income classification. Additionally, the names of the participants were not mentioned and switched for codes (P01, for example), in order to protect and maintain their anonymous identity; moreover, the participants did not receive any monetary reward for taking part of this study.

In workshop A, 13 participants were mainly from Mpikwa Village except one that came from Chitumbo Village (P04); on the other hand, the workshop B participants were all from Mpikwa and they were 12; making a total of 25 participants. The next figure represents the number of female and male participants in both of workshops, A and B.

![Figure 4.5 Participants by gender – A and B workshops]

Relatively to the participants’ age, the average of the workshop A is 51, while workshop B is 38. The oldest participant of all the research was 70 years old, from the A group, and the youngest 27, from the B group (Table 4.1). The next figure shows that the intervals between ages, where the 46-55 interval is the one that has more participants in workshop A, whereas for workshop B is the 36-45 interval. Eight participants in total did not provide this information.
The marital status of the participants is shown in the next figure. The most part of the stakeholders are married, six people are divorced, one is single and two widowed, while seven did not give this information.

The household farm has an average of 6.8 ha in workshop A and 7.6 ha in workshop B. Relatively to the tillage used, eight people from the workshop A use conservation farming and nine conventional farming; when it comes to the workshop B, six participants use conservation farming and the same number for conventional farming. In this case, participants could use the two types of tillage.

Figure 4.8 below represents the participants by level of education. There is just one person with no studies, who participated in the workshop A; seven people in total with middle basic level, from grade 5 to 7, and this is where the most part of workshop B participated are included; the upper basic level relates from the grade 8 to 9, and the most part of the group A is at this level; two and three participants from A and B, respectively, have the highest school level of education (from grade 10 to 12); and, just one has a college degree. Lastly, four people in total did not give this data.
The livestock number contains all the possible types of animals that a participant has – cattle, sheep, goats, pigs, chicken, donkey, guinea fowls, turkeys, ducks, doves. This number can be consulted individually in Table 4.1. However, the average for workshop A is 55 and for workshop B is 27 per participant.

Other relevant participant data is the maximum of maize bags each one sold in a year, each bag having 50 kg. These numbers vary from 0 to 500, but the average from group A is 85, whereas group B sold 125 on average.

The number of months during which participant ate their own produced food is more consistent in the A group because almost all the participants with this information said 12 months (the average is 11.9 months); while in B the average is 11.1 months.

The next graph (Figure 4.9) represents the income level of the stakeholders. In group A, five participants have a medium income and the same number of high income. While the B participants are more distributed, having five people with low income, three with medium and four with high.

Lastly, 62% of the participants from workshop A were in the previous workshop; on the other hand, 67% of the participants from group B attended the ST workshop, which took place in 2015.
<table>
<thead>
<tr>
<th>Workshop A/B</th>
<th>Stakeholder type</th>
<th>Stakeholders code</th>
<th>Gender</th>
<th>Village</th>
<th>Age</th>
<th>Marital status</th>
<th>Household size (ha)</th>
<th>Tillage Used</th>
<th>Level of education</th>
<th>Livestock (total)</th>
<th>Max. of bags of maize sold in a year (50 kg)</th>
<th>Months of own Food Consumption</th>
<th>Income classification</th>
<th>Participated in the workshop 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>A/B Interviewer</td>
<td></td>
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</tr>
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<tr>
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<td>F</td>
<td>Mpikwa</td>
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<td>Yes</td>
<td>Yes</td>
<td>Grade 9</td>
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<td>20</td>
<td>12</td>
<td>Medium</td>
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<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
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<td>Mpikwa</td>
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<td>7</td>
<td>-</td>
<td>-</td>
<td>Grade 9</td>
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<td>-</td>
<td>-</td>
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<td>F</td>
<td>Chitumbo</td>
<td>57</td>
<td>Widowed</td>
<td>6</td>
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<td>Yes</td>
<td>Grade 9</td>
<td>23</td>
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<td>11</td>
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<td>5</td>
<td>12</td>
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<td>Mpikwa</td>
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<td>Divorced</td>
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<td>12</td>
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<td>Grade 7</td>
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<td>Divorced</td>
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<td>No</td>
<td>Yes</td>
<td>Grade 8</td>
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<td>12</td>
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</tr>
<tr>
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<td>P17</td>
<td>F</td>
<td>Chitumbo</td>
<td>37</td>
<td>Divorced</td>
<td>6</td>
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<td>No</td>
<td>Grade 7</td>
<td>15</td>
<td>17</td>
<td>11</td>
<td>Medium</td>
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</tr>
<tr>
<td>B</td>
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<td>Chitumbo</td>
<td>40</td>
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<td>Grade 7</td>
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<td>Low</td>
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<tr>
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<td>Chitumbo</td>
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<td>Grade 12</td>
<td>22</td>
<td>25</td>
<td>12</td>
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<td>M</td>
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<td>Yes</td>
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<td>Yes</td>
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<td>104</td>
<td>500</td>
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<td>12</td>
<td>High</td>
<td>Yes</td>
</tr>
<tr>
<td>B</td>
<td>P23</td>
<td>F</td>
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<tr>
<td>B</td>
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<td>Yes</td>
<td>Grade 9</td>
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<td>110</td>
<td>12</td>
<td>High</td>
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</tr>
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<td>Chitumbo</td>
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<td>-</td>
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<td>No</td>
<td>Grade 5</td>
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<td>11</td>
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<td>-</td>
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<td>-</td>
<td>-</td>
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<td>-</td>
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</tr>
<tr>
<td>Group 2</td>
<td>G02</td>
<td>F/M</td>
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<td>-</td>
<td>-</td>
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<td>-</td>
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</tr>
</tbody>
</table>
4.3.2. Scenario Workshop activities

When conducting the workshops and due to the limitation of the scientific-based knowledge restriction of the participants, facilitators decided to adapt the original script (Appendix 1) and simplify it, since the aim was to educate the community on food security issues. The main differences with respect to the developed script were: the four different scenarios were not discussed, instead, the organizers focused on the considered worst scenario, so the participants could be prepared if this would happen, and there was no time left to develop a proper action plan.

With both groups, A and B, the same script was used, however, the second group had a different approach during the scenario activity. This different approach was dividing the group B into two groups, so they could find a solution for the scenario introduced. Additionally, the workshop flowed differently in both cases since some other questions and subjects were developed during the process. Finally, the transcriptions (Appendices 2 and 3) were translated to English and are in their original form, so it will be possible to consult the participants' line of thinking in the rawest data to shape collective mental models. The next table summarizes and guides the analysis of workshop transcriptions. Figure 4.10 and Figure 4.11 illustrate the workshop activities.

Table 4.2 Summary of the activities in workshops A and B

<table>
<thead>
<tr>
<th></th>
<th>Transcription page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td></td>
</tr>
<tr>
<td>Round of introductions – name,</td>
<td>103</td>
</tr>
<tr>
<td>where they come from, profession</td>
<td></td>
</tr>
<tr>
<td>Presentation of workshop’s</td>
<td>159</td>
</tr>
<tr>
<td>intention/idea</td>
<td></td>
</tr>
<tr>
<td>Workshop program and rules</td>
<td></td>
</tr>
<tr>
<td><strong>Revision of the results from</strong></td>
<td>104</td>
</tr>
<tr>
<td>the ST workshop (2015)</td>
<td>161</td>
</tr>
<tr>
<td>What they learnt from the 1st</td>
<td></td>
</tr>
<tr>
<td>workshop (ST workshop)</td>
<td></td>
</tr>
<tr>
<td>Reminding the glasses of</td>
<td></td>
</tr>
<tr>
<td>water activity (Figure 4.10)</td>
<td></td>
</tr>
<tr>
<td>Asking the key questions:</td>
<td></td>
</tr>
<tr>
<td>What to do with cash?</td>
<td></td>
</tr>
<tr>
<td>How to increase/decrease cash?</td>
<td></td>
</tr>
<tr>
<td>How to get food?</td>
<td></td>
</tr>
<tr>
<td>How to improve land</td>
<td></td>
</tr>
<tr>
<td>fertility/farming?</td>
<td></td>
</tr>
<tr>
<td>How to increase livestock?</td>
<td></td>
</tr>
<tr>
<td>Building the Causal Map from</td>
<td></td>
</tr>
<tr>
<td>the 1st workshop</td>
<td></td>
</tr>
<tr>
<td><strong>Feedback from participants</strong></td>
<td></td>
</tr>
<tr>
<td>What they manage to do after</td>
<td>113</td>
</tr>
<tr>
<td>the previous workshop</td>
<td>169</td>
</tr>
<tr>
<td>Possible difficulties/failures</td>
<td></td>
</tr>
<tr>
<td>that the participants had</td>
<td></td>
</tr>
<tr>
<td><strong>Scenario “no rain, no</strong></td>
<td>124</td>
</tr>
<tr>
<td><strong>government help” exercise</strong></td>
<td>174</td>
</tr>
<tr>
<td>Introduction of the “no rain,</td>
<td></td>
</tr>
<tr>
<td>no government help” scenario</td>
<td></td>
</tr>
<tr>
<td>Coming up with policy proposals to overcome the scenario and group discussion/explanation (Figure 4.11)</td>
<td></td>
</tr>
<tr>
<td>Participants’ plans for the future/Action Plan</td>
<td></td>
</tr>
<tr>
<td><strong>Closure</strong></td>
<td></td>
</tr>
<tr>
<td>Recap main insights and highlight the importance of planning</td>
<td>156</td>
</tr>
<tr>
<td>Distribution of the Reports Cards/Booklets for self-monitoring</td>
<td>210</td>
</tr>
</tbody>
</table>
Figure 4.10 Scenario Workshop – Glasses of Water activity (Revision of the workshop 2015)  
(Source: Kopainsky, 2016)

Figure 4.11 Participants discussing policy proposals to overcome the scenario “no rain, no government help”  
(Source: Kopainsky, 2016)
4.4. Data processing and analysis

4.4.1. Coding Charts – coding method

The Coding Charts are the second output from the Coding Process, so as it was explained in the methodology section. After setting the workshop theme, purpose and also the research questions, the relevant data to meet these objectives was carefully selected. So, the variables and their relationship type were identified and described in charts according to its theme. Also in these charts is possible to know where the information comes from (information source), some notes and dictations that justify the relationship between the variables and also the speaker code and CIN. The Coding Charts are in Appendix 6 and Appendix 7.

Additionally, some variables and their relationship were mentioned by many participants, but only the first one is cited in the chart. Sometimes, there is more than one speaker name for each causal structure but the reason is that they were developing their line of thinking together, or added something important after. On the other hand, there are some participants, such as P03, P11, P13, P18 and P25 who did not add anything to the tables. One of the reasons can be that only one participant took part in the previous workshop, or might have been reluctant.

When the Coding Charts are analysed relatively to the participants in both groups it may be observed that men have intervened more. Even though the group A had more female participants, men contributed three times more with policy proposals variables than women and this also happened in group B, where men added more than the double of variables when comparing to the women. When it comes to the revision/lessons learned the ration between the interventions is more gender balanced. This probably happened due to their level education – male participants have a slightly higher formal education than the female, in this case – and also their opinion is not normally considered in the decisions at home. In group A, the person who contributed more to the Coding Charts was P09, with 49% of all the charts, including Lessons Learned and Policy Proposals; curiously, this man has a college degree, has a high income and access to food security all year. Finally, in group B there is a similar behaviour: a man, who participated in the workshop in 2015, who has a high income and has the higher educational level, contributed with 27% of the inputs to the coding charts; the participant is P22.

4.4.2. Words-and-arrows diagrams – coding method

The Words-and-arrows diagrams were made from the Coding Chart and aimed to simplify and to find the pathways between the causal arguments. In this case, there were found 108 causal arguments. This number is represented by a MIN so that it can be identified in the Causal Maps. During the development of the coding charts, there were some arguments described the same or even identical arguments, so they were put in the same MIN. The results can be found in Appendix 8 and Appendix 9.
4.4.3. Causal Loop Diagrams/Maps

The CLDs were formed at the end of the coding process, as explained in the methodology chapter. The next figures represent the result of the coding process – transcription, charts, words-and-arrows, CLD. The numbers (from 1 to 108) are the MIN (Map Identification Numbers) and can be found in the words-and-arrows appendices (Appendix 8 and 9). Additionally, the stocks and flows were not evidenced since it was not relevant to this research. For a better understand of the CLD notation, consult Appendix 10. The link colours have the meanings represented in Table 4.3.

Table 4.3 Legend CLD/Maps

<table>
<thead>
<tr>
<th>Link colour</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Review mentioned by workshop group A</td>
</tr>
<tr>
<td></td>
<td>Review mentioned by workshop group B</td>
</tr>
<tr>
<td></td>
<td>Review mentioned by workshops groups A and B</td>
</tr>
<tr>
<td></td>
<td>Link created by workshop group A</td>
</tr>
<tr>
<td></td>
<td>Link created by workshop group B</td>
</tr>
<tr>
<td></td>
<td>Link created by workshop groups A and B</td>
</tr>
<tr>
<td></td>
<td>Links that were created in workshop 1 (2015) that were not remembered</td>
</tr>
</tbody>
</table>

4.4.3.1. Lessons Learned from the System Thinking workshop

At the begging of both A and B workshops, the interviewers asked the participants to recap the CLD from the previous workshop (2015), to study how much they could remember after a year. There were five questions that they focused on during the workshop, those questions were: “What to do with cash?”, “How to increase or decrease cash?”, “How to get food?”, “How to improve land fertility/farming?” and “How to increase livestock?”. After the coding process, the results are shown in the next figures.

i. What to do with cash?

The CLD depicting the answers to the question “What to do with cash?” is shown in Figure 4.12. To answer this question, the participants thought not only in the first workshop but also in their daily lives, adding more variables and links to the system, which are: Rain/Water, Personal Expenses, Savings and Piecework. The other variables – Land Owned/Rented, Inputs, Livestock, Disease Prevention and Food Purchases were already in the final map of the workshop 2015. Starting with Land Owned/Rented, Inputs and Rain/Water, the money can buy or rent land, buy seeds, for example, and pay the water maintenance (water pump, for instance), to start farming. Also, money can also pay for Livestock and to maintain them – Disease Prevention – “…there is cash for livestock, there is some medicine needed for livestock so that in the future your livestock can increase (…)” (P09-113 p. 114/115, Appendix 2). Other things that they mentioned was they could buy food (Food Purchases); Personal Expenses, such as luxury, school, funerals; and even pay someone to work for them – Piecework. Lastly, they can “…start budgeting, and have now started saving; having our own bank accounts where to save (…)” (P07-391 p. 126, Appendix 2), so it means Savings.
ii. How to increase/decrease cash?

In this revision question, there are some elements that may increase or even decrease the cash stock in the system. So, according to what participants said during the scenario workshops, the CLD depicted in Figure 4.13 was constructed.

According to the figure above, there are many ways that affect the Cash variable. When this part of the map is compared to the original one, there are some new variables, namely Piecework, Climate Change, Trees, Charcoal, Loan, Groundnuts, and Commerce; and new links between variables, such as 12, 13, 14, 20, 21, 22, 24 and 25. So, basically all types of business – Gardening, Livestock, Commerce, Charcoal, Produced Food and Groundnuts can affect the Cash variable, since they increase it when their business is going well. Using the Produced Food as an example, there is an external factor called Climate Change that affects in a negative way the rainfall: “unstable weather conditions also reduce the cup of cash at home” (P21-369 p.176, Appendix 3); the Land (productive land) depends on the Rain/Water to produce more food, but this amount has to be moderate. The other business kinds will be explained in the policy proposals section. Moreover, other ways to increase the Cash is Avoiding Carelessness, which is not buying anyhow or unnecessary things; ask for a Loan and do Piecework, that is work for others. Regarding this question, there is a balancing feedback loop (B1) between the Charcoal and Trees variables, that will be explained in more detail below, in the Charcoal Business proposal section. In this case, there was a leverage point identified: Changing the goals of the system – in this case, the current objective is to increase Cash. If the underlying goal changes to other goals, other than increasing Cash, this will have a high leverage in the system.
iii. How to get food?

To start with the Food Security theme the interviewers asked what/how the participants do to have/get food. Figure 4.14 provides their way of thinking.

In this situation, the only new variable is *Household Consumption* and its link (MIN: 32). *Livestock* contributes with *Inputs*, namely manure and oxen, to improve farming and consequently, the *Produced Food*. As well as *Rain/Water* that is also necessary to produce food and for the *Household Consumption*, that is used for cooking and for drinking. The *Rain/Water* can be a drawback “if there are floods again, you can do very well but the crops will be destroyed by the floods (…)” (P21-367 p. 176, Appendix 3).

When it comes to the *Available Food* variable, it can be influenced by *Avoiding Carelessness, Debt Avoidance* and *Abusive Sales*. If *Avoiding Carelessness* increases, the *Available Food* will also rise, because “(…) what makes our food reduce is our carelessness” (P17-306 p. 175, Appendix 3) and “on the part of food, it should also be managed well because there are pests that destroy… we should be buying medicine to prevent or to treat our food so that it can be free from pests” (P09-113 p.116/117, Appendix 2). The food availability decreases when farmers sell more food than they should, and not storing enough for their own consumption (*Abusive Sales*). Finally, “then on the cup for food, what can
make it reduce even when you had reserved enough are unnecessary debts” (P21-371 p. 176, Appendix 3), in other words, meaning that if I avoid more debt (Debt Avoidance) then I need to pay back (Debt Payback) less and thus I do not have to sell so much food to generate revenue for paying back debt, ending up with more food. There is one leverage point in this case, namely the size of debt stock relative to its flows.

iv. How to improve land fertility/farming?

In this case the question was what could participants do to improve land fertility, however, they also found situations that could disturb farming (Figure 4.15).

In relation to the original map, participants added the following variables: Piecework, Charcoal and Trees. To improve land fertility they must have Inputs, which can come from Livestock or Trees manure (Musangu trees, for example) and also Rain/Water that are also influenced by the Trees. The other activities they can do to increase fertility are: Conservation Farming to avoid the use of tillage or only minimal tillage; Liming; Weeding the fields; Crop Diversity “we should not just plant one crop but a number of them, so that if our crop does not sell well, the other will and help again on the same crops” (P22-425 p. 178, Appendix 3); and Crop Rotation because “(…) if you over-use the land, it loses its fertility (…) why we learnt that we should be practicing crop rotation” (P09-113 p.116/117, Appendix 2). At the same time, there are some actions that harm the fertility of the soil such as Piecework and the reason is “we will always just be weeding other people’s fields while our fields suffer in the end hunger
changing the rules of the system – this map has the main purpose of improving land fertility. Since the Rain/Water is essential for it, introducing the Charcoal Business will affect negatively the system; and that is what happens to Piecework as well.

Figure 4.15 How to improve land fertility/farming CLD – Lessons Learned

v. How to increase livestock?

The last question of the revision was what could participants do to increase the number of livestock. Their answers are translated into the CLD in Figure 4.16.

In this case, neither new variables nor links were created. So, to improve the number of livestock, there is Cash so farmers can keep their animals and buy more; Good Care; Disease Prevention such as “some medicine needed for livestock so that your livestock can increase (…)” (P06-105 p.116, Appendix 2); and Breeding – “for cattle to be increasing, to be reproducing your desire should be that you look for a breed which is good (…)” (P09-187 p.120, Appendix 2).
vi. Integrated CLD depicting Lessons Learned from the System Thinking workshop

Combining all the causal maps above and adding the information which was still not mentioned from the causal map built during the ST workshop (2015), the integrated causal map of the Figure 4.17 was achieved.

When this integrated CLD is compared to the original one, it has more links, so it means participants added new variables and links between them. The causal map from the ST workshop has 28 variables and 37 links, while the Lessons Learned Causal Map has 39 variables and 55 links, that is an increase of 39% in the map for the variables and 49% for the links. Furthermore, some important variables like Charcoal, Climate Change and Savings were added to this new CLD, showing the acquired knowledge and perceptions of the participants.

When comparing results from both workshops A and B, participants could not remember 11 links, and 5 variables (Desired Food, Proper Storage, Musangu Trees, Burning Land and Feed) at the moment of the revision in the scenarios workshop. The two groups could remember 14 links (green) and the group A memorized 5 (orange), whereas group B learnt 8 (blue). Lastly, groups A and B created 6 links that match together (red), the group A alone just made 1 (yellow), while group B generated 10 new links (purple). The grey links, those that were not remembered by any of the two groups, totalled 8. To summarize, group B remembered and created more links than group A, the reasons can be because the interviewers asked more specific questions, the average educational level in the group B (Grade 9) is higher than the group A (Grade 8), and the group B had more registered participants (67%) that took part of the previous workshop, when it is compared to the other group (62%).
Figure 4.17 Lessons Learned Final Causal Map (workshops A and B – April 2016)
4.4.3.2. Policy proposals under a worst case scenario

After the revision, the interviewers introduced a scenario – “no rain, no government help” – that is considered the worst scenario possible for the participants, and the exercise was to find policy proposals to defeat this kind of scenario, so they could reach Food Security even in this case. Even though, the group A and B had the workshops in two different days, in this document the policy proposals will be shown all together, not differentiating per group because both groups could add important information for each policy. The policy proposals will be separated as “Strengthening policies” and “New policies added”. In one hand, “Strengthening policies” are policy proposals that already existed in this map but come to reinforce and/or have different pathways – Charcoal Business (A), Livestock Business (B), Groundnuts Business (C), Gardening (D), Loan (E), Piecework (F) and Land (productive land) (G). On the other hand, the “New policies added” include all the new policies/variables added to the Lessons Learned Causal Map – Rental Business (H), Partnership (I), Legislation for Deforestation/Afforestation (J), and Retention Basins/Drilling Boreholes (K), by participants of the scenario workshops.

The next maps have new links and variable compared to the Lessons Learned Final Causal Map (Figure 4.17). The reason is that they were added during the scenario workshops, however, after the revision of the ST workshop (2015). These new links and variable are relevant but cannot be considered as individual policies, additionally, they are transversal to all the following policy proposals. The new variable is Government and the new links are the one who connects Government to Inputs (seeds, fertilizer, oxen, manure) (MIN: 77), since the government provides inputs to the farmers; the link between Rain/Water and Household Consumption (MIN: 32); and the connection among Available Food and Household Consumption (MIN: 71, 94, 103). Moreover, since the Musangu Trees were too specific, it was changed to Trees, so could work better on the maps. Also, the links related to the policy proposals are in bold and the remaining in grey; the link colours can change from the Lessons Learned Causal Map because the group A can mention something that did not say before in the revision, for example.

A. Charcoal Business

Figure 4.18 represents the Charcoal Business proposal, which is burning charcoal from trees. In this policy, Health and Legislation for Deforestation/Afforestation were added to the Lessons Learned Causal Map. The pathway starts with Trees that are cut down to produce Charcoal, then it goes to Sales “Business” so they can earn Cash, so they can buy Livestock or food (Food Purchases), consequently, they can have Available Food, thus Food Security. On the other hand, “when you burn your charcoal that ashes there it can destroy the land and crops cannot grow well” (P09-1533 p. 121, Appendix 2), therefore the Land (productive land) is affected in a negative way, also the Rain/Water since the Trees are reducing when Charcoal is increasing and, finally, also the Health will decrease with this business, because of the inhalation of the carbon dioxide, which can lead to several diseases. When it comes to the proposal Legislation for Deforestation/Afforestation that will be mentioned later in this chapter, it can reduce or even motivate the Charcoal Business. According to the stakeholders, the
reason is that the participants suggested that the Headman should permit if each person could practice this business, depending on the reasons presented by each household.

In this case, there is just one feedback loop relevant for the policy – the one between Charcoal and Trees – which is a balancing loop (B1) since when the Trees increase, the Charcoal also increases, but after it reduces de Trees.

B. Livestock Business

Livestock Business corresponds to the trade of livestock – chicken, goats, cattle – for money. Figure 4.19 shows all the links and variables related to this business, as cited by the participants.

In this CLD, the only variable added was Transportation. However, three links around Livestock were created – from Piecework, Cash and Abusive Sales. There are two ways to start this business – Cash and Piecework. To earn Cash is possible to ask for a Loan from AGORA or OSAWA; still, from Produced Food, it is possible to find Cash through selling the Food Surplus (k1000), after an amount (k500) is used to buy Livestock (buy 2 goats, k250 each). This Livestock is sold at a place where they are overvalued (Sales Business at Kasumbalesa), so they can find some profit. Other expenses like Transportation until the marketplace (k30), Food Purchases for the day (k80) are also taken into account. In this example, the profit would be k280. Nevertheless, there are other expenses related to livestock – Good Care (place to sleep), Water to drink, Feed, Disease Prevention (medicine, dipping, deworming). If a person cannot find the money to start this business, it is feasible to work for others – Piecework – and be paid through livestock (chicken) and to breed them (Breeding). The Livestock also contributes to the Inputs, since their manure and oxen can be used in the food production. It is important to highlight that the Abusive Sales of Livestock affects this proposal, meaning that they should avoid selling too much livestock. Like the Saldarriaga et al. (2014) research, the stakeholders came with the idea of selling animals, in order to buy food.

There are four feedback loops relevant to this policy, all reinforcing and which the first three are very similar. The R1 represents the loop Cash $\rightarrow$ Disease Prevention $\rightarrow$ Livestock $\rightarrow$ Sales “Business” $\rightarrow$ Cash, while R2 symbolizes Cash $\rightarrow$ Livestock $\rightarrow$ Sales “Business” $\rightarrow$ Cash, and lastly, R3 is Cash $\rightarrow$ Good Care $\rightarrow$ Livestock $\rightarrow$ Sales “Business” $\rightarrow$ Cash. The R4 characterizes the following links Available Food $\rightarrow$ Food Surplus $\rightarrow$ Sales “Business” $\rightarrow$ Cash $\rightarrow$ Food Purchases $\rightarrow$ Available Food.
Figure 4.18 Charcoal Business policy proposal CLD – Strengthening policies
Figure 4.19 Livestock Business policy proposal CLD – Strengthening policies
C. Groundnuts Business

The Groundnuts Business proposal was contemplated by the participants due to the capacity to grow these nuts in situations of low rainfall. Figure 4.20 provides the pathways and links of the groundnuts proposal.

The only variable added was Health, that already appeared in the Charcoal Business proposal. There are two connections added to this proposal, one that links Groundnuts to Inputs – “they have nutrients to support the crops you planted” (P09-1525 p. 157 Appendix 2); and other which links to Health, the participants affirm and recognize the nutritional capacities of groundnuts, meaning that this can benefit their health. So, starting with Groundnuts it is also possible to increase the Available Food, one part goes to Household Consumption and the other can be sold in order to find Cash and to buy more food (R4). From the money earned from this business is possible to buy Livestock or pay Personal Expenses – “from groundnuts, they find a lot of money even a cow they can buy but they only buy clothes” (P09-1456 p. 154, Appendix 2).

D. Gardening

Gardening is an activity that participants are used to doing, but in the case of a worst case scenario with poor rainfall, the participants noticed this would not be a good proposal. Figure 4.21 shows their way of thinking.

First, participants thought Gardening could increase the Available Food. Nevertheless, Gardening depends on Rain/Water, so this proposal was no further developed – “(...) I cannot do even a garden because there are no rains meaning there is no water” (P05-717 p. 137/138, Appendix 2). Later in this section, there will be a proposal called Retention Basins/Drilling Boreholes (K), which aims to collect and reserve water for the poor rainfall seasons, so Gardening could work if this proposal would be implemented as well.

E. Loan

The Loan proposal refers to a credit taken from agencies, for instance, OSAWA and AGORA. The participants can ask for a loan (money or livestock) in exchange for future payment amount along with interest or other finance charges. In Saldarriaga et al. (2014), this proposal was also cited as borrowing money so they could pay for farming inputs. Figure 4.22 represents this proposal and what participants suggest doing with a loan.

Since this proposal is a way to find Cash, smallholders can find more Cash or Food Security, the extra variables are related to another proposal – Rental Business – which will be explained in the section “New policies added”. The new link is between Cash and Debt Payback, and the reason is if there is enough money, is possible to pay back with the interested required. Thus, starting with the Loan that provides Cash, this variable can be used to start to build the houses for the Rental Business, forming a
reinforcing loop (R6); or to buy Livestock (explained previously in the Livestock Business); or to purchase Inputs, so they can apply them in the land to produce food, to achieve Food Security at home (Household Consumption) and to sell the Food Surplus, increasing the amount of Cash (R5). In other words, and according to P21-2012 p. 213/214, Appendix 3: “Well, then he produces and raises a k400, he pays for FISP and they give him 4 bags (50 kg each) of fertilizer, he then cultivates and he reaches a level of producing enough food for consumption and be able to sell some. When he reaches that level, it means that he is also in the position to build a house that will be giving him money so that children can use it future”.

F. Piecework

Piecework is a type of work which the payment depends on the number of things finished relatively to the time spent making them. In Zambia, this type of work consists normally in doing weeding and cultivating, during the rain and cold season, respectively, while in the hot season, is common to hire ox-carts (Saldarriaga et al., 2014). In this case, the piecework studied was cultivating on someone else’s field and ox-carts. Figure 4.23, provides the CLD built for this proposal.

In this situation, no new variable was added to the system map, just some connections between them. Beginning with the Ox-carts, they need wood as their principal material, so this Piecework influences negatively the Trees and consequently the Rain/Water, according to P21-1986 p. 213, Appendix 3 “the water is going down because where 10 ox-carts can come from its deforestation, destroying the land”. Moreover, this piecework also destroys the Land Owned/Rented. On the other hand, this policy can increase Cash through selling 10 ox-carts for k20 each. With the half of amount of money, the participants suggested starting a new business – fritters (Commerce) – to start it they buy the ingredients they need (Food Purchases), like flour, sugar, salt. After selling the fritters they earn Cash, constituting a reinforcing loop (R7). Moreover, in the Saldarriaga et al. (2914) research, the farmers came up with this solution for the same purposes, however, ‘piecework’ is called ‘working off-farm’.

Hence, during the scenario workshop, piecwork was discussed through the following connections: it is possible to buy piecwork from other person and also to sell piecwork for another person (R8); the Piecework can be paid with Livestock; and also, when a person works too much in other’s field, their own field will decrease the production (Land (productive land)).
Figure 4.20 Groundnuts Business policy proposal CLD – Strengthening policies
Figure 4.21 Gardening policy proposal CLD – Strengthening policies
Figure 4.23 Piecework policy proposal CLD – Strengthening policies
G. Land (productive land)

This proposal shows how participants could join ways to improve land fertility, without the government’s help with the fertilizers. Figure 4.24 depicts all the alternatives for overcoming the issue of soil inputs.

In this case, all the alternatives were already in the Lessons Learned Causal Map, so this proposal just came to reinforce these ideas because of all increase the land productivity without the help from the government. Crop Rotation is "(…) changing of crops so that the soil is revamped" (P24-924 p. 189, Appendix 3); Crop Diversity means planting many species in the crops so some can resist the weather unpredictable conditions. Other strategies include Conservation Farming; Inputs from livestock manure/stool, manure from the Trees and Liming. Reviewed literature (e.g. Saldarriaga et al. (2014)) suggests, similar policy proposals, such as ‘getting inputs, pre-tillage, tillage, liming’ and ‘weeding and spraying’.

H. Rental Business

This proposal was presented for the first time in the scenario workshops. The main goal is to build houses so they can be rented in the future and earn money for their children. Figure 4.25 illustrates the CLD pathways.

For this proposal, two variables were added – Building Houses and Rental Business; consequently, other connections were created. Starting with the Produced Food, some of the production is reserved for Household Consumption and “what remains you sell and then the money you keep it to say this money should be used to build a house so that in the future helps me” (P21-2012 p. 213/214, Appendix 3). Then, it is necessary to find a strategic place (Kabwe, Chimbombo or anywhere where there are a lot of people, as the participants cited) where the house can be built, hire a bricklayer, buy materials, and until the house is ready for rent it takes seven years, that is the reason for the delay mark, identified by the participants. Afterwards, the Rental Business increases the Cash variable and with that money is possible to buy Inputs or Livestock. Other alternatives to start this business is with the Livestock Business or a Loan, like was explained previously. There is two reinforcing feedback identified – R5 and R6 (explained previously).
Figure 4.24 Land (productive land) policy proposal CLD – Strengthening policies
Figure 4.25 Rental Business policy proposal CLD – New policies added
I. Partnership

Partnership proposal means working with someone as a society and working/contributing to the same goals to advance their interests. The resulting CLD is represented in Figure 4.26.

Partnership variable was added to the map and its link to Land (productive land). Working with someone can be positive or negative depending on how committed is the partner. So, when “they cultivate for you in a good time” it is possible to produce food and sell it (Sales “Business”) in order to earn cash (P19-1491 p. 203, Appendix 3). “But others will cultivate for you late such that before the cups can completely mature the rains stop” (P19-1493 p. 203, Appendix 3)

J. Legislation for Deforestation/Afforestation

This policy consists of defining rules that aim to reduce or even mitigate the deforestation and to motivate afforestation. Figure 4.27 supplies all the possible links and their consequences when implementing this proposal, as cited by the participants.

In this case, the only variable added was Legislation for Deforestation/Afforestation and its links to Charcoal and to Trees. With afforestation, the number of Trees will increase and consequently will help the rain patterns (Rain/Water) and also the Inputs with their manure. Those “trees in the field they start shedding off the leaves and when you cultivate you are able to find food” (P20-1137 p. 194, Appendix 3), achieving Food Security. It is also possible to find profit from the Trees since the fruits from them can be sold (Cash). Additionally, this proposal can affect the Charcoal Business in a reinforcing or balancing way, and as already explained previously. According to the participants, Charcoal Business could be practice by a person who could explain his/her intentions to the government, if the intentions would be valid (for instance, do not have other option to earn money to buy food or to pay the school for the children), the person would have the permission to cut down trees. However, the person could be hiding his/her true intentions and necessities.
Figure 4.26 Partnership policy proposal CLD – New policies added
Figure 4.27 Legislation for Deforestation/Afforestation policy proposal CLD – New policies added
K. Retention Basins/Drilling Boreholes

These two methods – Retention Basins and Drilling Boreholes – were added to solve the water problem reflected in the worst case scenario. Retention Basins are dug in order to maintain water in case of floods or rainfall, which contributes to the provision of water courses during droughts, among other advantages. While boreholes are drilled in the ground in order to extract water from the aquifer. Figure 4.28 shows this proposal related to Rain/Water.

This proposal forms a balancing feedback loop (B2). Since “(...) in times of little rainfall use retention basins” (P05-1238 p. 149, Appendix 2) the water will be available, and also extract water from boreholes when there is the need. In other words, when the Rain/Water increases, the necessity of Retention Basins/Drilling Boreholes decreases; however, when the Retention Basins/Drilling Boreholes increase, the levels of Rain/Water available also grow.

4.4.3.3. Integrated CLD combining all policy proposals

After combining all the 11 policy proposals explained before, the final map is represented by Figure 4.29. In this final Causal Map, that has all the results from the coding and analysis of the Lessons Learned and Policy Proposals workshop activities are possible to observe how the policies work together and how can they influence each other. This map has 47 variables and 79 links, of which 5 were mentioned by the group A (orange), 8 by the group B (blue) and 20 by both groups (green), those variables were already in the original map. When those links are compared to the links of Lessons Learned Causal Map (Figure 4.17) both groups could remember 6 more links than in the revision part. Many connections were created during this exercise, so the group A could create 6 more links than in the first part of the workshop, counting 7 in total (yellow); while group B doubled the connections generated, regarding 21 in total (purple); and lastly, they produced 11 links together, so more 5 than before. Additionally, the grey links were reduced from 11 to 7, so it means they could remember more connections after the revision exercise.

The CLD size had an increase of 44% from the Lessons Learned version and 114% from the original one (ST workshop 2015) when it comes to the links. Moreover, related to the number of variables, the CLD also improved 21% and 68%, when comparing to the Lessons Learned and ST workshop (2015), respectively. Just as it happened before, group B’s contributions had stood out from A’s and the reasons are probably the same of the Lessons Learned causal map, i.e. group B participants were more motivated to talk, the average educational level is higher in B and this group had more participants who participated in the first workshop.
Figure 4.28 Retention Basins/Drilling Boreholes policy proposal CLD – New policies added
Figure 4.29 Policy Proposals Final Causal Map
4.4.4. Prospecting interrelationships between the policy proposals

This section will show the study of interrelationships among the policies, if they do not affect, complement, harm each other, in other words, to evaluate the dependability between them. The following results were made by the author based on the workshop transcriptions and Policy Proposals Final Causal Map (Figure 4.29). Additionally, this section was based and adapted from methodologies used in the Videira et al., 2014 paper. The next table shows the result of the cross-impact analysis.

Table 4.4 Cross-impact matrix for the policy proposals (Adapted from Videira et., al 2014)

<table>
<thead>
<tr>
<th>Proposal effect:</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>AS</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charcoal Business</td>
<td>A</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>66.7</td>
</tr>
<tr>
<td>Livestock Business</td>
<td>B</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Groundnuts Business</td>
<td>C</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Gardening</td>
<td>D</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Loan</td>
<td>E</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>100</td>
</tr>
<tr>
<td>Piecework</td>
<td>F</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>66.7</td>
</tr>
<tr>
<td>Land (productive land)</td>
<td>G</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rental Business</td>
<td>H</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>66.7</td>
</tr>
<tr>
<td>Partnership</td>
<td>I</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>33.3</td>
</tr>
<tr>
<td>Legislation for Deforestation/Afforestation</td>
<td>J</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>66.7</td>
</tr>
<tr>
<td>Retention Basins/Drilling Boreholes</td>
<td>K</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PS</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>16.7</td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>16.7</td>
<td>66.7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
<td>16.7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The aim of this table is to calculate and simplify the causal effect from each proposal in one other, because depending on the magnitude of their influences the proposal, should be implemented in an integrated way, or not. Therefore, explaining the table values, the value 1 was given every time that the proposal has an effect on another, which can be positive (reinforcing) or negative (balancing or even reverse); while 0 means that no apparent influence was found from a proposal on another. Subsequently, the values PS (Passive Sum) and AS (Active Sum) were calculated, in the following way: dividing each sum of a column (PS) or arrow (AS) by the major PS and AS, correspondingly.

To demonstrate how the table was built the policy proposal Charcoal Business (A) will be explained: the first step is to verify all the influences this proposal has on the others – with Charcoal Business is possible to buy Livestock (B) and to start a business, so this relation has a 1 value; this also affects the Land (productive land) (G) because of the ashes and pollution, even though this is a drawback it is considered a 1 value; the rest of the policy proposals are not affected by Charcoal Business in a direct
way, according to the CLD derived from the workshop (Figure 4.29). After summing this value, the AS is equal to 2, and after calculating the AS percentage the result is 66.7%. On the other hand, Charcoal Business is affected by Legislation for Deforestation/Afforestation and only from this policy. That is why the PS is equal 1 and its percentage is 16.7%.

When evaluating the cross-impact matrix, all the relations and causal effects mentioned during the workshop seem plausible. In addition, the Gardening and Retention Basins/Drilling Boreholes could work together because the first needs water and the second one provides it. This situation was not considered in the CLD and the cross-impact matrix because it was not mentioned by the stakeholders directly.

After building the table, it is conceivable to build a diagram, crossing the AS and PS results. The diagram has four quadrants – “Critical”, “Reactive”, “Buffering” and “Active”, as shown in the next figure.

![Diagram](image)

*Figure 4.30 Diagram from the results from the cross-impact matrix (Table 4.4)*

This figure represents a graphic and very accessible way the influences between the policy proposals. In this case, none proposal was considered “Critical”, i.e. this kind of policy would be very sensitive with other policy proposals, being influenced and influencing in a strong way; this type of proposal would request a deeper evaluation about their complementary.
The policy proposals Land (productive land) is considered the most “Reactive” one, nevertheless, Livestock Business was also considered “Reactive”, since in this case they do not affect any of the others (AS = 0%) but are highly influenced by the other policy proposals.

Four policy proposals were considered “Buffering”, meaning that Retention Basins/Drilling Boreholes, Gardening and Groundnuts Business are totally indifferent to the other policy proposals, since AS = PS = 0%, further the Partnership was also considered in the “Buffering” zone because has a slightly influence on the Land (productive land).

Finally, the “Active” zone has the most part of the policy proposals, in total five, that are Charcoal Business, Rental Business, Piecework, Legislation for Deforestation/Afforestation and Loan, which the most active one is the Loan (AS = PS = 100%); this quadrant means these policies have a great impact on the others, though they are less influenced by them.

4.4.5. Outlining policy proposals pathways

This section is the last step to build the Action Plan Outline with the pathways for each proposal. The next table (Table 4.5) supplies a summary with the insights captured during the transcription analysis of each proposal. Table 4.5 has four stages: the entry points for implementation, i.e. what each proposal needs to be implemented (stage 1); the stages 2, 3 and 4 are the causal effects from the policy proposals in a short-term (less than 1 year), medium-term (between 1 and 5 years) and long-term (more than 5 years), respectively; lastly, there is an area to comment the complementarity between the policy proposals, system risks, uncertainties, side-effects and other additional comments. The results from the table are all based on the transcriptions from the workshop, their causal maps and the cross-impact analysis presented in the previous section.
<table>
<thead>
<tr>
<th>Policy proposals</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Stage 4</th>
<th>Complementarity between policy proposals, system risks, uncertainties, side-effects and additional comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Entry points for implementation</td>
<td>Short-term causal effects (less than 1 year)</td>
<td>Mid-term causal effects (between 1 and 5 years)</td>
<td>Long term ultimate ends (more than 5 years)</td>
<td></td>
</tr>
</tbody>
</table>
| Charcoal Business (A) | Burn Trees | • Earn cash  
• Food Purchases  
• Achieve Food Security  
• Buy Livestock  
• Land fertility/productive land reduce  
• Reduce the number of trees  
• Breathing problems | • Health problems (asthma, tuberculosis)  
• Rain issues  
• Earn cash  
• Food Purchases  
• Achieve Food Security  
• Buy Livestock  
• Land fertility/productive land reduce  
• Deforestation | • Health problems (asthma, tuberculosis)  
• Rain issues  
• Land fertility/productive land reduce  
• Deforestation – no material to support this business  
• Reduce the Food Production  
• Not have Food Security | • Affected by the Legislation for Deforestation/Afforestation proposal – if this is implemented can limit the Charcoal Business or can even encourage it.  
• This proposal can work in a short-term but in a long-term affects the Food Security in a negative way |
| Livestock Business (B) | Cash  
• Piecework  
• Feed/Water/Good Care/Disease Prevention/Breeding  
• Transportation  
• Available Food | • Earn Cash  
• Inputs – manure and oxen  
• Start reproducing livestock (breeding)  
• Achieve Food Security | • Earn Cash  
• Inputs – manure and oxen  
• Breeding | • Earn Cash  
• Inputs – manure and oxen  
• Breeding | • It is necessary to avoid Abusive Sales in order to maintain this proposal active  
• Affected by two policy proposals: Piecework and Loan, both in order to earn cash to start this policy proposal |
| Groundnuts Business (C) | Groundnuts seeds | • Contributes for Inputs  
• Available Food  
• Achieve Food Security | • Increases Health  
• Contributes for Inputs  
• Available Food  
• Food Security  
• Earn Cash  
• Buy Livestock | • Increases Health  
• Contributes for Inputs  
• Available Food  
• Food Security  
• Earn Cash  
• Pay Personal Expenses  
• Buy Livestock | • This proposal can contribute to the Land (Productive Land) proposal with the groundnuts’ nutrients as inputs  
• It is possible to star the Livestock Business in a long term |
<table>
<thead>
<tr>
<th>Policy proposals</th>
<th>Stage 1 Entry points for implementation</th>
<th>Stage 2 Short-term causal effects (less than 1 year)</th>
<th>Stage 3 Mid-term causal effects (between 1 and 5 years)</th>
<th>Stage 4 Long term ultimate ends (more than 5 years)</th>
<th>Complementarity between policy proposals, system risks, uncertainties, side-effects and additional comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gardening (D)</td>
<td>Garden inputs</td>
<td>Available Food</td>
<td>N/A</td>
<td>N/A</td>
<td>Since the scenario has poor rainfall and the Garden depends on water, the participants did not further develop this policy. This proposal could work together with the Retention Basins/Drilling Boreholes.</td>
</tr>
<tr>
<td></td>
<td>Rain/Water</td>
<td>Achieve Food Security</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loan (E)</td>
<td>Loan – OSAWA or AGORA</td>
<td>Cash</td>
<td>Debt payback</td>
<td>Rental Business</td>
<td>It is not easy to get a loan. It is important to avoid debts, if this fails, all the system cannot work properly.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Buy Inputs</td>
<td>Increase the food production</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Buy Livestock</td>
<td>Food Security</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Achieve Food Security</td>
<td>Earn cash</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Start to build houses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piecework (F)</td>
<td>Cash to buy piecework</td>
<td>Earn Cash</td>
<td>Start a new commerce</td>
<td></td>
<td>Ox-carts piecework: Similar to Charcoal Business, this proposal should be affected by Legislation for Deforestation/Afforestation; and this proposal can work in a short term but not in a long-term due to the rain issues – piecework destroys the land and the forestation.</td>
</tr>
<tr>
<td></td>
<td>Ability to piecework</td>
<td>Earn Livestock</td>
<td>Earn Cash</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Achieve Food Security</td>
<td>Deforestation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Destroy Land Owned/Rented</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Land fertility/productive land reduce</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land (productive land) (G)</td>
<td>Crop Rotation</td>
<td>Improve land productivity</td>
<td>Improve land productivity</td>
<td></td>
<td>This proposal does not affect any of the other policy proposals in a negative way and can be always used.</td>
</tr>
<tr>
<td></td>
<td>Crop Diversity</td>
<td>Produced Food</td>
<td>Produced Food</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conservation Farming</td>
<td>Security</td>
<td>Achieve Food Security</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Liming</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Manure from livestock</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Manure from trees</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Policy proposals</td>
<td>Cause-effect pathways traced with the causal loop diagrams</td>
<td>Complementarity between policy proposals, system risks, uncertainties, side-effects and additional comments</td>
<td></td>
<td></td>
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<td>---------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td></td>
<td>Stage 1 Entry points for implementation</td>
<td>Stage 2 Short-term causal effects (less than 1 year)</td>
<td>Stage 3 Mid-term causal effects (between 1 and 5 years)</td>
<td>Stage 4 Long term ultimate ends (more than 5 years)</td>
<td></td>
</tr>
<tr>
<td>Rental Business (H)</td>
<td>• Cash</td>
<td>• N/A</td>
<td>• N/A</td>
<td>• Increase the Cash due to Rental Business</td>
<td>• The process of building a house takes 7 years</td>
</tr>
<tr>
<td></td>
<td>• Place to build</td>
<td></td>
<td></td>
<td>• Buy Livestock</td>
<td>• It is possible to start this business from other business-like Livestock or Loan</td>
</tr>
<tr>
<td></td>
<td>• Construction materials</td>
<td></td>
<td></td>
<td>• Buy Inputs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Brick layer</td>
<td></td>
<td></td>
<td>• Achieve Food Security</td>
<td></td>
</tr>
<tr>
<td>Partnership (I)</td>
<td>• Partner</td>
<td>• Increase/decrease the Produced Food</td>
<td>• N/A</td>
<td>• N/A</td>
<td>• This proposal has 2 situations: can be positive or negative depending on how committed are the partners</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Earning/loosing Cash</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Achieve Food Security</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislation for Deforestation/ Afforestation (J)</td>
<td>• Rules</td>
<td>• Increase the number of Trees</td>
<td>• Increase the number of Trees</td>
<td>• Increase the number of Trees</td>
<td>• This proposal can affect the Charcoal Business and the in a negative way</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Decrease/Increase the Charcoal Business</td>
<td>• Improve the land fertility (manure)</td>
<td>• Improve the land fertility due to the manure of trees</td>
<td>• Legislation for deforestation can discretely motivate the Charcoal Business</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Increase land fertility (manure)</td>
<td>• Improve the rainfall pattern</td>
<td>• Fruits from trees</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Fruits from trees</td>
<td>• Improve the rainfall pattern</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Earn Cash</td>
<td>• Earn Cash</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Achieve Food Security</td>
<td>• Achieve Food Security</td>
<td></td>
</tr>
<tr>
<td>Retention Basins/ Drilling Boreholes (K)</td>
<td>• Cash to buy the materials</td>
<td>• N/A</td>
<td>• Water available</td>
<td>• Water available</td>
<td>• This proposal is expensive to concretize</td>
</tr>
<tr>
<td></td>
<td>• Material to drill the borehole and to dig the retention basins</td>
<td></td>
<td>• Achieve Food Security</td>
<td>• Food Security</td>
<td>• Since their area has very poor rainfall pattern, the retention basins could be useless</td>
</tr>
<tr>
<td></td>
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</tr>
</tbody>
</table>
4.4.6. Action Plan Outline

Based on all the results above, a “vertical” Action Plan was built. The action plan outline intends to describe the pathways during a proposal implementation, and its consequences, in a short, medium and long-term to achieve food security in a scenario with “no government help and poor rainfall pattern”. Similar to the outline of the policy proposals pathway (Table 4.5), the short-term means less than one year, the medium-term represents the time from one year to five, while long-term is more than five years. In addition, it should be noted that this action plan was not implemented during the workshop, so it symbolizes an interpretation of the workshop outcomes and researched information and can be always adapted and changed depending on the circumstances. Moreover, the action plan does not respect to a strict scale, and the time allocated to each causal path is indicative, based on analysis of workshop results.

The Vertical Action Plan has green, orange and red arrows, variables names in black and a blue stripe. The green arrows represent the reinforcing/positivity of the influence from one variable to the other; the orange links characterize the possibility of a positive or negative influence by the previous variable to the other and can be just found in the Partnership proposal; finally, the red arrows show the negative/balancing effect between the variables. The blue stripe, which is always on the top of Food variable, mean the Food Security was achieved since they have food available or access to food. However, each proposal will be explained in this section.

The Piecework proposal is the first one to achieve Food Security, according to this action plan. As was said previously, piecework can be many activities, from working in others’ land, or selling ox-carts, or even starting a new trade (commerce). However, if a person works directly as an employee receives money or livestock as a payment, so she/he has the access to buy food. There are other negative consequences though, such as their own land can be harmed because the pieceworker is not taking care of it-

Charcoal and Livestock Business can achieve Food Security relatively at the same moment, still in the short-term. Both depend on sales of their products to earn cash, so after they can buy food for their own consumption, or even other things/products, such as inputs, livestock, personal expenses. The Charcoal Business shows how harmful it is in a short-term for land, because of the ashes, and for health like breathing problems, that can increase in a medium-term for something more serious – asthma, tuberculosis, among others. The same business depends on trees, so with the deforestation felt in a short-term, this can affect the rainfall in a medium- and long-term.

Gardening was a proposal that was refuted shortly after it was created due to the extreme necessity of water. However, if there is a Retention Basin or a Drilling Borehole providing water, this policy would reach food security in a short-term. To cultivate a gardening with vegetables, like sweet potato takes one to three months to grow and to be ready for consumption: the main sweet potato growing period is from October to December with harvesting in January. A second crop can be established in December and harvested in April. This allows farmers to double crop in one season (Bukania, n.d.).
Similar to the previous one, Groundnuts Business, is also relatively fast to grow food, from varieties starting from 90 days, such as comet, to 160 days, for example, chalimbana (Ross & Klerk, 2012). The ingestion of this type of food brings benefits to health and also to the land, due to the high nutrition levels. The groundnuts can be also sold in order to earn money.

Partnership is the only dubious proposal because it depends on the commitment of the partner. So, this partnership can work and achieve food security in a short-term, with the cultivation of the fields; or cannot work and do not harvest anything, which difficult the achievement of food security.

The Loan proposal is one of the riskiest ones because the person needs to ask for a credit and find a way to payback with all the interest and corrections (debt payback). So, for this proposal, the person must invest in other policies – on land, livestock or even rental business. For example, the person could buy inputs in order to improve the land fertility and cultivate food for consumption, thus achieving Food Security.

The Legislation for Deforestation/Afforestation aims to protect and to improve the number of trees. Because of this proposal, the Charcoal Business cannot work anymore, since it is limited by the trees. The trees provide inputs, because of their leaves manure, and also helps with the rainfall patterns – growing trees take water from the soil and release it into the atmosphere. Tree leaves also act as interceptors, catching falling rain, which then evaporates causing rain precipitation elsewhere — a process known as evapotranspiration (Evans, 2012). The trees not only improve the soil fertility and rainfall pattern but also provides fruits – mango, avocado, guava, among others, accomplishing food security in a medium-term.

The Land (productive land) proposal aims to increase the soil fertility without the need of artificial fertilizers provided by FISP. So, there are many activities that can be implemented: Conservation Farming, Liming, natural Inputs from manure and recycled seeds, Crop Diversity and Crop Rotation. The Crop Rotation is practised between seasons, which is the activity that takes longer. This is the reason why in this policy the food security in just accomplished in a medium-term. If the food production is enough for sales business, the food surplus can be sold in order to earn cash.

Retention Basins and Drilling Boreholes are very expensive policy proposals – The price of a completed borehole in Zambia tends to be in the range of $4,000 to $5,000 although it can be double for some donor-aided projects – which would take a long time to dig and to drill these water captions (Armstrong, 2009). In case of the Drilling Boreholes the water should be available soon, on the other hand, Retention Basins depends on the rainfall to be filled up. After having the water available, it goes to land, together with inputs, and can produce food, achieving food security in the medium-term.

Lastly, the Rental Business is the one which takes longer to accomplish food security, but at the same time, it can be considered the most stable business. According to the transcripts, to build a house takes around seven years, so this proposal could just start in a long-term. After finding all the inputs needed
for the construction, the house could be built and rented. With that rental money, the person could buy food, or even start other business or invest the money in their own land. In this case, the food security would be just achieved in a long-term. Figure 4.31 represents the Vertical Action Plan.
Figure 4.31 Vertical Action Plan
4.5. Follow-up Actions and Implementation Evaluation

After the scenario workshop, there were three follow-up questionnaires/interviews. The first one was in May, the second in June, and the third and last one in November of 2016. The compilation of all the follow-up activities is in Appendix 5. The third follow-up has also the transcription in Appendix 4. Table 4.6 summarizes all the actions taken, related to each proposal mentioned before, during the semester subsequent to the scenario workshop.

Table 4.6 Follow-up actions during the semester following the workshop

<table>
<thead>
<tr>
<th>Participants and workshop A/B</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>Way forward</th>
</tr>
</thead>
<tbody>
<tr>
<td>P01 (A)</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>B, G, H</td>
</tr>
<tr>
<td>P02 (A)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<td></td>
<td></td>
<td>B, C, G</td>
</tr>
<tr>
<td>P03 (A)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>A, C, G</td>
</tr>
<tr>
<td>P04 (A)</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
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<td></td>
<td>A, B, G</td>
</tr>
<tr>
<td>P05 (A)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<td></td>
<td>A, B, G</td>
</tr>
<tr>
<td>P06 (A)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<td></td>
<td></td>
<td>A, D, G</td>
</tr>
<tr>
<td>P07 (A)</td>
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<td>✓</td>
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<td></td>
<td></td>
<td></td>
<td>G</td>
</tr>
<tr>
<td>P08 (A)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
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<td></td>
<td>B, G</td>
</tr>
<tr>
<td>P09 (A)</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
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<td></td>
<td>B, G</td>
</tr>
<tr>
<td>P10 (A)</td>
<td>✓</td>
<td>✓</td>
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<td>B, D, G</td>
</tr>
<tr>
<td>P11 (A)</td>
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<td></td>
<td>B, D, G</td>
</tr>
<tr>
<td>P14 (B)</td>
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<td>✓</td>
<td>✓</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>B, G</td>
</tr>
<tr>
<td>P15 (B)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B, C, G</td>
</tr>
<tr>
<td>P16 (B)</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B, D, G</td>
</tr>
<tr>
<td>P17 (B)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B, E, G, H</td>
</tr>
<tr>
<td>P18 (B)</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>B, G</td>
</tr>
<tr>
<td>P19 (B)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A, B, G</td>
</tr>
<tr>
<td>P20 (B)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B, G</td>
</tr>
<tr>
<td>P21 (B)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B, D, G</td>
</tr>
<tr>
<td>P22 (B)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B, G, H</td>
</tr>
</tbody>
</table>

Twenty participants returned the follow-ups (80%). The participants P12 and P13, from workshop A and P23, P24 and P25, from workshop B, did not take part of the follow-up questionnaire and interviews, so they are not included in this table either the Appendix 5.

The table shows that almost all the participants did something related to improving the Livestock Business (B), and also want to do so in the future. These actions might be disease prevention, buying/selling livestock, good care, among others. Another proposal that was cited several times was the Land (productive land) (G) since participants were finding solutions to improve soil fertility, such as buying inputs, using manure, practising crop rotation. Many participants practised Gardening (D) and Groundnuts (C) business in order to ensure food security and/or to find income when selling the crops. Three participants from workshop A assumed that they practised Charcoal Business (A) and wanted to continue doing it, in order to increase their income. Participant P01 revealed she joined OSAWA to get a Loan (E), so she could have money to buy iron sheets for her house construction. Some of the participants hired piecework from others, for instance P06, or stated a desire to hire, such as P01 and P20, while P18 did Piecework (F) to earn money. Lastly, P15 and P22 were building houses, which can
be used in the Rental business (H). Partnership (I), Legislation for Deforestation/Afforestation (J) and Retention Basins/Drilling Boreholes (K) were not considered by the participants during the follow-up evaluation.

On the other hand, other policy proposals, which were not explored as policies in the scenario workshop, were taken into account: planning to save money into bank account (P05, P09, P10, P20); lending money for others with regard to earning more money considering the interest rates (P06); and starting a business/commerce, for instance selling salt, fritters, cooking oil cabbage, open a bar, or build a shop (P06, P07, P08, P16, P17, P19).

It is important to mention that maize and other typical food business was also considered by the participants, however, the follow-up mainly focused on the more alternative policy proposals. Moreover, since the follow-ups focused more on the ‘Livestock’, ‘Cash’, ‘Food Security’ and ‘Land’ topics, the policy proposals which were not directly related to them were not mentioned.

Overall, the results of the follow-up stage were very positive. In a general way, all the participants showed continuous improvements and focus on a goal and particular actions, which indicates that the workshop was effective and apparently, all the participants could ensure food security at home. Interestingly, the most part of the participants affirmed they were busy harvesting during the second follow-up, in June, so they could not improve their actions. Below, there are some examples of the follow-up assessment.

P05 is an example of a significant evolution from each follow-up to another (Table 4.7). Relatively to livestock, even though in the first follow-up there were no actions taken, from the first to the third one was possible to increase the number of livestock. Cash, from the first to the second, the participant did what she planned – saved money through the bank. In the first follow-up this participant wanted to find a way to improve the amount of food, and after one month, she bought Groundnuts also for selling. Finally, the participant did not take any action related to the land, but after it was possible to improve Land fertility with manure which was one of her previous plans.

The participant P06 was the person who applied more actions to the policy proposals and coincidentally, she was the woman who added more ideas to the policy proposals during her workshop (A). Contrary to P16, which was also the woman who participate more in the policy proposals building, who just invested on the livestock proposal, nevertheless P16 was very constant with her actions along the follow-up surveys. Participant P09 was the one who contributed more to the policies elicitation stage, but he just invested in livestock and land, similarly to P22 in the workshop B. However, this last participant managed to start building his house.
The stakeholder P18 can be considered the one which is in the worst situation (Table 4.8). This participant did not invest in livestock because of cash issues, and in the first follow-up, she does not know what she could do next. Even so, in the second follow-up, she knew that her target was to buy livestock. In order to earn cash, this participant did piecework, but at least at the time of the first follow-up she was still waiting to get paid. When it comes to food security, it seems that she managed to achieve it, through receiving maize as piecework payment. Lastly, there were no actions taken related to land because she was still harvesting (first follow-up) and she did not have the access to manure (second follow-up). This participant did not attend the last follow-up.
Table 4.8 Follow-up actions taken by P18

<table>
<thead>
<tr>
<th>Part.</th>
<th>Follow-up</th>
<th>Action taken</th>
<th>Reasons</th>
<th>What happens next/way forward</th>
</tr>
</thead>
<tbody>
<tr>
<td>P18 (B)</td>
<td>Livestock</td>
<td>1st</td>
<td>N/A</td>
<td>She does not have livestock</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2nd</td>
<td>N/A</td>
<td>Lack of money to buy livestock/medicine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Cash</td>
<td>1st</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2nd</td>
<td>Sold grass</td>
<td>Pay personal expenses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Food</td>
<td>1st</td>
<td>Receiving maize as a piecework payment</td>
<td>Increase the available food</td>
</tr>
<tr>
<td></td>
<td>Security</td>
<td>2nd</td>
<td>Proper storage</td>
<td>Increase the available food time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Land</td>
<td>1st</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2nd</td>
<td>N/A</td>
<td>She did not have where to find manure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Finally, comparing the Vertical Action Plan (Figure 4.31) to the Follow-ups action (Table 4.6) it is possible to note that participants chose, mostly, actions related to policy proposals which achieve food security in a short-term – piecework, charcoal business, livestock business, gardening, groundnuts and loan. And they were already investing in policy proposals that assure food security in a medium- and long-term – land (productive land) and rental business. In this case, it is possible to affirm that the workshop and the implementation of the action plan were successful and the participants increased their knowledge, putting it into practice. Additionally, the income classification or level of education of the participants do not seem to pose a limitation for the most part of them.
5. Conclusions

5.1. Key Lessons Learned

Ensuring food security is an urgent task. Still, in the current times, many countries and regions live below what is called food security – their population does not have access, availability and benefit of food; while resulting in hunger, undernourishment, poverty, social inequalities, among other harms. The reason is that farming systems are complex and dynamic, involving several interactions between stakeholders, economic factors and biophysical phenomena, including climate change.

Increasing food security and adapting to climate change is a dynamic decision-making task that involves a wide range of stakeholders such as farmers, the private sector, consumers, civil society, and policy-makers (Saldarriaga et al., 2014). In this thesis, it was possible to work with one particular stakeholder group of smallholder farmers from Chibombo district, in Zambia, who struggles to achieve food security and to help make future plans in order to have food security during all year, by combing a scenario workshop with participatory SD modelling. The Scenario Workshop was a starting point to provide them with a possible vision of the future and tools to think in a medium- and long-term, so they could find policies to help them achieve food security and their outcomes. According to the researchers, this group did not have visioning and planning skills, especially in a medium- and long-term: "That's what makes us fail because of wanting to do everything in a short period of time and you even fail to do even one thing because of wanting to do everything in a short time (...) Because us sometimes we don't have even a goal that's why we just say in a year if I see someone driving a vehicle then I will also think of buying a vehicle and tomorrow (...)" (P10-1509 p. 157, Appendix 2). The participatory SD modelling, more precisely, a participatory systems mapping approach, was applied to build pathways for each policy proposal identified by participants, and the CLDs resulting from the proposals were analysed in order to build an action plan.

This was a long and time spending research, since the beginning until the follow-up is covered by this thesis, concerning many methods and some adaptations of them. The Scenario Workshop was adapted due the restricted time and science-based knowledge of the stakeholders. Therefore, the interviewers found it easier to present just one scenario, instead of the four possible scenarios created previously, moving away from the essence of choosing the desirable one. This scenario represented the worst events they could face: a reduced rainfall pattern and do not get government help with the inputs. This vision was chosen to prepare the smallholder farmers in case of this happens, stimulating them to find strategies/policies to avoid and overcome these issues. Nowadays, they are already facing problems with the rainfall due to climate change and struggling to receive their inputs subsidy and the prices are increasing: "(...) some vouchers did not come out" (P15-676 p.184, Appendix 3); "I just received 2 bags instead of 4. Isn't that what we call tough? Because in the past we used to get fertilizer early as long as
the money goes to the bank and you will get your fertilizer, but now life is becoming tough, even I have not received my fertilizer" (P07-676 p. 136, Appendix 2).

More related to the data collection, some parts of the translated transcriptions were slightly imperceptible, as well as the audio recording, which may lead to the exclusion of some information. When it comes to the coding method, it is possible that the coder’s interpretation may not accurately capture the true meaning of the speech and the modeller’s interpretation can affect the nature of the final CLD when blending multiple mental models of the participants. On the other hand, and according to Kim & Andersen (2012), coding process will reduce the modeller’s subjective influences on the causal structures and it is likely that other modeller might reproduce the same results.

The participatory mapping and coding method allowed to build CLD mapping out the feedback loops, which facilitates the identification of the leverage points. The leverage points found in the Lessons Learned exercise were from two types which inform and control parts of the system, which can have a large effect on the system behaviour, and one that influences the physical part of the system. Continuing with the data processing and analysis, the cross-impact analysis method that was used to study the policy proposals is a graphical way to report the cause-effect of them, however, it does not show if a proposal affects negatively or positive the other, which could be a valuable information for the decision-makers.

This study represents how scenario tools and SD complement one another and that both techniques allowed the smallholder farmers to focus on the sustainability of the food system. These two approaches share some characteristics, for instance, both acknowledge the dynamic and unpredictable nature of the future in a complex system and they boost system thinking and the gain of knowledge. The scenario workshop is disruptive because it gives the opportunity for stakeholders to create images and possible futures. Nevertheless, the case study did not explore the quantitative analysis of scenarios, which could be supported through the subsequent development of a SD model and its simulation. This last would help stakeholders in the decision-making process in a more objective-oriented way.

Overall, the Scenario Workshop outcomes were very positive. The participants could remember a large part of the CLD from the previous workshop (ST workshop 2015), adding more variables and links, which made the CLD closer to their reality. Moreover, the smallholder farmers could recap and analyse the dynamic complexity of the system, through the water glasses exercise (Figure 4.10 Scenario Workshop – Glasses of Water activity (Revision of the workshop 2015)). Furthermore, the participants reported their feedback from the first workshop, expressing what they could manage to do and their difficulties, such as saving money, improving land practices, buy livestock, among others. After introducing the vision ‘no rainfall, no government help’, the participants did a brainstorming to come up with 11 final policy proposals and their pathways to ensure food security and quality of life. Some other suggestions were done but were refuted during the dialogue, such as “if you used to eat 4 times a day then you must change and start eating 2 times a day” (P08-930 p. 142, Appendix 2).
The policy proposals were original and could be applied in their real life. These included strengthening policies, already identified before – charcoal business, livestock business, groundnuts business, gardening, loan, piecework, and land (productive land); and new policies added to the CLD – rental business, partnership, legislation for deforestation/afforestation and retention basins/drilling boreholes. After analysing the behaviour of the policies between them, none was considered critical to the system; while groundnuts business, piecework, retention basins/drilling boreholes and partnership were buffering; livestock business and land (productive land) were contemplated as reactive; and the remaining, active. A large part of the policy proposals focused on “how to increase the cash”, instead of looking for food security; nevertheless, it is possible to say that food security is implicit in money oriented-policies, i.e., when a smallholder earns money, he/she can buy food or inputs to increase the land fertility and capacity.

From the policy proposals and their outline of their pathways, an action plan was built in order to illustrate how each proposal could reach food security. Piecework was considered to be the fastest (short-term), whereas rental business was the slowest (long-term), since building a house from the beginning take seven years to be ready, according to the participants. Besides, this action plan is not static and can be modified depending on the underlying data. According to the follow-up questionnaires, the action plan was confirmed. The follow-up showed that some participants were already following the pathways and after a semester they were ensuring household food security, doing business, and even started building houses; additionally, the followed pathways were mostly from the short-term policies. The comparison between the follow-up and the action plan shows how consistent the policy proposals are and can be adapted individually. Hence, it is possible to affirm that thanks to the scenario workshop the smallholder farmers present a significant degree of convergence on systemic issues. Lastly, during the transcription of the last follow-up (Appendix 4), the interviewer mentions that the stakeholders who were present in the workshop and tracked their actions through the booklet that was distributed were achieving better the goals. On the other hand, the increase of productivity can stimulate interest by local government to consider taxing the farmers.

5.2. Future research/developments

The feasibility and consistency, or inconsistency of the outcome policies could be also measured quantitatively in a SD model, using the tool Vensim. The model could be developed from the last CLD (Figure 4.29), adding quantitative values and equations. Moreover, the original Scenario Workshop script could be applied, since the smallholder farmers are already familiar with it. The Scenario Workshop could be done in two days, as it is suggested by Kallis et al. (2009), so all the steps could be done with the stakeholders, including the development of the action plan; and involve stakeholders from other categories, for instance government and private sector, in order to optimize and increase the brainstorming, knowledge and awareness of different levels. Finally, following the participant’s actions in a long-term to compare if their plans are proceeding according to this research, would allow measuring the impact of the proposed approach at the local level of the case study in Zambia.
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Appendix 1. Scenario workshop 2016 script

Scenario workshop April 2016 – Chibombo district

Participants: 20-25 smallholder farmers from Chitumbo and Mpikwa

Workshop period: 4 hours (approximately)

Expectations for coming workshop:

Expectations formulated by farmers:

- Involve men and women;
- Knowledge acquisition, for example budgeting, water management
- Planning
- Co-operation, working together

Enumerators’ ideas

- Manage expectations: farmers are used to getting something tangible, such as seed that they can plant on a demonstration plot and show during a next visit
- How to deal with uncertainty? E.g. early vs. late onset of rains, early vs. late onset of dry period → teach how to spread the risk
- Gender and decision making → involve spouses

Activities:

1. Lessons Learned by the participants – reminding the glasses of water activity
2. Ask the key questions:
   a. What to do with cash?
   b. How to increase/decrease cash?
   c. How to get food?
   d. How to improve land fertility/farming?
   e. How to increase livestock?
3. Feedback from participants – what they manage to do after the previous workshop/difficulties/failures
4. Leading question: “Where would you like to see you in 15 years to be food secure and protected from climate change?”
5. Explanation about the 4 scenarios
6. Discussion about the scenarios
7. Each participant chooses his desirable scenario (1 of the 4 scenarios) and a group for each scenario may be formed, maximum 10 participants per group. The same scenario can have more than 1 group. The groups should be heterogeneous (i.e. different farmer characteristics).
8. Formulation of their own desirable vision from a scenario – asking the participants to remove, replace or add elements from all the 4 scenarios (respecting the axes)
9. Each group has to find ideas to achieve their own vision in a back-casting method: they imagine themselves in the scenario that they choose (“future”) and come back to their actual situation (“present”). They should answer “What should I do in the present to achieve that vision?”.
10. Each group votes for their 5 best ideas and turn it to a draft Action Plan
11. Each group introduces their *Action Plan* to the rest of the participants and discusses their ideas, vulnerability and feasibility, scoring them from the most to the less vulnerable (optional); trying to find solutions to overcome them.

   a. If the group is working in the same scenario they should blend their *Action Plan* and turn into one.

12. Distribution of the report cards for self-monitoring

Scenarios:

- **Time horizon: 10 – 15 years (vision of 2030)**

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**Scenario 1: If a child washes his hands he could eat with kings**

- Slow pace of climate change
- Proactive government

Climate change is stabilizing and the crops are growing/producing more frequently so the agriculture is more resilient now. The government continuous to buy maize from higher price than the marked price and develop some programs to help farmers develop their lands in a sustainable way, like projects to teach them to organise their selves and also teach “farming as business”. In the other hand, they reduce the

---

3 If you prepare and allow yourself to be well trained when you have the opportunity, you will achieve a lot and be favoured in due course (Source: [http://answersafrica.com/african-proverbs-meanings.html](http://answersafrica.com/african-proverbs-meanings.html))
fertilizer subsidies in other to save money for the programs and projects. Also, it is possible to find some corruption from the authorities.

Scenario 2: Knowledge is like a garden: if it is not cultivated, it cannot be harvested

- High pace of climate change
- Proactive government

The temperature and rainfall changed very fast, the maize crops did not have the time to adapt/try to adapt to a new atmosphere. The government realised about it before so it was preparing the farmers to new situations – it helped moving fields away from river banks, also encourage the diversification of the crops, for example. Some programs were developed to help the farmers find ways to reduce the impacts of climate change and also provided them new agricultural machines, techniques and technologies – NAPA (National Adaptation Programme of Action) developed and implemented more projects related to small holder farmers. The government benefits food security but at the same time the stakeholders need to know that the innovations could not work and to struggle with corruption, and also the better-off farmers were benefited first.

Scenario 3: The best way to eat an elephant in your path is cut him up into little pieces

- High pace of climate change
- Reactive governance

Because of the climate change the weather changed a lot: droughts, storms, floods and cold snaps are the reason why the crops are producing less maize and the livestock is not healthy anymore. The government is helping the farmers with their problems, trying to compensate them first with the improvement of the warehouse system so they can save food in a better way; second with other jobs opportunities (like in copper holdings) in other villages/cities of Zambia, for exchange the government has the rights of their crops.

Scenario 4: A man who pays respect to the great paves the way for his own greatness

- Slow pace of climate change
- Reactive governance

Minimal climate change has positive impacts on food security in Zambia, the government tries to export their products to external markets around – growing markets (regional markets: Congo, Angola, Zimbabwe) but the government gets most of the profits. Furthermore, the government is still reactive, continuing to buy the maize from higher price than in the market and subsiding the fertilizers. The government does not give a big importance to food security until the crises occur.

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4 If you do not make efforts to acquire knowledge then you would not expect to have it and if you do not put the knowledge you have to use, you cannot expect to gain anything from it (Source: http://answersafrica.com/african-proverbs-meanings.html)

5 The best approach to solving a problem is to take bit by bit; one at a time (Source: http://answersafrica.com/african-proverbs-meanings.html)

6 What goes around, comes around so whatever you sow, you shall reap (Source: http://answersafrica.com/african-proverbs-meanings.html)
Back-casting method:

![Back-casting Method Diagram](http://www.naturalstep.ca/backcasting)

Examples of vulnerability and proposal to overcome:

<table>
<thead>
<tr>
<th>Vulnerability</th>
<th>Collaborative proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1a) The observer’s role of the East African Farmer Federation in East African Community policy means that there is not enough of a direct link between farmers’ issues and priorities and decision-making</td>
<td>(1b) Proposal: organize processes with specific regional bodies for the East Africa Farmers Federation to have a more proactive voice in agricultural and food security policy processes</td>
</tr>
<tr>
<td>(2a) The lack of knowledge exchange between ministries within countries and between countries at the regional level in East Africa</td>
<td>(2b) Proposal: exchange programmes on farmer’s schools associations, linked to “farms of the future” programme; on indigenous, alternative crops; rural–urban agriculture</td>
</tr>
<tr>
<td>(3a) The lack of effective collaboration between civil society, social entrepreneurs and governments on agriculture and food security</td>
<td>(3b) Proposal: a series of meeting to explore state/non-state partnerships and compatibilities for climate adaptation is to be organized, as well as training to build the capacity for collaboration</td>
</tr>
<tr>
<td>(4a) Vulnerability: a lack of links between Early Warning Systems for food security at the regional level, and a lack of a connection to any regional food reserve</td>
<td>(4b) Proposal: linking existing Early Warning Systems for food security to regional food reserve planning</td>
</tr>
</tbody>
</table>

(Source: M. Vervoort et al. / Global Environmental Change 28 (2014) 383–394, Table 2)
Example of an Action Plan:

As the time horizon is 10-15 years, the Action Plan can describe it activities each 5 year.

Way forward

- Booklet/report cards for self-monitoring
  - List each month
  - Enter actual value
  - Evaluate actual value: are you happy with it? Is it bad? When is it so bad that you have no choice but to do something?

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<thead>
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<th></th>
<th>Jan</th>
<th>Feb</th>
<th>March</th>
<th>April</th>
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<tbody>
<tr>
<td>Actual value</td>
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</tbody>
</table>

Evaluation possibilities: ☺ happy ☑ just ok ☐ something needs to happen

- Follow-up actions during the following months
Appendix 2. Workshop transcription A

**E01** - 1 Now, maybe let us start by knowing each other, after knowing each other we will look at the rules to follow and then we will start our program. I think you know me…… my name is **E01**, I work at the University of Zambia and she will also introduce herself. I am saying that you will introduce yourself.

**E02** - 2 Okay

**E01** - 3 I can interpret

**E02** - 4 My name is **E02**, I am very happy and honoured to be back here with you. I come from the University in Norway…………… and there is still snow at the moment.

**E01** - 5 Yes, so her name is **E02** comes from Norway and she said she is very happy that we have met again and there is still snow, it is cold. So, it is luck for her to come where there is sunshine. Yeah…. yes.

**P01** - 6 Meaning we also have to mention our names?

**E01** - 7 Yes, when you finish mentioning your name, give it to the next person so that it can record…… but there is no pressing on that thing.

**P01** - 8 My name is **P01**, I am a farmer here in Mufwambe

**P02** - 9 I am **P02**……. I am a farmer here in Mufwambe

**P03** - 10 I am Mrs. **P03**

**P04** - 11 I am Miss. **P04**, I stay in Chitumbo Village

**P05** - 12 My name is **P05**, I stay in Chisumpa village.

**P06** - 13 I am **P06**, I stay in Chisumpa Village

**P07** - 14 I am **P07**, I am a farmer in Chisumpa village.

**E01** - 15 Okay thank you

**P08** - 16 My name is **P08**, stay in Chisumpa Village

**P00** - 17 talking in the background

**P09** - 18 My name is **P09**, a farmer in Chisumpa village

**P10** - 19 I am **P10**, I stay in Chisumpa village.

**P00** - 22 Yes

**E01** - 23 Okay, so then the next part which follows looks at what we did or what we learnt in short. If it is at school we can say it is a revision, so let us remind each other what we learnt and when we finish reminding each other, we will look at what we have come for today so that we connect with the old and the ones for today……..so that we move at the same point. I don't know if you have heard on that one?

**P00** - 24 Yes

**E01** - 25 Okay, so I was just introducing

**E02** - 26 Okay

**E01** - 27 Yes, that will start first almost like a revision of what we learnt.

**E02** - 28 Okay

**E01** - 29 Yes, after that then we will look at the purpose for today.

**E02** - 30 Okay

**E01** - 31 Yes, yeah mmmhh where do I start from?
The P0W

Nowhere ever they are prepared.

Okay, just hold it

We are scared of holding it.

So, what of what we learnt when we came with these whites, who still remembers what we did or what we were using? Have you heard the question?

Yes

Okay, what of what we learnt when we came with these whites, who still remembers what we did or what we were using? Have you heard the question?

Yes, what were we using? Now okay give her so that she can tell us.

What we were using or what we discussed to say we can use?

Yes, what you remember

Yes

Cash

Okay

What I remember is cash

Cash

Okay

From cash, you start with capital working if it is farming or keeping livestock you start.

Okay anyone with an addition?

We learnt and we were putting cups (tambulas)

Okay tambulas meaning cups?

Yes, we had put the cups and we started pouring water in those cups and they asked us what it meant if it is full, half or empty.

Okay

Yes, that's what they taught us and explained to us what it meant.

Okay, now what was the meaning of that to say if the cup is full or if it is half?

It meant that............. if the cup is full then meaning that you have found capital.

Okay

If it is half meaning that you have started going into credit

Okay

And they taught us not to go into credits

Okay

Okay

We were learning about the cups and what it meant and then I probed to say what does it mean when the cup is full and she said that for example when the cup is full it means that actually they got the capital but if it is half it means that you are getting into credit.

Okay

And she added that that is not what is required. Okay what else?

I was not there during the workshop last time.

We also learnt how to take care of our families so that the cash is more.

Okay

Okay, what we should be doing so that the money should be increasing. Okay what of you men?

What we learnt?

Yes

We also learnt how to take care of livestock.

Okay taking care of the family so that cash is more.

Yes

Okay what of you men?

We looked at cash and how this cash is used if you have it.

okay

We looked at what is to be bought because we are farmers and inputs should be bought........ and we looked at how to find inputs. We were taught how you can buy them so that you continue with your farming. After that we looked at some things and where to get cash. We learnt that the land can be used to help improve............. again, we looked at other things which can make you improve and these are cattle or livestock........ to make sure that they help you and you should also take care of them. Also, the other one we looked at is to say, 'yes you are farming' but what do you need for farming? Water, rains are needed for farming and after all these you look at what you have gained from farming and that should be food; you get food, and how do you manage that food so that it helps you......
you should manage it well so that you eat with your family and have a good living with your family. If it’s selling that food, yes you can sell some and leave some for food, otherwise after that that’s when we looked at the cups to say for these cups to be full, if it’s your livestock, you should look at the cup for livestock to say do I have cash for these........ and also, the same money should be able to help maintain your land, to maintain your water and to maintain everything so that almost everything is full and when you find that one has gone down, it means it will affect the other ones. So, it’s to make sure that you don’t go down and check all the cups if they are full or check if you are improving or if you are not so that your life can be improved and see to say if cattle are still there, is food still there? So that’s what all these cups stand for so that they balance your life. I think that’s what I heard and that’s what I learnt.

Yes, so who can explain for us, anyone to.......... because some were not here when we were doing this, yes some were not here so we want to see and someone should teach us to say........... or so that we can help each other with those who were not here. Have you heard the idea which is here?

Yes, that one we learnt to say when you farm, you harvest and sell those crops there should be a budget, so that you tackle all the programs like the school children, you should balance the money and put some for school children, also the money for medicals if there is a child who is sick, there is also money for buying relish, for grinding mealie-meal, so we looked at all these and if you don’t have hoes, you get some money and buy. If it is a plough or a goat, cow or chicken we looked at it to say sometimes there are contributions in the village and we looked at such budgets.

Okay now what of if we do this, who still remembers... but now look, you are very far, I think come closer.

Get the stools, there are stools there.

Yes exactly, who is going to start?

There is a thing, the recorder.

Number one

Let those behind come this side and there is a stool there or maybe..........

Maybe let uncle come here

Yes, okay

Now the picture is not in a good position

Okay we can do this

Yes, it is better to talk

Yes

So, number one; we learnt about cash

Okay

Cash is the key to everything and they all come from this

Okay

So, this cash is the one which makes us manage to find food

Okay

Through farming, through buying the same cash is the one which helps us to have livestock; cattle, goats, chickens and others. Then from the same cash it also works on water; some use water for farming and the water they use is bought like in big farms.
if it is small you can still buy, so the same cash is used even on land. Then when it comes to this one, the same cash works for us to find these inputs like fertilizer, seed, plough, hoes and others. After you find these things, that is when now we make a budget. Food at home should be reserved and should be enough so that the family should not suffer; you reserve the food for the family and after that, the same cash from these things we said here........ there is also cash for luxury, there is cash for school children, there is cash for livestock, there is some medicine needed for livestock so that your livestock can increase and just on that one again if you see that some of your livestock are old, we get them and sell in order to buy small ones, yes that's what I can explain.

E01 - 106  Okay, anyone with some additions? Yes
P10 - 107  Just like others have said, we also learnt to say from money, we find that we are farmers and so as farmers we come to fields, now in these fields if we retain only a little there is no way that I can realize some money....

E01 - 108  Yes
P10 - 109  Such that I can save in the bank
E01 - 110  Yes
P10 - 111  Yes, so now if the production is high, it will trigger growth and improvement in these other aspects, because if I produce a lot, I can manage to reserve maize for home consumption that is food available, if again I produce a lot I can sell to FRA meaning that I will have money to take to the bank, producing a lot also means I have money and support school-going children, so I discovered that because we learnt........... what causes failure is that when we have found money, we don't concentrate on this side.......to say we produce a lot because a farmer depends on what he/she produces and so if we invest the money in soil but the realization of profit is low, the farmer will continue going down.........and hence these cups will be going down but if the farmer is able to make sure that the cups are always full, it means that all what surrounds his or her life is going to improve, because when he/she wants to buy seed he/she buys, if it is taking the child to school, he/she will manage, if it's buying a cow, he/she will manage.

E01 - 112  Okay thank you, yes someone else to add on........ whoever has an addition.

P09 - 113  Yes, just like others have said, here we learnt what we call money...... cash...... will be able to find inputs in addition to what he has said........ the challenges that we encounter on these........... then what we looked at so that you benefit especially on the part of land, we discovered that sometimes if you over-use the land, it loses its fertility. It also needs to be taken care of that's why we learnt that we should be practicing crop rotation....... we should be planting different crops not one crop every year on the same field, it will be destroyed. It can be a challenge so we are supposed to consider that and again on the same land maybe farming goes down........ we were complaining about weeds in the fields, weeds also this grass; we should control it so that our harvest can be good, we suggested that we should be weeding; cleaning for our crops. We also looked at challenges on the part of rains, sometimes what makes us fail to do well, maybe it is a year of drought, the dry spell also takes us down but even though........ this one is not our fault, it is nature, it is from God. Even this side we looked at the times of drought, those farmers that can manage we see them
watering their crops, otherwise................. on the livestock, we also looked at how to prevent diseases from attacking our livestock so that money can continue flowing. We discovered that there are diseases, so these diseases must also be prevented by buying medicine to prevent our livestock. On the part of food, it should also be managed well because there are pests that destroy............. we should be buying medicine to prevent or treat our food so that it can be free from pests. Then the one selling....... we should reserve enough for consumption but we should also have enough to sell so that we can be making money on our farm. Otherwise on the challenges we looked at a lot of things, like sometimes there are animal diseases, food is attacked by pests we discussed that we should be buying medicine. Then, that is when we looked at the filling of these cups, that we need to have a lot of money so that all the areas of life are well balanced so that these aspects can be supplementing each other, to say this one helps that one, this one helps that one........ it becomes a chain going around nicely so that our lives can improve. I believe that's the kind of learning that I can still remember.

Okay, maybe there is someone who wants to add......let us add....... let us add, maybe there is something he has left out........ yes.

Aah...........

Here........ we come here on livestock. On the livestock, we learnt that if you have livestock, a lot of them but you don't have implements this side on land so that you can cultivate on your field well, you can get one maybe it is a goat; like us who rear goats and chickens, when you sell these, they will give you money, when you find money.......... then they give you what? ........... Maybe they give you inputs, maybe it is a 10kg, you buy and prepare on the portion you cultivate so that you realize what? ........ You realize food, when you harvest this food........ if you harvest a reasonable amount meaning you need to divide it. The other goes for home consumption; if it is 4 or 5 bags you sell so that you find money so that even next year you do what? ........ You buy another one.

Mmmm okay....... aah maybe there is another one who wants to add...... did we look at..... what we are supposed to do so that the cups can be getting full........ or maybe before we can talk about that....

(talking in the background.... and not sure of what they were talking about)

Just to repeat what you were doing........ what were you explaining? You said there was a cup for cash, right?

Cash

Then what else?

Available food

available food. Yes

Land

Land, what else?

Livestock

Livestock, okay

Inputs

Inputs, now........

Water has been left out

Water

Yes

Okay, then our desire, how was it? Our desire on these cups, didn’t we look at desires?

We did

Yes, who can explain to us?

There is the recorder

Our desire....... we looked at that the cups are supposed to be full meaning that you are improving or progressing.

Yes
If the cups are not full it means that you are retrogressing.

Okay

So that our desire........... we learnt that the cups must be full, it is just that things are difficult but we always try to fill our cups to the brim.

We sincerely desire to have the cups filled to the brim but things are hard.

Because on cash again if this side you don’t have food, you will finish the cash by buying food, again this side, if you have food, you cannot touch a lot on cash...

leading the P00 in agreement to the desire

Yes

That is our biggest desire

In short, we can say that.......in English we can say that is the goal......... that’s the desire to say........

To reach there

Oho, okay now that’s good. Aah we looked at these things........... are there stand-alone aspects or they are inter-connected?

They are interconnected.

Yes, explain

Before they explain, sometimes you can change and go this way.

What?

The cup is not there.

Oho okay

Yes, put so that it gets full

Yes

The food cup should be full

Yes, because you have cultivated

Here, we are saying it is connected because the first one will start from cash and if I have cash, I will buy seed and after buying seed, I will go to land and plant that is the field now after harvesting. I will leave some maize for food and leaving maize for food, I get the surplus and sell like that I will even manage to buy a cow from the same money. I will manage to buy seed and it will also help me buy another cow and sometimes even taking the children to school; that’s how it is connected, because if I don’t cultivate or plant, I will not manage to find cash because I don’t do any business; I am a farmer, but if I get that cash and buy seed and that seed will go to the field meaning there is a connection from cash to the field after the connection to the field and after the production I will have food and I will sell some of the same food, after selling I will buy a cow, after buying a cow I will even take the children to school and those are the connections which I can mention.

I will contribute as well; we said these things are connected and the way they are connected is like this – if there is water and it is enough meaning I will manage to produce more food, when I produce more food, meaning I will manage to leave food for the family and I will manage to sell so that I have more cash, it is not just selling I will also use the cash on livestock if they are sick or there is something needed for them and I will manage to buy seed and plant in the field if water is there because water is there and from the field meaning I will have more cash and the same cash will be used to buy seed, medicine for livestock and have more food.

Okay, then now........ okay give him the recorder.

The addition is that why we say that they are connected and if the chain is broken, then budgeting is not well done and meaning you concentrate too much on
entertainment which is not close to this or maybe you decide to buy a car using cash, you find that the cup for inputs will go down, you will not be able to buy inputs and also the cup for land will be half because budgeting was not well done, you diverted the cash to entertainment which does not have profit and if one is disturbed...... if it is food you don't leave enough, you find that it will not manage to support these others. So, if you try to do something which is not close to these, you will find that your cups will be half; meaning that there is a connection – if one is disturbed then it will disturb all these others which follow so we have seen that they are connected.

Okay thank you. Now apart from that, what things will make these cups go down?

We said these cups can go down like on food, if we don't keep enough food and if visitors come......... maybe a funeral, also there are a lot of unforeseen circumstances which comes and if you reserved little food, when a visitor comes or maybe a funeral that food will be eaten and it will finish and it will disturb the other cups so that you look for the food to buy and keep you for the whole year. So, when you are leaving food for the household, you should not measure yourselves but put more even for unforeseen circumstances.

Thank you. Okay you can give him.

Yes just to add on what others have said, because if we did not keep enough food, meaning when the time for farming comes we will be thinking of buying food and the farming will be affected because the money you were supposed to use to buy fertilizer will be reduced because of not having food, then if we have school going children and we don't have food, we will think of buying food because we don't have and we may just tell the children to say even at school you need to eat and how can you go to school with no food. So, we will just tell the children to stop going to school until we find food, that's when that children will go back to school. So, on this one if we don't have food, we will be hired to start working for others and start doing piecework and if we don't have food we will not have the idea of buying a cow because whenever we find money, we will think of buying food. So, for the farmer to do farming, the food must be available and see if it is enough, then the remaining is what you can sell and see what to do next if it is buying inputs while food is there and you are food secure............ so that is what I have seen to say if this cup is affected meaning all these others will be disturbed because you will not succeed. If you are in poverty, it is just the same with someone who has a funeral.

Also, when one is affected or let us say cash

Yes

Cup for cash is disturbed, meaning that even if there is more water from the rains, you will not manage to buy seed the way you wanted, it will be little, because cash here is not enough then also the food will not be enough and when the cash is not more, meaning the livestock will also get sick and die because of not having money to buy medicine, so if one is disturbed then everything will be disturbed and the cups will be half.

Also, when we looked at these, we looked at the rains, water, because when there is a drought it can cause all these here to be half and if there is no water we can't find more food or produce more food so that we sell and have cash to buy inputs so that we use here so that we find food at home, so that we don't go for

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piecework. So, water is very important, the drought which was there this year was bad because if it continued some of us would not have these here maybe we would just have remained with these here which does not require a lot of water.

E01 - 178  Okay thank you.
P06 - 179  She has said what I wanted to say.
E01 - 180  That's what you wanted to say?
P06 - 181  Yes
P02 - 182  I am beginning to open up because I was not there last time.
E01 - 183  Then………we also looked at to say what is it that we should do so that the cups can be doing what………. can be increasing right? Let us say on the part of food there, what is it that we should do? On land, what should we do? Did we look at these to say for these cups to be improving what should be done is this and that? If we didn’t look at that……say that we didn’t look at that.

P0X - 184  We looked at that
E01 - 185  Okay
P0X - 186  talking to each other on those things we looked at
P09 - 187  I look at them from cash. Err……….we come to inputs, we looked at what you should look at, do I have……………… the question is do I have implements to help me manage to farm, is it fertilizer or what………. do I have, then in answering this question you start looking around, searching like this cash………. you need to buy these things so that you increase…. so that you buy inputs if it is fertilizer or a plough – you are supposed to have these then on land, we looked at the land also to benefit from it we need to take care of it………… maintaining it………… one is to take care of it by applying fertilizer, manure or practicing crop rotation so that the land is always fertile for you to realize good harvest. When you realize a good harvest, we looked at how much food have I harvested, from there you need to look at the barns, where should I keep this food from and how much should I store……..in looking at this you consider saying am I going to store the food…….. you look at the size of your family and also the unforeseen circumstances; maybe you have a funeral, you look at whether the food reserved is enough to carter for such uncertainties. So, we looked at livestock too, we need to be increasing………. looking at your breed………. for cattle to be increasing, to be reproducing your desire should be that you look for a breed which is good, which is marketable that you can sell well so that they can help you by giving you money. Then we came around and looked at selling this food…. the one you have sold, when the money comes what is it that you should do? ……. yes, buying things that are not here what we looked at……. to say if I don’t do this it will be affected, that is to say to fight these challenges in other ways is to try to improve………. trying to be improving, to be progressing………. that is what I can remember.

E01 - 188  Okay thank you, anyone with an addition?
P11 - 189  Just like what they have said on water, if the rains can be enough that means that water will be enough and we can also be able to improve very much. Because if the rains are not good, it means that even if you prepare on these, the cups still would be half especially here in the village. So, the most important thing is to have enough water……. if rains are enough, these cups would also be increasing, they can just be increasing.

E01 - 190  Okay…… then what about this side? Mothers, what did we look at that can help us to say these cups can be improving?
Mama, it is you I am giving the recorder

Food……. to be……. yes

the P00 is waiting for one to respond

To add…….

Yes

On these cups instead of you waiting to say cash maybe I cultivate or I do what……. you may have cups that are being filled up to a certain level already you can do piecework……. money can be coming in. if it is business, money will be coming in meaning you can reduce on removing from the cup for cash; meaning that the cups will do what? ……. will increase.

Okay

You mention the chickens you sold as well

Laughing

She is saying that let her also report on the chickens she sold.

Okay, wow in short, we looked to say there is a problem of water……. rains, a problem of cash, a problem of inputs……. the fertilizer, seed, a problem concerning land, a problem of food.

Of food

And the problem of what? ……. of livestock. So, we looked at in most cases these are the problems that we face, now we say for us to put to an end to these problems, we need to put what……. we asked to say what is our desire.

Pouring some water in the cup

Err yes, our cups should be what? ……. should be full

To be full

Then we looked at also apart from that, if they are full, this cup also affects the other cups……. aah most of the ways you have explained it is true, from……. if you start from here to say if it is food it will help you this side on land when working it will help you, we also looked at even from

what………… from land, if the land is fertile we manage to cultivate, we have food, we sell and at home we have food then hunger is what……. is stopped. Then if hunger is avoided, if there are other things we cannot do what?……. we cannot prepare because we produced well and sold…. there are some foods that we buy to say like kapenta because you had produced well you can also manage to buy food. Then we also looked to say for these things where to start from…… you need to start little-by-little, to say if it is this year you manage maybe it is what……. it is a 5kg of seed, you manage it well. Next year you increase to say maybe where I had a 5kg now I have a 10kg, you increase just like that, little-by-little. Then we also looked at to say there are some things that make the cup to be doing what…………

To be increasing

Err…… then working or maybe looking at food at home like….. sometimes there is carelessness, carelessness can bring about……. yes, then others explained to say maybe cash if we start buying anyhow it will also do what…………

Reducing

Then again apart from looking at this we also looked at threats……. we looked at things like sometimes there is what? There is a drought………… dry spell.

Sometimes……. we looked at to say diseases then also this side……. also what……. land. We looked at to say the crops are also attacked by diseases then we also looked to say, there is sickness, funerals also fight us………… so, on all this we come to discuss that planning to say……. having knowledge to say what am I going to do here helps……. so, there was another part of planning your knowledge also does what……. helps.
maybe there is somewhere I have left out but I think most of the things, even those that were not their last time……… what we were looking at……… because the idea was to look at when you want to improve, there are a lot of things that you need to do what……………. things that are connected. Maybe…….. I don’t know if we are together up to this point?

P00 - 216   yes
E01 - 217   I was just trying to make a recap of what we discussed so maybe you have something you would want to add.
E02 - 218   No
E01 - 219   Then err, the question which is there because……. let me give a good example; some here say for our cup for land to do what? ………. to be okay, for it to be improving, what we had looked at to say it is better to do what? ……….change crops; crop rotation. It is better to be planting what?

P10 - 220   Applying manure
E01 - 221   Applying manure, there was conservation farming, there was also what? ……. legumes; groundnuts, mbabara nuts, cowpeas……. Now what we want to ask is that……… when you look at these things we learnt what things did you manage to say…. you do and what things did you fail to do?

P0X - 222   coughing
E01 - 223   Yes
P08 - 224   This year?
P01 - 225   This year?
P09 - 226   He has said in our lives from the time they were here
E01 - 227   Yes
P08 - 228   All of them?
E01 - 229   From the time, we did what………. after learning we did what………. we left
P11 - 230   Yes
E01 - 231   Now what happened?
P01 - 232   What we did?
E01 - 233   Yes
P09 - 234   What we managed to do

P01 - 235   Should we also give you the cup mum?
E01 - 236   Yes, now here what is important is that we want to learn to say maybe each one because we are different to say for me friends, I failed because of this and that……. we can share knowledge to say here I managed this one, or no I didn’t do it because of this…………

P01 - 237   It has gone half way
E01 - 238   So that we can help each other, have we agreed well?
P00 - 239   Yes
E01 - 240   Yes
P04 - 241   What option went half? I will explain what I managed.
E01 - 242   Yes
P04 - 243   I managed on land
E01 - 244   On land, yes
P04 - 245   Yes, crop rotation
E01 - 246   Crop rotation?
P04 - 247   Where I had planted groundnuts, I planted maize.
E01 - 248   Where there were groundnuts you planted maize?
P04 - 249   Maize, yes
E01 - 250   Okay
P04 - 251   yes, so I discovered to say what I learnt was something true/real.
E01 - 252   Okay
P04 - 253   Then also where I had planted maize, that’s where I took groundnuts.
E01 - 254   Okay
P04 - 255   Then also the groundnuts………. I discovered that they were growing well, I was explaining on this one where I didn’t even weed, I just left them.
E01 - 256   Okay
P05 - 257   But they looked like they were growing well, so I can explain on crop rotation to say what I learnt is real for me.
E01 - 258   Okay now what else did you try that did not work out?
P04 - 259   What I tried that did not work?
E01 - 260   Yes, what did not work?
P04 - 261   Yes, on food I tried……. I stored
E01 - 262   Yes
P04 - 263   But it worked because I still have maize.
E01 - 264   laughing and
It worked, you still have maize?
Yes, I still have maize, what failed here is cattle.
Okay
Yes cattle rearing.......... I am still failing.
Why so?
So, what causes this is....... halves the cup for livestock and E01 laughs
So, on cattle it is still half?
On cattle, it is always half; buying a cow just after it finishes ploughing it dies.
Okay, it dies.
Yes, it dies.
Diseases?
Just after ploughing it dies even though they say here this medicine is the best on cattle; we insert but it still dies so what I am failing to do is cattle rearing but I am managing goats............ I am failing cattle and also still failing to keep chickens; if I keep one, it doesn’t stay it goes back to the owner.
Okay (laughs at goes back)
Yes
For the chicken, she says she buys but often it goes back to where she bought it from, so that she has failed.
Okay
Chickens and cattle are failing but the goats..........
She is saying the livestock....... the cattle are.......... yes
Yes, what I have managed............. what is measurable, what I have managed
Yes
Available food. Food is always there
Okay,
Then since it is always there it means that even produced food is there, even surplus is there............ then land
Yes
On land, I managed to practice crop rotation on my fields where I planted a crop this side and it does well. Where I fail.... yes, I manage some of them but what failed is to maintain the cup for cash. It is very difficult.......... to maintain the cup for cash is difficult because there are a lot of cross cutting issues. Whenever I find cash there will be a lot of issues coming; maybe school children, diseases, travelling where I need to go and there are a lot of things which need cash and that’s what makes me fail but I try to share cash or budget to say I should have inputs, but now where I fail most to maintain cash is on livestock. Sometimes when there is a disease out-break for livestock, mostly it happens that I don’t have cash to buy drugs and on this one, that where I fail most. I can manage to share the cash equally for these others, but now when there is a disease out-breaks like in the rains season, you find that I will fail to buy medicine because it is expensive. So, my livestock is not improving because they die and those are the minus which are there on livestock and that's where I find a problem, I fail to match these two. Then on water, maybe though the drought has also affected us a lot, but that we can’t cry much because it is for God or nature. But otherwise, the part where I am fighting hard is on the weeds.......... the land is okay but the weeds and when the children go to school, the human resource is less, even hiring people is expensive, the herbicides are also expensive. So, on the livestock and weeding is where there is a problem..........so that I manage to maintain cash. There is livestock, maintenance for cash and weed control – that’s where I still have a challenge. Okay now on the weed control you explained the reasons; people are expensive to hire, herbicides are also expensive and also your own household labour is low.
P09 - 292  It is low
E01 - 293  But now there you have explained to say the death of the livestock is because you do not have cash by that time....... but this side where there is cash, what is the reason why there is lack of cash.......to say it is not enough?

P09 - 294  Cash comes when I sell the crops....... that’s the way I find cash and then it is used differently. Cash is used so fast and that’s where I haven’t seen to say why does cash finish so fast and I fail to keep it or let me say it is difficult to stick to the budget because there are pressing issues and when that thing comes it will force you me even to do it even if I planned in a different way. I just get and I get something which was not even planned for in the budget......but because there is necessity of that thing to be done and I am pressed by that thing, I will divert some cash and as a result I will have a problem the other side.

E01 - 295  Okay
P09 - 296  Yes
E01 - 297  Alright, others?
P08 - 298  P10 what do you think?
P09 - 299  I think on this one what contributes most or the contributing factor which I have seen is when the family is big.

E01 - 300  Okay
P09 - 301  Extended family. Helping even the elders and their children, I think this one presses me and you find that cash just goes to helping people and it reduces while the source is just one......... I don’t have another source other than farming.

E01 - 302  Oh so no business?
P09 - 303  There is no business which I do
P07 - 304  For me as well, sometimes you can try to force yourself and on food I manage.

E01 - 305  Now what did you manage to do?
P07 - 306  What I managed?
E01 - 307  Yes, from what we learnt last time

P07 - 308  Yes, I planted crops on the field and that was groundnuts and some few lines for cow peas.
E01 - 309  Okay groundnuts.
P07 - 310  Yes, later on when I harvested these and planted maize, the harvest for maize was good.
E01 - 311  Okay
P07 - 312  Yes, the harvest of my maize was more.
E01 - 313  Okay so crop rotation.... you exchanged where there was.......  
P07 - 314  Where there were groundnuts I planted maize.
E01 - 315  You planted maize.
P07 - 316  Yes, where there were cowpeas I planted maize.
E01 - 317  Okay
P07 - 318  The harvest was good and from it I managed to find food.
E01 - 319  Ooh food available
P07 - 320  Yes, even now I am still having the same maize....... now because of having a big family as my father said, when you are just alone, whoever comes and complains........and you being a parent you will say since I have, you just get from the barn, sell and help that person. Yes, even travelling, like today you are the one who brought us here with your transport from Lusaka and when we went there we carried some things to give the children in Lusaka, also to see how they are living and you being a parent you just get and give. Now for you to find something to reserve so that you use in the future is difficult and I fail on that one.

E01 - 321  okay, now food, having food at home......before your learnt, how was it?
P07 - 322  It was little
E01 - 323  Okay, anyone to add on?
P02 - 324  My addition is that as I have heard the majority is just talking about cash, when cash finishes in the house meaning everything in the house is disturbed, yes, it can be like that but the major desire is to make sure that the cups are all full now where there are more problems is on rains.
Yes you can plant quite okay and when you finish planting when you are lucky and rains do well, we can manage to harvest thus make these cups full and if we are not lucky and the drought comes it can make these cups half and if we are lucky rains do well, we can manage to harvest thus make these cups full and if we are not lucky and the drought comes it can make these cups half and if we are lucky rains do well we can manage to make the cups full, also when it's too much such that there are floods, it can also disturb our cups………we can't manage to make the cups full like the way we wanted because floods destroy crops, so selling is not the only way which can make the cups half but also floods.

Okay, maybe there are some more who have something to say because we wanted to hear to say from all the lessons, what did you do after learning and what did you not manage to do?

Let me make it half, I show you what I did, here for me from these lessons……

Okay, on cash, it was half again it did better also on the food last year I just produced little food; 2 oxcarts are what I produced.

Where?

I am still here

On the produced food?

Yes, I produced little food, just 2 oxcarts.

Okay 2 oxcarts?

Yes just 2……. that's what I produced. After that I had to put the maize in the bags from the lessons we learnt I managed to sell 2 bags.

You sold 2 bags?

Yes, after selling 2 bags, I kept the money.

Was the money enough?

No, it was little but I kept it and managed to buy fertilizer.

Okay so you bought inputs?

Yes, I bought seed and it is this year and after buying it…..

Okay

I went in the bush to cut trees, burnt charcoal and I got cash.

Okay

So, I did not sell any other bag of food from the time I sold those two, I was just eating and I saw it to say cash is found in some things. So, I discovered that money can be found even in other things……yes

Okay

Then from there……

Wait just there, so you are saying there is what………there is charcoal here which you used.

Yes

So, it is the one that increased the cup.

Yes, it is the one that increased the cup. It is the one that made me buy inputs this year.

Okay

Like I have explained this year I have increased because increasing the cups for cash this side……….so even on cultivating I have improved this year.

Okay so even……

Then from there……

……

She is saying that they stay from before and now she is saying that at my level the crop that I have seems to be okay……at any level really, it happens to be okay.

Meaning that this year what I used to do like maybe let me sell so that I buy kapenta……I used to refuse to buy kapenta because I just used to say if I have nshima, I cannot do any piecework, no……relish is not a problem, I can easily get pumpkin leaves, delele and say let us eat my children but for me to say let me buy this I would have gone for a piecework……but because I said even salt can be relish than buying kapenta even
though kapenta is also needed because it tastes nice.

E01 - 357 She is saying that at least now there is a possibility of buying other non-produced food like kapenta and the like but previously access to that wasn't……..

E02 - 358 Okay

P01 - 359 That's what I have discovered this year even this kapenta……. this yeah aah…. even now it is full

P08 - 360 You……..

E01 - 361 what didn't you do or what did you do but failed……. which did not work?

P01 - 362 What did not work out?

E01 - 363 What was not successful?

P01 - 364 What was not successful…….. aah question?

E01 - 365 To say maybe you try……because you were explaining that whatever you tried was successful.

P01 - 366 Yes

E01 - 367 Now when you look from the whole lesson in case there is a part you tried then you saw that it didn't work out.

P01 - 368 Oho livestock didn't work out especially on goats and chickens.

E01 - 369 Okay for the goats and chickens

P01 - 370 Yes, it did not work out even cattle…. I would say if cash increases this year I am going to buy. Also, school going children come…………. they are taking a lot of money.

P08 - 371 Is there any cow?

P01 - 372 We do not have

E01 - 373 What about goats?

P01 - 374 You goats are there just about half the cup

E01 - 375 What……? Mpongo is a goat.

P01 - 376 Goats were also attacked by diseases

E01 - 377 Diseases

P01 - 378 Defecating blood so we tried to cure the disease and managed…….they stopped. For chickens, it is also like we are beginning to fail in chickens because…….like my mother said to say you bring a cock but after

E01 - 379 What about chickens…..

P01 - 380 That is what I was talking about

E01 - 381 Yes, before you learnt, how were they?

P01 - 382 I did not have any chickens; they had finished due to diseases.

E01 - 383 Oho that time there was a disease?

P01 - 384 Yes

E01 - 385 Oho okay, maybe there are others who tried to say what worked……. what worked? What have you tried and what worked and what did not work?

P09 - 386 Mention others in short

E01 - 387 talking in the background

P00 - 387 Okay

E01 - 388 We did not have……. we never used to think of these cups, we just used to work anyhow………… there was no budgeting, no planning; so out of the workshop the we had we received more knowledge on planning then we started budgeting, and have now started saving; having our own bank accounts where to save, having our own money and looking at sensitive areas that we learnt. We never used to consider them now the knowledge……. you have heard the way we have explained here meaning that we changed the way we were. We are now on another step such that now we look at other areas, we know that……. you can feel on your own that here the cup has reduced, you alone will know that this problem is because of this cup which has reduced. We remember those cups as we work.

P00 - 392 yes
So, the workshop helped us……. we got something

Okay……yes

Fill the cup to the brim.

How do I fill it to the brim?

Yes, we want to know…. here the challenges you did not....

Yes, let’s go we want to see available food, here things are hard

Here challenges……

Yes, there has been carelessness on this one, if it was not that we produced at least this size.

Yes, here on food available

Yes, on available food reduce the cup, there has been carelessness on this one……it is carelessness that I am talking about here.

Yes, was that after the workshop or before? ………this carelessness.

This carelessness?

It has continued before and after.

Oh, even after the workshop?

It has continued

If it wasn’t planning on this one…. these days there are phones; if you put budgeting money there……you put there, that is what helped to reduce this carelessness.

Yes, now explain where phones……is putting in the bank or what is it doing? Explain.

And this carelessness........

You it is carelessness.......here putting money.

Let us do this……

You were saying that....

This carelessness sometimes is selling; maybe someone is selling fish and you exchange forgetting how you had budgeted to say this maize is for eating.

Okay

Sometimes when you are faced with a problem that we have also forgotten.

Okay

The carelessness which was there last time was budgeting. It never used to be exact but this side we have been opened up to say if you find some money, you take it to mobile money and put.

Oho the banking……

Yes, you put.... that is what came to reduce or control this carelessness.

Okay

Another thing that became good is crop rotation this side, when we planted we found that……where we had planted maize, we put cotton and the cotton grew well, now maize itself did not grow well because of the dry spell.

Yes

Then we discovered that it is not just the drought itself, we thought things would be the same as maybe the way we buy a bag of fertilizer at K 200 in accordance to the amount of money in controlling that side……we failed to buy fertilizer.

Oho

It became difficult…..the maize just became....

So here we reduce

Eeh.... Again, instead of planting 50Kg of seed we just planted 20Kg

Oho, so you reduced......but this side we solved the problem.....

Yes, we solved the problem.

But then you didn’t have enough money to...

to……to increase here

Okay

You are not done yet?

Where now...... you want me to over explain so that you know what I did......why force me?

(talking to the cousin jokingly)

Yes

When we learnt, we learnt very well, the lesson was just okay

Yes

After learning, we tried to keep very well because of the drought......the drought came and hit so like on my
side......these cups will not be full like they are full now.

E01 - 444 Yes
P01 - 445 Where.... where (reducing the water in the cup)
P08 - 446 All of it
P10 - 447 Because there on land, if I cultivate 6 hectors then this is equivalent to 3 hectors meaning that 3 hectors were destroyed. As they have said also the prices for fertilizer have increased meaning that the other portions remained un-tilled...... then from there the same maize that we planted, the drought came and hit us so they did not have the right standard that they are supposed to be but at least food is enough.

E01 - 448 Okay food will be there?
P10 - 449 Yes, for food...... it will be there.
E01 - 450 Okay
P10 - 451 Now what has been affected is to say the cash is affected.
E01 - 452 Okay so the food will be there but cash this side will reduce
P10 - 453 Will reduce and also to think that even cattle also......there will be nothing because we can only buy cattle if we had cultivated/produced well. Meanwhile, we can say that it is just half-half because only food will be available and the puzzle is on increasing the cash so on whatever we are going to find, we will have to consider only needs not wants......yes that is where we are, we are talking about.

E01 - 454 Okay, alright maybe there is someone who wants to add?
P08 - 455 Mr. Kamanga you are sleeping?
P10 - 456 Now what of......okay now we are going to have a break just for few minutes but before the break, I have two questions or three. The first one is looking at......when you look at what we did last time or what we learnt, are there some things which you think of which we did not learn about? Because sometimes we forget, yes which you think that maybe we would have put a cup for that thing and that thing is important, we need to put a cup........ so maybe there is something which we forgot?

P08 - 457 What of the piecework, is it there? Because this year there were a lot of piecework.
P06 - 458 Piecework was there, we talked about it.
E01 - 459 Okay so you are saying we should put a cup for piecework?
P08 - 460 Yes
P06 - 461 Yes, on piecework there was no cup
P08 - 462 There was nothing because this time.....
P10 - 463 Now because we are just saying in terms of management
P01 - 464 There was no cup for piecework
E01 - 465 They are saying that this time there was a lot of piecework and we need a cup this time.
P09 - 466 No, let us ask the question properly.... are you saying that all of us are going to say we do piecework or are you saying that it is a must we should be doing piecework?
P08 - 467 No
P09 - 468 That is what I want to know
P08 - 469 The question he has asked is this.........
P09 - 470 Now it is just cross cutting
P10 - 471 No, that one cannot be okay
P09 - 472 Okay now what of if we just put it to say business so that we just do business?
P10 - 473 Yes, business can be there, because now we are just suggesting.
P09 - 474 Yes, maybe you open a shop so that you do business
P08 - 475 Was there business last time?
P10 - 476 That is what we are saying......
P09 - 477 What we should do
P08 - 478 Business was there but had no cup
P09 - 479 Yes, what we should do so that we don't just stay........ we do some business maybe it is a shop or poultry.
P08 - 480 Now business or let us say business  piecework.......we cannot put a cup because here what we are doing is business, that is what we are doing
because in business we want to gain something and that’s capital…. so, meaning those cannot have a cup.

**P09 - 481** Yes, I think we do that and otherwise it is catered for

**E01 - 482** Okay

**P09 - 483** that is why we do farming and it is business…….. farming is a business.

**E01 - 484** Okay

**P09 - 485** Now is there something we left out which we did not do? That is the question

**P08 - 486** Yes

**P10 - 487** I think everything was covered

**E01 - 488** Okay

**P09 - 489** Okay, how, mmmhhhh how many tried after the lessons……. I think there were come complaints or not really complaints but you men were saying women should....

**P08 - 489** Should be here!

**E01 - 490** yes, and where you needed them most was on that one, yes to say...

**P09 - 491** Yes, they are careless on that one (food available)

**E01 - 492** Yes, now I want to know how many of you took the information to say I think on this one, we need to be together so that the cups are....

**P09 - 493** Are full

**E01 - 494** Yes, so I think you have seen the idea why we said both of you should be here for this workshop.

**P00 - 495** Yes

**E01 - 496** Yes, so how many tried that? Yes...

**P11 - 497** I think for me, my wife is not careless, no; she does not do that.

**P06 - 498** But both of you just had to come so that you learn together.

**P11 - 499** She is not around; she has gone to the field to harvest groundnuts.

**E01 - 500** Okay, but have you heard the question?

**P08 - 501** Yes

**E01 - 502** Yes, to say how many went and told the women to say what we have learnt there is this and that?

**P10 - 503** I took the information and I told her to say the lessons which were there are this so that next time even women should go because at first, I told her that the meeting was for men only but when I went back I told her that I just made a mistake, they said even you women were supposed to be there. I think that’s delivering the information, right?

**E01 - 504** Yes, now taking the information is it just saying even you…. you were wanted and not explaining to say what we learnt is this?

**P10 - 505** No, I told her

**E01 - 506** Okay

**P09 - 507** I told her that this is what we learnt.

**E01 - 508** Okay

**P09 - 509** Now the step I took was that I told her that she is the one in charge of food now and I told her that we learnt not to be careless with food or misuse food and I gave her power to be in-charge of food…… and also when you entrust someone you give them a job, things become tough such that there is no getting of food even for me as the boss……there is no getting of food, even just a little.

**E01 - 510** Yes continue

**P09 - 511** So, there was some strictness and I said this manager….. I made a mistake to give her powers, how I wish I was just doing it on my own because sometimes I would want to get, but she will say, “where are you taking it? That’s being careless, isn’t that what you learnt?” So, you want to go against what you learnt and that which you told me? But anyway, my manager works very well though she is too strict. Yes.

**P08 - 512** It is coming, like what I said that is carelessness.

**E01 - 513** Yes

**P08 - 514** Yes, because last time my wife was not here and that’s where I found that some of the food is missing and if I say some, I never used to bring here, that’s why I said mobile money because if you did not learn both of you still...
even if you explain to your friend… some won’t get that this is the way…… for her, she will think that I am taking somewhere not knowing that I am putting here.

P06 - 515 Without her knowing?
P08 - 516 Yes, without her knowing, now even if it finishes here…… here it can help me, yes even today she is absent, so even at the bank we started banking and I told her that, “look what you used to do last time, now it is like this”.

E01 - 517 Okay
P08 - 518 And I told her that if we reduced on that one, we would have bought something just like now we are about to enter into winter, we need blankets.

E01 - 519 Okay
P08 - 520 We would have bought but now we take it back to food again.

E01 - 521 Okay alright
P01 - 522 Give my uncle even a visitor can contribute……. uncle, we give you also to add for us…. yes, just give him.

P09 - 523 He will talk about what he has heard.
P01 - 524 Yes, what he has heard.
E01 - 525 Yes, it will come around……
P09 - 526 Decision making……
P12 - 527 Thank you even though I found the lesson is in process but I have picked at least one, aah the first thing is that lessons like this one…… the truth is that all of us in the house need to be together because what follows is that one day one will remain alone and when that happens. These cups…… just because one has died all these years they used to be full but just because one is no longer there, all the cups reduce, so the encouragement is that when such lessons come, maybe the whole family should be attending even children because they also grow so they are supposed to start leaving them to say land is to be taken care of…. food to be taken care of everything…. if there is anything here it is just a few that concerns our lives. Now…. especially women, there it can be a chance to learn so that when the husband leaves home it is not only an opportunity to start selling maize because the cup will run dry and because as they sell maize the goal is not to fill the other cup, no. they just sell anyhow, there is nothing like after selling the money is meant to fill the other cup but the money goes to fill the bank whose ownership is unknown, such lessons……

E01 - 528 You can continue.
P12 - 529 They are nice/good if we benefit from them, cattle breed would also change because the reason why cattle breed should change like you were saying…… it is also a business, everything here collectively is a business; management of land is a business, management of money is a business. So, if our business is to grow it has to be supported by these aspects represented by cups. This cup which is here is supposed to help that one……when that one is about to run dry, I heard someone was talking about piecework. We reserve a lot of food here in the village because what we do is that this side on land we face what……

P00 - 530 Not attacked by weeds
P12 - 531 ……..we do not experience carelessness such that we fail to manage the maize so you would find that they are rotating when time comes; what was that side goes the other side, no. it is not good for that one cup should completely go down, they are supposed to be supplementing each other, meaning that if these cups are on the same level, life would balance, we would manage to support school children, you respond to whatever comes. These cups should be responding to each other, if they do that than our lives would be good. This is the
lesson I have seen……. this lesson is very good.

E01 - 532 Thank you, there were other hands.
P08 - 533 You have forgotten
P02 - 534 It is me…. yes, what I want to say is that he showed me what they learnt then from there he appointed me to be the overseer of the storage barns…. and I made sure that I controlled them such that on cash I never thought to say maybe I buy a tin to feed my family, no. Even now my cup for food is still full…… the only thing that I touched in the barns was to get a little to sell so that we pay school fees for the children.

E01 - 535 Okay
P02 - 536 Up to now my barn for food is still full because I was shown and learnt too, even here if I was to remain alone with the cattle I know all the places where the medicine is bought for treating animals.

E01 - 537 Okay
P02 - 538 Because we always move together and as we go he shows me the shops because he tells me that, "you should also attend when the workshop shall be called".

E01 - 539 Yes
P08 - 540 Should we remove or you have all heard?
E01 - 541 What I have learnt as of today…….. the other thing that we did what…….. what was not there, it is the issue of charcoal. Last time it wasn’t what……

P00 - 542 It wasn’t there……
P10 - 543 We only had planting
E01 - 544 Was not there no……we only had piecework but not what....
P08 - 545 Charcoal
P06 - 546 Even here, that’s what she has said that, “I also didn’t know”
E01 - 547 Yes so………. now what we want to do is this, we want to go to the second part…. aah I don’t know if there are questions from the first part, because this one we were just reminding each other to say what we learnt to-

date……this is where we are, from here we look at what lesson should continue and then whatever we are going to look at, then how is it going to help us…… so maybe there are questions…… any questions on this part? ..... or maybe we can continue….. mothers?

P07 - 548 Let us continue
E01 - 549 Okay so…. aah…. so, what we are looking at here…….. we are looking at the same idea of saying what we improved and also to look at……you were saying that these cups are supposed to be helping each other so that they do what………. they can be improving at the same time. Now the idea is the same with what we are going to look at……what we have been looking at here, we were looking at…. there are sometimes others did while others did not do anything. Others touched different aspects, to say even us……God blesses us differently, our starting points are what……are different but the idea is the same. Aah now we are going to look at number one, the idea is that…. now……in future the way things are changing what things are we to do so that when that time comes it finds that no……these people are prepared, not to be found that we have but no plans……problems……you were saying that there is drought this side right?

P00 - 550 Yes
E01 - 551 What if it continues, what are we to do now so that in future we will say at least we started early doing what……

P05 - 552 Learning
E01 - 553 Preparing. Now what we have been looking at previously……what we have been doing is much of short term preparations to say what I need to do here is this……but today we are saying no, let us not just look at this year and next year
but what about the years to come? What lessons should we have…….in short what ways, what is it that we are to do now so that in future our lives……the cups too should be doing what……to be full. Are we together up to there?

Yes

so even this……. this side concerning charcoal we will also do what……. add it together aah…. so, the whole idea is not to look at this year only, and most of you said that even this year your harvest will be good; but now we want to look at the part of the children…. do you think you have prepared for them very well so that when they reach your age they will be saying the cups are okay or they will find that even just one cup is not there. Yes, so we are going to go on break just for few minutes and on the same break we want chibwantu (sweet beer). You don't want chibwantu so we have brought you what you want and we will request for chibwantu so that we exchange. But now let us note that this is not the end of the workshop, no. let us agree that it is just a break for about 10 – 15 minutes then after that we will continue with our lesson for today, are we together on this one?

Yes

Okay

Is it just stretching or….?

No there are some drinks which are there

During the break no discussions between the participants, interviewers are talking to each other

Now the second part or those papers are a reminder to you to say this is what we have done so far and this is what we discussed, then now the knowledge from this one will also be used. Yes, so that everyone should have those papers. Before we go further, we want to tell you the whole idea again for this meeting today – from the beginning we were just trying to remind ourselves of what we did last time and seeing where we got the knowledge, where we had difficulties and the like……now the lesson for today is looking at our desires; what ways can we use so that our improvement is not just for one year, but that the improvement should continue if it is 5 to 10 years and it is like a spring for the car which starts from the beginning until it goes up not so?

Yes

Yes, improving so that after 5 or 10 years, you say we started from that step and we have improved until we are now better and that is the main idea for today. And looking at the way things are changing like rains are also changing, the livelihood is changing not knowing if it is improving or it is becoming difficult……. we will see in the lesson. But the whole idea from the first lesson and the lesson for today is just the same and that is development. Just to add on that one if observed from the time we started mostly we are trying to help one another through lessons, some help through giving material things; maybe when they come they will tell you to register your names and you register but for us from the time we started, our main area is just lessons. But it is just that we said no our research should be like the way we do it every time, if it is a questionnaire just that, no. So, we said let us try to teach each other with the farmers and let them try so that we see where they are able to do and what knowledge they have, also what knowledge can we also add on so that we see how we can work together in thinking and decision making as farmers with us from the University. So, the area we help mostly for us is on lessons;
trying to remind each other in case you had forgotten in some areas and when you look you remember to say there was even a cup for this and you will see to say I almost went out of the way......maybe you have something to add? I was explaining on.....

E02 - 564  I don't know what you said
E01 - 565  I explained the objectives for this workshop and also our main purpose really is to help the farmers take control of their decision making for the better and their resource management for the better not necessarily that we have to give them something or the and outs or whatever.....but focus is to improve them on knowledge perspective, then my last statement was for you to make any additions.

E02 - 566  I don't think I can add...... that's fine.
E01 - 567  Okay then we can start the lesson which follows, I don't know if you have heard the reason for our coming here because nowadays things are dangerous......we can just hear to say Dr. Nyanga had a campaign rally, no we haven't come for campaigns but our campaign is to make sure your livelihoods are improving. Yes, now you will forgive us because the rule for us who do research is to ask or request everyone to be free or can we continue because we had the first lessons and we explained and now is it okay if we continue working just the way we were doing?

P00 - 568  Yes
E01 - 569  Okay, alright. So, without wasting much of our time, I think everyone has those papers, alright now mostly we farmers......when we are planning, do we plan or how far do we go in terms of planning? Do we just plan for that specific year to say this is what I am going to do or you plan for the next 5 to 10 years? How do you plan.... Women? ....... or you just plan for the day and forget? Where is the recorder?

P12 - 570  Our preparations mostly as farmers...... it only happens..... actually, planning in most cases starts when we see the clouds forming, that is when we start asking ourselves – where is the seed? Are the yoke pegs ready? .... because even those pegs you find that they are only for one season. In a nutshell, our planning starts........ if it starts in December, it again stops the same month and then we start again. It just rotates like in a cooperative where they say contribute money, fertilizer comes and again when the time comes, contribute money......they register and there is nothing else that goes beyond 12 months, maybe our planning doesn't even reach 12 months.

E01 - 571  Okay.... maybe there are others who have an addition........ any addition mothers, how is our planning? How do we prepare?
E01 - 572  His explanation is that when it is almost rain season that is when it triggers to say let us plan. (explaining to E02)

E02 - 573  Okay
E01 - 574  Yes, mothers; how is it? Do you still remember the rules we agreed upon when we started?

P00 - 575  Yes, to be free
P09 - 576  To be free
E01 - 577  be free
P09 - 578  It is to say anything
P08 - 579  Again, just like he has spoken, there is no time we think of planning in long term like for a period of 5 years......we don't think of that. If we think of it we just say if God will still be giving me life.

P00 - 580  Yes
P08 - 581  That is where we end, we don't plan to say when I farm next time this is what I will do......we don't do that.

P00 - 582  Okay
Okay now... how are we going to put this one.... aah..... because when I write like this, they will be able to read from this side. Yes, or maybe we write like this, I start from there.

Yes

Yes, now when we check this side what we have been learning, there is a part maybe just one that we can say....... aah okay we put areas.... The part or aspect which is important.... environment in Tonga, how can we put it?

Talking to each other......

No, don't whisper to each other....... okay, in short, we are going to use things that we find surrounding us.

Yes, in our area.... aah because this preparation is concerned with......

Within our area?

Okay the other thing....... aah what are we going to look at...... because there are a lot of things that we find in our environment. I have just given rain as an example but there is another thing; let us say in our environment because others were saying cooperatives so that you find what?

Where we live?

It concerns where we stay, where are all the fields found?

Now here most importantly we are going to look at what....... rain. Do we agree that rain has a part in our environment?

Okay the other thing....... aah what are we going to look at...... because there are a lot of things that we find in our environment. I have just given rain as an example but there is another thing; let us say in our environment because others were saying cooperatives so that you find what?

Fertilizer and seed......where do they come from? Yes, don't just whisper, say it aloud.

It comes from farming if you cultivate?

Okay is there Farmer Input Support Program (FISP) here?

Okay it is there....... are they the same?

Yes

Cooperative?

Yes

So, who have power....... who are the owners of cooperatives?

The government

It is the government?

Meaning that the government also has a part in our area where we do what?

In the area where we stay

So, we can say it is not just the environment but also what?

The government

Meaning that in starting we can put the government or others in English would term it as “policies” or what...... or maybe we just put it say government.... this FISP becomes what.... an example, right?

Yes

So aah the other part is...... even social economic life has a part in the way people do what.... the way people live. Yes, now aah if we will have time, we will also look at the way we live, the business of our lives...... you said maybe our lives are now okay; there is a lot of money or maybe it has become difficult...... It concerns what.... life. yes, the other side we were learning that something like that is problematic like maybe it is a funeral, sickness...... all this is what?

It is life (socio-economic life)

Social economic life (the way we live) yes, so.... aah it is not that this lesson is different from the one we started with no, they are just the same because all these we have been doing what......what we have been talking about happens in all these, right?

It is life (socio-economic life)

Yes

So, when you want to fill the cup, it is within what? To say maybe we want this cup to be full, the government also has a part to play...... it is not just FISP but FRA also does what......?
Has a part
It has, right?
Yes
And also, just the socio-economic life to say this side the price for soya beans has risen, this side they sell well…. this side the price for cotton has reduced……affects to say maybe your cup this side will do what?
It will be full
Are we together?
Yes
And also, just the socio-economic life to say this side the price for soya beans has risen, this side they sell well…. this side the price for cotton has reduced……affects to say maybe your cup this side will do what?
It will be full
Are we together?
Yes
Okay what if you prepare and it rains well? What do you think would happen to the cups?
They will be full
They will be full?
Yes
Okay what if it doesn’t rain well?
The cups will be difficult
It is hard
It becomes difficult, it is hard……
Yes
That is where we want to see to say what of if things are not okay, because don’t forget the whole idea is to make sure that the cups are…. Yes, even if there is a drought at least you should be saying, “at least for me things are okay” yes, that is the idea, right?
Exactly, so now I want all of us to look at…. if it doesn’t rain well here or let us say the drought continues, how do we prepare? Okay you said when preparing you just look at cattle and others but now we are looking at to say how do we prepare so that our cups are….
They are full
Are okay in an event that the drought continues…. how do we prepare? Are we together on this one?
Yes
Okay, now we are coming to that side
That is why I have held it in advance.
She was making a comment that the answers are there but maybe how to express them because I was saying in a scenario where the rain season/pattern worsens. How do we manage it? So now we just want to make sure we are together on the lessons not just looking at things when they are good. What of fertilizer and seed for you women are the prices increasing or they are reducing? What is likely to happen?
They are increasing
They are increasing
Yes
Okay what of the fertilizer support program from the cooperatives, are the packs increasing or they are reducing? They are reducing
They are reducing meaning they are becoming bad now what of…… I was asking if the prices of fertilizer are reducing. Now the idea is to look at when things are becoming tough or changing so how can we prepare also….. not just preparing in terms of
cultivation, no, but preparing in case things become bad and we are seeing that things are becoming bad.... what of the livelihood?

P0W - 661 It has become worse because things we use are really seen.

P08 - 662 Because there if rains do not do well fertilizer is also a problem; now how can you survive? There is no way you can survive because if rains are not enough, fertilizer is also expensive. And also, the packs.... maybe you are 100 people in that cooperative; out of 100...... and if they say we are just going to give 15 packs, now what of these others.... so, you have seen meaning that even livelihood will be bad.

E01 - 663 Oho
P08 - 664 Yes
E01 - 665 Okay, yes so linking the 3
E02 - 666 Okay
E01 - 667 Yes, so that actually these are together. Okay so if we are to put ourselves on this meaning we will not be happy, things are.... .... are tough
P00 - 668 Okay meaning even here, now......
E01 - 669 She wanted to say something
E02 - 670 Okay talk
P07 - 671 Life has become tough or it is becoming tough.... like for me.... I am in a cooperative.

E01 - 673 Okay
P07 - 674 They introduced vouchers
E01 - 675 Okay
P07 - 676 Up to now I haven’t received all the bags for fertilizer.... I just received 2 bags instead of 4. Isn’t that what we call tough? Because in the past we used to get fertilizer early as long as money goes to the bank and you will get your fertilizer, but now life is becoming tough, even I have not received my fertilizer.

E01 - 677 But you paid money
P07 - 678 Yes, I paid money long time ago..... I was just given two bags.
P10 - 679 Two bags
E01 - 680 Two bags
P07 - 681 Yes

E01 - 682 Then you paid money for how many bags?
P07 - 683 I paid for 4 bags and a 10kg seed but I did not receive the seed as well.
E01 - 684 Okay so she is giving a case of the hardship that she paid but they were given half of the inputs on FISP’s part that actually things are....

E02 - 685 Bad
E01 - 686 Yes, also that previously they could get more. Now I think we are together and we have seen that our cups work in these different aspects, there is rain, there is government and also livelihood is there.... now why we have come is to see how we can improve even though things are bad....... but maybe we can make some decisions which can help us so that our cups don’t.......
laughing

What is needed to be done is that we are supposed to keep some livestock; like goats, pigs... so you should have. They can help you like if the rains continue being problematic here in the village.

So, you are saying aah...... livestock? Okay what else? What else are we supposed to do? .......... we start preparing in advance to say this rain....

whispering to each other

No don't whisper to each other, talk loudly.... you can give her the recorder.

Talk loudly

Yes

Don't make other meetings behind there

This lesson is hard

So that......

Unless I prepare next year.... I don't know where I am going.

You can prepare just a little you can even be doing a garden, just like that.

Okay, gardening.... what else?

The question is a bit difficult for them to come out very well

Okay maybe we do this....

The problem has been identified; this rain is the problem..... now what else can help our lives to be okay?

Yes, so that our cups can be what?

They can be good

Yes

Some said we rear some livestock, others said that not just that but also gardening.... what other things can be done?

I think if the rains become problematic I cannot do even a garden because there are no rains meaning there is no water...... even a cow needs water and grass and I think if the rains become problematic, the way I can prepare is.... it is called business; selling things.

Business, okay.... yes? now here we should not say maybe this answer is the one which is correct or wrong, no, everything, all the responses are okay.... what is different is the activities to say this one can manage this while this one cannot, this one...... yes, there is a hand there....

Me? No, I am still thinking

Yes, the cup for......if we say the cup for cash; how can it improve in times when the rain is continuously poor.... where can we touch?

It cannot improve at all

The cup for cash.... if it is not raining, it cannot improve because all we want to do so that the cup can be full depends on water from rains. Yes, in line with what we were learning, yes.

Now where we have reached, where others came to say charcoal burning.

Yes

Because the rain has become difficult so we resort to charcoal burning.

Yes charcoal.... what else?

If you know how to sew....

You can be sewing just like that you will be helping yourself.

Okay

It is business

No, because now let us just list then we will group them nicely to say this one....

You go to the river and order some and start exchanging with maize

It is just like that.... it becomes difficult if you experience droughts, because you cannot completely run short at least others will be able to produce....

You go to the river and order some and start exchanging with maize

Okay

You can find food

Or maybe just like the way us old women are......you can hire someone like maybe you even buy two goats and take to
Kasumbalesa. When he/she brings the goats, you can think of another way.

P09 - 743 They are asking what thoughts.

E01 - 744 What thoughts?

P00 - 745 **talking and laughing**

P08 - 746 what she is saying is that……

P06 - 747 Talk about that money they bring for you

P08 - 748 The money that comes after selling those goats…… so now you decide on what to do with it, if it is buying mealie-meal……

E01 - 749 Okay

P07 - 750 Yes, you can even be buying salt at home…. you can even be selling one bag of salt, just like that you can be making plans

E01 - 751 Okay, yes

P0X - 752 It is to get busy

E01 - 753 Yes........

P00 - 754 **The audience laughs**

P09 - 755 When we talk of rains, God cannot forget us, at least a little can be there…. it is to plant crops that are resistant to droughts like cassava, it is to change crops to those ones that can grow even in times of drought…. for example, cassava....

P00 - 756 **whispering**

P12 - 757 Just like they have said that rains cannot completely stop.

E01 - 758 Yes

P12 - 759 What we consider when the rains reduce……we look at the varieties we are going to plant so that immediately the rains come, the maize ripens so that food security is assured at home or protected.

E01 - 760 Early maturity……. what else? Okay aah…… I think you have seen that the rains are able to affect those cups, right?

P00 - 761 Yes

E01 - 762 Now the idea is that even when things become bad, there are other ways…. what can you do what?

P0X - 763 You can use it to pull through.

E01 - 764 Yes now, these are the ways we have put here, if other ways come through that we have not included, we can include them……do you have anything to say the options for the rains…….

E02 - 765 No

E01 - 766 Okay, can we go to the second part this side?

P0X - 767 If more options or ways come through, you can mention them.

E01 - 768 Yes, if you have remembered something again we can go back there and do what…. and add…… now we have come to fertilizer support programs or maybe it is farming input support program.

P0X - 769 Yes

E01 - 770 Maybe we just get it collectively…. no not collectively – we will confuse them, but separately; this one for FRA…. maybe nowadays they pay you early, but let us start this one; fertilizer support program

P0X - 771 Yes

E01 - 772 aah what if……we have seen that the situation in the future…. to say it will be worsening at least they will say there is completely nothing…. what are we to do? The options...

P08 - 773 Then even fertilizer becomes difficult…. they will not help

E01 - 774 Yes

P08 - 775 You need to use manure

E01 - 776 using manure

P08 - 777 Yes

E01 - 778 Two…. oh

P01 - 779 I can just be growing groundnuts which do not need fertilizer

E01 - 780 Okay

P01 - 781 Because if I grow groundnuts, that do not need fertilizer, there are those who manage to buy fertilizer…. I can be exchanging with maize.

E01 - 782 Okay

P01 - 783 Yes

E01 - 784 What else….?

P0X - 785 And growing sunflower

E01 - 786 Sunflower

P0X - 787 even cotton

E01 - 788 Okay cotton

P08 - 789 Millet

P06 - 790 Cowpeas

P08 - 791 cowpeas....

P0X - 792 Then you take these to FRA
laughing
Yes, it is to take…. sweet potatoes..
whispering to each other
What else? Fertilizer has become expensive and
difficult…. the government is not giving you in good time, what are
you supposed to do so that those cups even though the door for
fertilizer has closed but you can open other doors to say even though there is nothing this side
but it will win this other side so that the cup can be filled.

Potatoes
Okay potatoes…. these same potatoes?
Yes, the same potatoes
Sorghum
whispering
I was saying potatoes…..
laughing
Okay, maybe there are other things we have forgotten.
Okay
Even sugarcane can be grown if you don’t have fertilizer.
This is sorghum
Oh, it is sorghum?
No
Let us put sugarcane…..
sugarcane

Pumpkins
water melons
Okay oho…. okay
This is where you need to start an orchard
Growing some fruits
Yes, some fruits like bananas, oranges…. all these you plant.

And they also make some money….. (Laughing). Aah I am sure you are seeing that what
we are trying to do is to look at instead of just thinking you are
going to cultivate this year, you look at the way things are changing…. what ways am I supposed to do what….?
to use

aah so that the cups….
Even when it does not rain

Even when it does not you know
to say where to touch…. yes…. ok
Cucumbers too
What? Cucumbers?
Yes…. I think I have a question
Yes, she has a question
Back to the rains
Just there on rains….
Actually, I have two questions; one is a small one – what does business mean? Option three
What does this business on option 3 mean? What were we saying that if rains are problematic, what would I do?
There on top we have livestock, there we have cattle, right?
Yes
Buying cattle
Buying livestock
Yes, taking cattle in towns to go and sell
Okay selling
You go and sell goats
Okay
Yes
So, going to….

you go to the river and buy some fish to go around selling
Okay so meaning that even…. aah so he is explaining that trading in livestock and also
going to the…. ah…. what river is that?
Lukanga
Lukanga…. going there to buy fish for selling
Okay
Then he also added that these other things are….
Okay it is interesting to see the options for when the rains reduce…… none of these
options has to do with water.
Yes
That is what surprises me I look at that, so none of these options
explore water storage in digging a pump…. aah….

Wells or just something
For her she is saying that when she looks at what we have put
here they do not concern much
the use of water…. there is no other way you have given to say how to use the water, how to do what with it…. maybe it is making a dam because the rains are poor so that the little you have you discover what to use it on.…..

P8 - 856
Like these where they talked of gardening, they mentioned gardening…. when mentioning it the idea was that when we make gardens, the water we use is from…..

P9 - 857
Wells

P8 - 858
The gardens like we have said, water come from the well like this one here

E1 - 859
Okay

P8 - 860
Yes

E1 - 861
So, you are saying this garden is for what? For wells……?

P0 - 862
For wells

E1 - 863
Okay….. but here we all heard the question to say what has surprised her is that what she has seen……most of these are not affected by water to say maybe you will be using the to say that if the rains are poor…. The same little one……you find a way to use it…. yes…. yes

P12 - 864
Yes, people maybe are just scared of talking because in most cases the rains, especially me….. what passed me is….

E1 - 865
Yes

P12 - 866
It is just the money but the idea is that we have seen the whites farming at least even a 10 hector or 15 hectors with a centre pivot…… just a reasonable one to be watering. Because if you have a centre pivot, even if rains go, you can still be watering your crops, now not knowing where this lesson can help us according to our level looking at…..because you asked to say how you plan, our planning is mostly dependent on rains and f God does not allow the rains to come, then even the crops will be disturbed……but there are other friends of ours whereby even if rains do not come or it doesn’t

P12 - 868
So, when rains are a problem the other idea is that…. how do we reserve that water from the rains so that it does not just get wasted; instead we build a place for that water so that we can be using it just the way we use it for maize.

E1 - 869
Okay, his explanation is that depending on the levels…. but I have seen that others may have these irrigation systems but the challenge is that even we would maybe desire to have, we may want to do the same…..but the problem is water storage facilities. But he said that is common in other farms maybe a big farmer.

E2 - 870
Okay

E1 - 871
Yes

P13 - 872
I wanted to comment on something…

E1 - 873
Okay

P13 - 874
I don’t know if I am allowed?

E0 - 875
Okay, go ahead

P13 - 876
Okay maybe to help E02 maybe on the part of these people…

E1 - 877
Yes

P13 - 878
The main focus like for the farmers is that they want food and then on the other aspect they want capital or money, that’s food and money…. and for them to find those things, they look up to the rains…. so, all these under-listed items……for them the main focus is capital or cash, not to have money because there is rainfall, no, but now since there are no rains what should give us cash and we can opt to those listed things.

E1 - 879
Okay so through that they can have money.

P13 - 880
Yes

P0 - 881
Yes, because rains are not more or maybe resources to say now where are we going to find food, how are we going to survive…. so those things that have been listed there can help.

E1 - 882
Oho okay, that is good.
But without any kind of relationship to the rains, no.

He is saying that maybe the focus is not mainly to say maybe how the water can be used, it is more to the livelihood to say okay since there is no rain, how do we get money to buy food?

Okay

Which options are we......so he said maybe the discussion is mainly coming from that angle than from this.

Okay

Okay now maybe we go to..... because even here like the way life is becoming difficult..... okay life is becoming difficult because you said that things are....

Tough

Maybe things are cheap here

No

Maybe they are expensive, then also diseases are continuing..... now how are we going to survive because let us not forget that we need to make sure that the cups are....

Full

That is where families break or separate

Yes, now are you saying the option is for the family to break or separate?

laughed

There was a comment that the hardships here actually have caused the break down in the extended families because of the social economic hardships.

Okay

Okay what of the options now.... what options can we use?

Is it food which we are talking about here and life?

No, livelihood

That is livelihood now

Yes, that is livelihood, now the problem here....... yes, it is livelihood but livelihood is also hard.

Yes

Yes, life is hard, then now how are we going to survive?
Yes, everyone has to be involved

No one should just be waiting to say they will bring food...... but what of you?

No passengers

I alone making plans for big people, no, at least I make plans for the children

That's working if you are making plans to say go and dig basins right now and everyone goes to dig meaning the plan is from you.

No passengers

I will start chasing their children

So now here you are saying everyone?

Yes

No dependents

No

Yes, in the morning everyone should go to the field because life is hard.

Okay

I think everyone was supposed to be here so that they can hear it for themselves.

That's what we were talking about.

Yes, instead of them remaining home, they should hear it for themselves

Okay so changing eating habits

Yes, not where by you cook a big nshima, no.... or cooking anyhow.

Okay, no cooking anyhow?

No, there should be a time table

So, it is part of the eating habits

Yes!

Actually, we do change when we reach that time when things are tough.... we usually tell them to say no pounding samp now because samp makes maize finish fast.... so, we just eat unpounded maize and then we even drink water and that's all because our target is to reach the goal because it has become hard.

Okay

Those who are not strong..... just like that

We who are not used to staying without nshima...

No-one should be lazy.... we are doing this because we don't want anyone to die.

Everyone to survive

What we don't want is anyone to die

Yes.... okay now we want to go back there we looked at to say....... how do these things affect our cups? Aah...... get the manila.... put one just there

E04 and E05 putting manila paper while some P00 are whispering in the background.

Yes.... then....

The cups?

Yes......

They don't want me to....

Then this side on the cups......we had cups for what?

For cash

Then......and food

Livestock

Livestock

Land

Land

Food produced then there is food available, right?

Yes

Food available

And water

Food produced.... then there is what.... there is water, that's alright?

Inputs

What about land?

Land....... did you write it?

Inputs have been left out

What.... inputs.... okay.... okay, just put a cup on each of these headings (on livestock, land, food available, food produced, water and inputs) .... then you put.... did you get pins?

Yes

Then you pour water in the jug.... you......let us try if it can help us so that.... because some lessons are difficult to explain but if we use practical examples, we can move at the same level.
Yes……aah now here we want to look at each option……these options we have given here, we look at how they affect what……aah how they affect these cups, if we look at this livestock; there are no rains, the way you were explaining on the issues of what? Cash……will it help to have cash or it won’t help? Did you get my question?

P00 - 998 Yes
E01 - 999 Yes…. let us respond
P00 - 1000 It will help
E01 - 1001 It will help. If it will help then we will put a green pin
P06 - 1002 Repeat the question I didn’t get it
E01 - 1003 Okay……aah…. our idea or target is that the cups that side should be doing what?

P0X - 1004 Yes
E01 - 1005 They should be increasing even through the rains are what?

P00 - 1006 are not enough
E01 - 1007 Even if it is not raining now here is a person who has used livestock to say maybe one option I am going to use so that my cup for cash can improve……I will use livestock.

P0X - 1008 selling
E01 - 1009 You have seen, right?

P00 - 1010 Yes
E01 - 1011 So that’s the question to say when you consider these, you will be telling me to say or maybe you will be putting to say, if I do this one…. gardening.

P0X - 1012 That side
E01 - 1013 Where is it going? Will it empty the cup for cash or maybe it can also add here…? maybe it can add on the cup for food…. here also maybe it can add and also there…. yes where it won’t add, maybe this one here won’t do what?

P0X - 1014 It won’t add
E01 - 1015 It doesn’t add
P12 - 1016 It has no effect at all
E01 - 1017 Yes…. so now it is to look at… it is not looking at maybe this year, or maybe… no long-term.

P00 - 1018 In future

E01 - 1019 Yes, to say if we do these in future it will help us so that even children will find to say….

P09 - 1020 Benefit
E01 - 1021 At least to say where our parents left us…….it is okay.

P0X - 1022 Yes
E01 - 1023 Okay…. okay…. yes, have we heard on that one?

P0X - 1024 Yes, we have heard
E01 - 1025 Now let us set for example like livestock

P0X - 1026 Yes
E01 - 1027 Livestock……what are we saying on the issue of cash? Livestock on this cup for cash?

P0X - 1028 Yes
E01 - 1029 Yes, does it help?

P0X - 1030 Yes
E01 - 1031 Okay…. mmhhh…. E02 these might be few

E02 - 1032 I’ll keep looking for more
E01 - 1033 Ooh okay…..so now we will choose. Okay so this livestock

P0X - 1034 Yes
E01 - 1035 Then what about on food available? You said livestock…. you do what? The old woman said you sell then you do what……?

P0X - 1036 You buy food
E01 - 1037 So now when you sell…..

P0X - 1038 You buy food…. a bag of mealie-meal
E01 - 1039 Okay meaning that even here it adds a bit.

E01 - 1040 Okay
E01 - 1041 Then what about on the cups for livestock?

P12 - 1042 it reduces

and

P01

E01 - 1043 It does what?
P00 - 1044 It reduces…… aah…. maybe it will not…. but it will do what?
E01 - 1045 Then what about on land?
P08 - 1046 It reduces
P09 - 1047 No
E01 - 1048 On land, cultivated area…soil fertility

P08 - 1049 It will reduce
P01 - 1050 using?
E01 - 1051 Yes
P00 - 1052 It will reduce
E01 - 1053 It will reduce
P00 - 1054 Yes
How is it going to reduce?

The way it will reduce on….

But now…. wait, wait where is the recorder? Yes….

It will reduce on land, even though there is no rain; it is little but the zeal to cultivate may be there but then if we sell a cow, if rains come even a little we sell the cow…. maybe I have two; I will remain with one, meaning that I reduce on land.

Yes, the cattle will reduce and also that side

Meaning I will not cultivate what……

On land

Ooh we are on land.

She is talking of the pair

A pair

She has rushed to the pair

No, we are saying because land…. those same pictures you have, we were looking at to say the cultivated area, then looking at the fertility…. yes…. so, all these are the stock for what? ….. our land

It will reduce

What reduces there like they have said…… you can only cultivate a small area, two because we also consider manure, maybe you had only two, and you remain with one……the manure also will reduce which you were supposed to take to gardening…. it has reduced. And if you want to cultivate, you will only do a small portion. You had two….and when we are selling, we sell to have a large profit and so we don’t sell a small one, instead we sell the very one that we like, the biggest.

So that you have a lot of money

Yes, so that we have a lot of money. The biggest is what we take to sell then you remain with small ones, which find it hard to pull the ADP.

interpreting what P08 was explaining to E02.
ripping, instead of me using convention, I will just use ripping, after ripping I will start planting alone with my family and also for food. Yes, that is where I was saying land cannot be affected much. Where a cow if for maybe K 7000 like P08 said that we sell the very big one so that maybe if I sell one…… unless if I have sold 2 or 3 – that’s when I can make a loss…… unless if I have sold 2 or 3. Here, one I can use cattle, so now when someone decides to sell a cow, I don’t put it that he has only one but can put it that maybe he has about 5 now among these 5 cows, I can look at there is one remaining alone every time in the kraal and now instead of it to be remaining alone or maybe the one that used to farm, I sell it… the other one will replace the other, so the pair will pair will not be disturbed so I can still manage to sell the other one. It is just the same as home. If I have maybe a car…… if the car is not bringing any money I can sell it and after I sell I will buy another one in future, so now I work hard to say everything at home stabilizes…… I say okay if I had a big car I would sell it and buy a small one so that I can be helping…… if it is a Toyota Noah – I buy we are just moving just like that.

Okay so meaning that we put…… this represents that no effect….. there is no effect.

Food produced…..
Livestock, food produced
When you sell, you sell livestock then……
You can cultivate…… yes you can cultivate and you can produce.
Yes…. because see you sell what…..
Cattle…… then how will your harvest be?
It will be reduced…. you sell
If you sell a cow, to say you are not in a problem
Yes
But if you sell a cow you can cultivate
and remain with only one pair, I don't think you will reach where you think two pairs can cover…. maybe for work I think it will force you to finish the same area…… now in finishing the same crops because you have said one cow, they will not reach…… not all of them will mature. Those that you plant late will do what……they will remain because the rains would have gone, so the harvest will reduce…. it will reduce because you have just planted some crops… because you are told to say you need to plant, you were just thinking maybe it will come, maybe it will come; meanwhile it has gone but if you have two pairs within two days you can finish trying to beat time……that is when maybe you can find profits, if you start selling anyhow meaning you will not see any profits

E01 - 1111  So, you…… you are saying that produced food will reduce?
P08 - 1112  But we are looking at what we started with this side
P10 - 1113  Meaning we are not supposed to sell, right?
P08 - 1114  What?
P10 - 1115  Meaning we are not supposed to sell
E01 - 1116  Yes…. because
P08 - 1117  because selling you can sell but our aim is to have more
E01 - 1118  because it's a long-term process to say……or what of……but we are not saying your answer is wrong no because unless you have 5 pairs of oxen just like the example you gave.
P08 - 1119  yes
E01 - 1120  maybe you get some livestock here but still you manage to plough your hectares because of selling wisely. Not whereby you have only one pair of oxen or two then you get some oxen and sell. That’s were others are saying no because you will not reach you target.
P08 - 1121  but also, let’s not forget the way our lives are, if you have 4 pairs of oxen meaning I will not be the only one to use them at home but we will be many who will use them. So, I get some oxen and sell meaning that I have disturbed that pair of oxen which my family use and that’s why I came up with 4 pairs of oxen, so that everyone can do the cultivation in time.

E01 - 1122  okay so that you do the cultivation fast.
P08 - 1123  yes
E01 - 1124  okay, yah. Now at the same time let’s remember that we are considering the future. So, this is almost the rule to say even our children benefits, we shouldn’t just look at it just for today.
P08 - 1125  yes
E01 - 1126  yes, we should be able to say this one should not be sold anyhow, so that it’s about the future, to say are the cups going to be full when you use that route or option.
P08 - 1127  but now when you sell one cow, you may find that maybe another cow will die of diseases meaning you have lost two cows.
P00 - 1128  laughed and arguing
P12 - 1129  now look at what we were discussing earlier, we looked at the environment, the way we are leaving now, after that we looked at the rains that its reducing.
E01 - 1130  yes continue
P12 - 1131  now when we look at the way the rains are reducing and we continue with the habit of selling cattle, its true when you keep the money nicely it will be more, then this is what food?
P12 - 1132  produced
E01 - 1133  yes, even food can be bought
E01 - 1134  so, meaning the cup for livestock reduces
yes, it reduces. On land that's where there was a problem.

okay

If you don't use manure, it remains the way it is and now if you are selling animals which are supposed to give you manure then there will be an effect. Now when we come to the food we produce you produce, which you take to food reserve agency?

mostly even taking to food reserve agency we use the same oxen and when oxen reduces meaning food produced also will reduce in future.

okay because usually the hectare depends on the number of pairs of oxen you have as others said. So, as we go on and we get this idea even the children will know to say if you are just selling cattle and you are not planning at last you will stop cultivating because oxen will finish, so and… sorry food production will reduce hence making the cup half.

and the habit of selling cattle whereby even the children are seeing…. they will see to say our father has sold a cow and also their time will come to be doing so. And they will say our father used to sell so we can also sell. So, all things are finishing and at the end of the day there will be nothing left for those who are still alive.

actually, when we look at cattle, it's a bank for us with an open check, so cattle can be sold at any time when you have a problem. Now looking at that, when I sell a cow or big oxen, I should strive for a replacement. Its better I sell big oxen and buy a small female cow and the remaining money I use it on something I would need while I replacement is growing and start reproducing. I cannot just sell without replacing because that big ox can manage to buy one small cow and then I use the other money for something else. By so doing at least my livestock will keep on increasing because that's the future and we are looking at the future because if cows finish…… some of us we don't have bank accounts. Our bank accounts are the cow you have, so that's why I say when I sell I should have a vision of how to replace it.

even if there is hunger?

yes, even if there is hunger but I will survive

so, you are saying that it should remain the same?

yes, it should remain the same.

so, meaning on livestock you can put this one

I put it?

yes. So, the lesson we are learning here is that when you sell you should be able to know that you need to replace using part of the money from the livestock you sold.

so that you can buy a small cow.

yes

knowing that you sold big oxen, you then use some of the money and also use the other one to buy. Okay. Now there on water… the rains… any effect caused by selling cattle or livestock in the long term or is any connection with rains when you sell an ox?

doing what?

there is water, right?

yes

there is no connection

as you can see here, there is water.

there is no water to drink

yes, but now we are asking to say when you sell a cow, the idea of selling cattle doesn’t it have an effect on the rains in future?

when you sell a cow?

yes, is there any connection or there is no connection?

the connection is there because when we were discussing, the big man said when you sell, you
must be careful so that you replace what you have sold. Replacing is difficult and he said unless exchanging you bring in a small one so that you are even given some money on top of that which you use that money for other things. And now why they are doing that is because rain is changing anyhow, and sometimes it happens that rains are good but you don't have what to use. When you are just selling anyhow they will finish and when you don't have oxen even if the rains are good nothing will happen. Now the way we are living…… when rains are a problem and we finish selling all the cattle meaning the children will not have cattle because we are talking about long term. So, there is an effect

**E01** - 1169  now you are saying that if rain becomes good in future…
**P10** - 1170  yes
**E01** - 1171  now is it because you sold the cattle that's why it's good?
**P10** - 1172  no, not like that
**E01** - 1173  now that's the question am asking

**P0M** - 1174  okay there is no connection.
**E01** - 1175  there is no connection?
**E01** - 1176  if there is no connection then we are not putting any pin

**P0M** - 1177  yes
**E01** - 1178  now on inputs, in future are you going to manage to be buying inputs when you sell a cow, buying implements like ploughs, cultivator and hoes in the long term?

**P08** - 1179  now meaning they have finished
**P10** - 1180  laughing
**E01** - 1181  what lesson can you give to your children so that they don’t suffer in short? Yes, our mothers there on the issue of cattle you are not talking. What can happen to the implements when you use the option of selling cattle?

**P08** - 1182  when…………
**E01** - 1183  do the implements increase at home or they reduce?

**P04** - 1184  they reduce
**E01** - 1185  they reduce?
there is no link between the inputs and cattle. I can’t accept because it is better buying inputs using cash crops like cotton or any other crop that can give me room to buy a plough than selling a cow so that you buy a plough.

no no…

what we are saying is that if you have many pairs…… four or two then in producing a lot you buy a lot of inputs through two pairs of oxen

okay then if you only have one pair, then the inputs will reduce because this side they would have.……. Because the other pair is sold if you only have one now

okay

no getting the actual cattle to buy inputs

okay in that sense, it is fine. You can help yourself but what is difficult is that the question is considering that there are no enough rains…. Now the rain is not enough and then you buy inputs wont it be a white elephant?

no, because maybe it does rain in bits then you are found you are not…. because it’s about future plans, so you.…. not prepared

yes, you can’t tell

I can sell then I buy if I don’t have

no, we see cattle being affected this side, what about inputs in future what will happen?

yes, the cup for inputs will it increase or reduce?

the cup for inputs will reduce because of the reason we have been talking about that if you have two pairs of oxen obviously. Maybe your target was 6*50kg of seed then when you have remained with two pairs meaning that the target of 6*50kg of seed will reduce because you don’t have what to use to plant, you

only have two pairs of oxen which not adequately enough.

they have reduced

so even the inputs will reduce because…. because the pairs have reduced

the pairs have reduced

okay… okay…. mmmmmm…. Yes.

again, the other way… if the pairs of oxen have reduced, it’s to try another type of cultivating than just relying on pairs of oxen, because they also teach us retention basins….. if you see that the pairs have reduced, it is to make or dig basins and basins help a lot in times of poor rainfall. That’s what they teach us that in times of little rainfall use retention basins.

okay

meaning you have helped yourself……

(E01 explaining to E02 what she was saying, the voice too faint…) so… aaaaaa what she is talking about is that if the other side you are stuck, you need to find another way of doing what……. farming

of going back and she is giving an option that instead of relying on cattle for her it is better to start doing what……. digging basins so that maybe my cup doesn’t do what… don’t completely go dry

yes

maybe also basins can help you in what……?

maintaining the cup for inputs

eeh…. Yes

so, should we put the green one?

what she has said, it is a step?

okay, it’s a step

because the lesson we have found here is that there are different ways or options, now
these options do affect the cup
P12 - 1254 cups are different?
E01 - 1255 yes, they are different
P12 - 1256 other cups are affected and other remain an affected
E01 - 1257 yes, meaning that we don’t need to be selling anyhow but we should always put it in mind that if I do this and that, what will happen to the cups.

P12 - 1258 That here and there
E01 - 1259 so that you look to say, I think this one yes, I will have thousands in future
P12 - 1260 I will be negatively affected in future
E01 - 1261 in that cup, so that you start doing what they have been explaining to say you start in advance that here friends lets us have a small portion, let us do this or that…. yes…. are we together mothers?

P00 - 1262 yes
P12 - 1263 just an addition on this one, the issues were people concerns our lives, now my puzzle currently is that should I sell maize in the field or ox… you have seen……
E01 - 1264 yes
P12 - 1265 so, through this debate and said let’s discuss, others say no that’s why we grow the maize for selling so let’s just sell even though they are still in the field so that we can solve some problems, the cow maybe will not find chance to do what........

P00 - 1266 buying another one
P12 - 1267 buying another one meaning that the production....... it will be difficult for us to do what.......

P0X - 1268 cultivating
P12 - 1269 thinking deeply, to say what am I going to do here in future will it make me comfortable or uncomfortable because life is difficulty.
E01 - 1270 yes
P12 - 1271 so, as we are looking at these cups we really need to be careful not looking into one cup....... you need to look at each and every cup.

E01 - 1272 what he is saying is that before making a decision you need to look at multiple cups. That’s one lesson he is emphasizing.
P12 - 1273 yes
E01 - 1274 okay…… so…. This side how far is the food to be ready?
E02 - 1275 are you speaking tonga to me?
E01 - 1276 no no no…… E01 and E02 busts I laughter..........so let’s do this…… what is supposed to be done?

E02 - 1277 I have an idea
E01 - 1278 okay
E02 - 1279 are you thinking of how to write these...?
E01 - 1280 The activities
E02 - 1281 yaah
E01 - 1282 yes
E02 - 1283 I have an idea
E01 - 1284 so…. aar…. I believe we have seen that the most important lesson as he has explained to say no before we do anything we need to take a serious consideration to say what I want to do .... how will these cups going to be affected? Will it help me that in future? I need a comfortable life or maybe I even become more stack than the problem I’m facing right now.

P00 - 1285 whispering to each other......
E01 - 1286 Yes... yaah.......so... aar....so that’s why it has influenced us to say no before we do anything we need to take a serious consideration to say what I want to do .... how will these cups going to be affected? Will it help me that in future? I need a comfortable life or maybe I even become more stack than the problem I’m facing right now.

P08 - 1287 digging basins
E01 - 1288 digging basins to say.... yes, there are animal diseases maybe they also finish, by that time maybe the knowledge of digging basins is not what......

P00 - 1289 not there
E01 - 1290 is not there, the children don’t do what......

P00 - 1291 They don’t do them
E01 - 1292 they don’t do the basins then the problem hits them. Now we should consider when we are
digging basins that we are not just digging to say maybe it's for a short-term no. where we are going maybe the same plot is the one that will do what……
P00 - 1293 help
E01 - 1294 that will redeem us…… start again, what else?
P00 - 1295 whispering to each other
E01 - 1296 yaar……. the steps are……
E02 - 1297 You write
E01 - 1298 Ooohh……. Okay…. aaah…… now what else should we do so that when you sell you are not affecting those………
P09 - 1303 and
P12 - 1299 re stocking
E01 - 1300 Re stocking
P12 - 1301 that’s it
E01 - 1302 okay…. so, you bare saying re stocking helps the cup not to do what?
P09 - 1305 that it is not affected
E01 - 1306 should not reduce
P12 - 1305 Yes
E01 - 1306 okay…………
P00 - 1307 whispering to each other
E01 - 1308 maybe let me ask in this way…. I have rephrased the question…… aaar… now on that one, exactly what are you saying? Proper management…. we need direct and clear points so that when we are out this workshop I know to say know these in future I will touch here, I want to use this option or step because of this…… you can use it if you don’t have what?
P00 - 1321 cattle
E01 - 1322 Cattle or livestock
P09 - 1323 you rip in advance
E01 - 1324 you are supposed to…. You have said proper management…. what?
P12 - 1325 dipping
E01 - 1326 okay
P09 - 1327 dipping
E01 - 1328 dipping. What else?
P12 - 1329 that one they call dosing
P09 - 1330 dosing
P12 - 1331 giving them medicine
P09 - 1332 yes, that’s dosing
E01 - 1333 what if you don’t have. What do you have to do in order to use that step?
P12 - 1334 you acquire them.
E01 - 1335 but how? how do you acquire them?
P00 - 1336 laughing and whispering to each other
E01 - 1337 yes
P10 - 1338 it’s to go and ask P09
E01 - 1339 okay one step is to ask
P00 - 1340 yes
P09 - 1341 asking
E01 - 1342 okay
P06 - 1343 yes, the way they are expensive, we usually see them
P02 - 1344 they can only give you maybe 1ml
E01 - 1345 yes
P05 - 1346 if you have maybe 6 you need to sell one so that it cures the other 5.
E01 - 1347 okay
P05 - 1348 like cattle, if you have six because maybe you don’t have money and you have seen that all of them seem to be weak, they are all about to get sick, you sell one so that the money is used to buy medicine to cure others.
E01 - 1349 ohh… okay
P05 - 1350 yes
P08 - 1351 this lesson is difficulty
P00 - 1352 whispering…. eeh I was thinking like this because these future minds……
P00 - 1354 yes
E01 - 1355 we have looked at to say as things are getting more difficulty
and we don’t have even a chicken. Meaning, that I should find a way so that…. even these livestock don’t just help in short term but also in future. Meaning if I’m to do a piecework let me do it and after that I do what…. I should buy because that’s my starting point. Maybe I start with chickens, from there maybe I reach an extent of buying a goat, until reach at the point of buying what?

P00 - 1356  cattle
E01 - 1357  meaning in future, 5 to 10 years
P00 - 1358  I have 4
E01 - 1359  yes
P12 - 1361  buying
E01 - 1362  so, you have seen, otherwise life is changing
P00 - 1363  yes
E01 - 1364  what about us, we are preparing, we are talking about option of selling cattle, now do we have?

E01 - 1366  yes, that’s where we are saying, what is it that we should do so that we do what……?

P00 - 1367  we have them
E01 - 1368  we have them, so that our cups do not what?

P00 - 1369  reduce
E01 - 1370  they start improving
P00 - 1371  whispering in agreement with each other
P12 - 1372  because teacher you have started
E01 - 1373  have you heard the question?
P12 - 1374  in a situation that they are already there

P00 - 1375  ohh
P12 - 1376  yes
E01 - 1377  I think there was a misunderstanding
E02 - 1378  okay
E01 - 1379  they were taking the situation to say assuming they already have.
E02 - 1380  okay
P12 - 1381  yes
E01 - 1382  so
P12 - 1383  what if we don’t have…me….  but we should say we don’t have now
P12 - 1385  here starts the issue of charcoal
P09 - 1386  you buy cattle
P12 - 1387  when you sell charcoal, you keep the money
E01 - 1388  so… meaning that…that step… let’s use the same step we see

P12 - 1389  yes
E01 - 1390  One is charcoal burning. The charcoal you do what?

P00 - 1391  you sell
E01 - 1392  then you sell to find cash
P12 - 1393  Money
P06 - 1394  you keep
E01 - 1395  you save
P00 - 1396  yes
E01 - 1397  okay, then?

P00 - 1398  when it’s a lot you buy a cow
P09 - 1399  when it’s a lot you buy a….  E01 - 1400  you buy a cow then?

P06 - 1401  if you are lucky that cow starts reproducing
P12 - 1402  now we come this side.
E01 - 1403  now it’s just buying then it starts reproducing?

P00 - 1404  no. you take care of it, proper management.
E01 - 1405  you do what?
P00 - 1406  you manage it properly
P08 - 1407  looking after….
E01 - 1408  now you mention specifically because when you just say looking after…. What exactly is supposed to be done?

P06 - 1409  taking it out for grazing
P09 - 1410  taking it for grazing is to do what?

P08 - 1411  dipping
E01 - 1412  dipping
P09 - 1413  dipping
E01 - 1414  dipping yes, what else?
P09 - 1415  dipping and de-worming
E01 - 1416  de-worming okay…. so that I think you have seen that for you to reach the extent of what?

P08 - 1417  you start working
E01 - 1418  you are using that step or way we were saying that in times of difficulties, you can do what….

You can sell.

E01 - 1420  yes

P00 - 1419  now what is supposed to be done so that in future we find ourselves in a position that we
have were to touch? on cattle. You can do what?

P08 - 1421 you can pull through
E01 - 1422 meaning that one way is charcoal burning but then charcoals goes to what…. to money, the money you can save, then from saving you can buy after which you start doing what…. it's not just taking the animals for grazing but there is de-worming, dipping

P12 - 1423 so that it reproduces
E01 - 1424 oohh… so that it reproduces
P00 - 1425 yes
E01 - 1426 reproduce okay
P00 - 1427 then you are rich
E01 - 1428 oooh… then you are rich
P00 - 1429 yes
P09 - 1430 that a long time
E01 - 1431 so, you have seen that it’s a long time
P00 - 1432 yes
E01 - 1433 now for you reach at a point where the cup is full, you need to start when?
P00 - 1434 today
E01 - 1435 exactly
P09 - 1436 so, you have seen this one, it has become a process and like teaching a child grade one, two, three ……
E01 - 1437 yes
P09 - 1438 for you to enjoy the money it’s in future when he or she starts working
P08 - 1439 that’s why he said that its preparing other people’s future, you will just eat little from your child you might die, but you prepared him or her.
P09 - 1440 meanwhile he/she have been prepared for his life.
E01 - 1441 so, he is saying that this process takes long to benefit you, you will almost be dying.
P09 - 1442 his/her life would have been shaped already, so that’s the process that we have learnt. Planting musangu trees the ones I used to refuse to say what is it for? So those that had agreed the planting of musangu have big trees in their fields.
P08 - 1443 if I plant now by the time they become big I would have died already
P09 - 1444 this process has helped us a lot
E01 - 1445 okay
P09 - 1446 to think critically when making a decision to say should I do this, there are questions you ask yourself before you do anything so that when you fail you will have no one else to blame but yourself. Thank you so very much for showing us. Because from charcoal we were thinking that it’s impossible and now we know that from these small businesses a big thing can be born.
P12 - 1447 Another important thing
P09 - 1448 even some of our old fathers that’s how they were becoming rich. These cattle…. He tells you a story to say I used to sell maybe tobacco or just something else and then he managed to have a cow but now we are going out of direction due to time that has changed.
E01 - 1449 yes
P09 - 1450 now again, it has changed pressing us to start going back to the old way of life so that we can be rich because now no one can say that he/she is not feeling the pinch. All of us are feeling the pinch, no one is exempted
E01 - 1451 is there any other route? You have seen that this just one way, right?
P00 - 1452 yes
E01 - 1453 we started from charcoal, is there any other routes we can do apart from this step so that……
P09 - 1454 others said growing groundnuts
E01 - 1455 okay growing groundnuts
P09 - 1456 our sisters’ groundnuts… from groundnuts they find a lot of money even a cow they can buy but they only buy clothes.
E01 - 1457 so, he is saying that these through groundnuts you can start doing what? Building the cup so that in future you can have where to do what?
P00 - 1458 where you can touch
E01 - 1459 where to start from (touch) meaning that you save then you buy.
P09 - 1460 then you buy a cow
E01 - 1461 okay
P05 - 1462 and also sewing
E01 - 1463 even sewing?
P00 - 1464 yes
E01 - 1465 ohh okay
P12 - 1466 anything
P09 - 1467 there are a lot of ways even selling flitters
P12 - 1468 yes, then you are saving
P09 - 1469 just from flitters you buy cattle
P12 - 1470 what is needed is just discipline with money.
P09 - 1471 yes, with money
E01 - 1472 yes, can you explain... he is saying that discipline of this... the money, here that they should be discipline
E02 - 1473 okay
P12 - 1474 just there on money, we see people who would start with charcoal, when you come back you look at your friends they are all drunk, the improvement is not there. Again, they burn charcoal until the tires for the bicycles are... the tires finishes. He is not...
P09 - 1475 he is not doing anything
P12 - 1476 doing anything
P06 - 1477 such that even buying a tire becomes difficulty.
P12 - 1478 even buying a tire becomes hard
E01 - 1479 okay
P12 - 1480 so, the most important idea is that when you are doing whatever you are doing you should be considerate of the future. 4 years from now......
E01 - 1481 yes
P12 - 1482 where will I be?
E01 - 1483 yes
P12 - 1484 out of charcoal I can manage to have cattle in the paddock, all these cups to be full is the biggest idea
E01 - 1485 yes
P12 - 1486 not just buying... because there is selling without any reason of selling
P08 - 1487 out of charcoal you bring another wife they become two at home.
P12 - 1488 they become two
E01 - 1489 so, they are saying... giving examples of indiscipline
E02 - 1490 okay
E01 - 1491 that can arise
E02 - 1492 okay
E01 - 1493 Yes.... maybe there is something else.
P10 - 1494 that's where is there is a problem, to say we don't know who can fail to progress but there in one word that I have loved, maybe a question but I think I mention it the way I heard it.
E01 - 1495 yes
P10 - 1496 to say saving because we are talking about the future. just like if I grow groundnuts of course you can't grow them just one season, when you grow produce this year... let's say you raise k800, from this k800 there might be something that is supposed to be done then you say let me just get a k200. Yes, in older days they used to put in small canes but nowadays there is these big canes they call bank accounts, you bank the money in it just like they have said it discipline. Sometimes you face a problem and you know that there is some money you saved, now life becomes difficulty in the end you just decide to say let me go and withdraw because this I'm faced with is a problem too. This is where the word they have mentioned discipline comes into play. It's better to put a rule concerning your money to say when you get…. you need to feel as though you are owing and that you need to return it bearing in mind that this money.......... if you get without returning it means that there is a gap. You need to be troubled not until you return it because what you are looking at is the future, now what happens is that people say since it's me who saved it I will start again saving next time but of which you cannot restart again. When you save make sure that the money you have saved...
you should forget about it. That’s why our friends the whites you find that… some old men we used to see them even the POW can agree with me that when they find money even when a child gets sick they would never get the money to use it. They used to fear and these old men we say that they have charm (they are wizards or witches) that they are something bringing money meanwhile there is nothing. They would rather go and get a credit from someone because they will be forced to return the money to that person meanwhile they have money within themselves. All they want is that the money saved should go for the intended target which is where?

P00 - 1497
the future

P10 - 1498
For example, you save k10 every month by the time 4 years will pass, how much money will you have? You will just go to the bank saying I have money and you buy a cow. Others will just be surprised to say where did he found the money? What am seeing is that we are talking about long term plans.

P01 - 1499
yes, in addition to what he said, nowadays money is nothing if you don’t have a plan. It’s more like gambling where someone comes bets a k5 and in return he gets a k10, so many have become successful such that they even have houses through planning. Knowing to say today whom am I going to give… it bears interest in all the option here if you consider the future. What is important is planning and knowing how you are going to source the money so that you lead a comfortable life. Otherwise the options here are many as long as you know what to do. We do find money but we don’t know how to use the money. We find money but we don’t know where to put it. Are the saving accounts… we don’t know to say where do we save the money from but we only know saving money in the houses. This is dangerous because you are always near the money but if it is at the bank at least he feels lazy… sometimes we undermine ourselves to say I can’t put a k5 I the bank it’s too little meanwhile its money too. The little you save makes a difference, I think what is destroying us in our lives is… eer I think you will forgive me because we are just learning. Generally, we are talking about our lives as Zambians and it’s that what your relative has or your brother you will also count that it’s yours. If your sister has you will count to say it’s yours too not knowing that also the government changed the policy and it says the parents and the children. Now that’s what is opening us to say there is this rule and we know that when one dies you will not get anything because in the past they used to account to say it’s mine. And that’s why we are saying that time is changing; now you have come to open us because some of us were still behind.

P00 - 1500
yes

E01 - 1501
maybe you have something to say that side?

P0W- 1502
talking the background not clear

P04 - 1503
yes, we have learnt something or personally I have learnt something. I have learnt a big lesson because I used to fail to save and I didn’t know, if I find a k10 I used to fail to keep it. I used to be careless knowing that I will find another one not even knowing the ways I will use to find it. so, I have learnt a lesson to say when you find a little amount you should keep it and think of the future that I will use it later. And if not I use part of it and keep the other one. You continue working hard to find more. The most important lesson I have learnt is working hard and when
you do that you find that which you want and see the profit in future. Not whereby when you find something you misuse it because those who become rich..... they become rich even through selling fritters or selling cassava leaves. But some of us we want to say unless I find a 10 million that's when I will buy something of which you may not even find it. Its better we learn to say when you find a small amount you should keep it so that you use it in future.

E01 - 1504
yes, go ahead

P07 - 1505
also, just to add on I have understood this lesson its good and we have known to say when you are keeping money in your house... you should be keeping it so that you use it future because we were thinking that until find a 5 million that's when am going to take it to the bank and so that they keep it for me. Now I have heard that even when I find a k20, k50, or k400 I should take it so that they keep for me instead of keeping it in the house.

E01 - 1506
okay, now........

P10 - 1507
the other thing I saw with us blacks is that we have so many plans, we plan a lot of things while having a little source of money. I can say..... Like we said maybe in a year a person may want to buy a bicycle, I need to buy a motor bike

P09 - 1508
yes, even a motor bike, so now I need to make sure that my child marries, so all things will be plans for one year forgetting that all these things are big. That's what makes us fail because of wanting to do everything in a short period of time and you even fail to do even one thing because of wanting to do everything in a short time. That's what I saw, our friends the whites they say..... Just like the way we are learning to say 5 years' plan, they just say I think in future I need to have this and this is a goal. Because us sometimes we don't have even a goal that's why we just say in a year if I see someone driving a vehicle then I will also think of buying a vehicle and tomorrow I see someone with a motor bike then I say no at kasumbalesa boarder they are saying its 1.5 million a motor bike. So, us blacks we don't think of how I should leave my life no, we always want to do what our friends are doing and getting plans from your friend. It's difficult to implement them. So that's what we are learning to say if you don't have a cow, then you think of having a cow first in future not..... because I see even two are enough. If I want my children to go to school in future, I also should have more cattle such that even when I die the children should be okay and for us to have such plans we fail. Just to plan for 2 or 3 items we fail unless 20 items which we cannot even manage.

E01 - 1510
what of if we do this, when you look at the options, we try to compare these options because the most important thing in this lesson just as you have said it's to look at the future.

P10 - 1511
yes

E01 - 1512
but preparations should start....

P00 - 1513
today

E01 - 1514
yes, now the options we take... let's say two people, this one takes the option of groundnuts and this one takes the option for what...?

P00 - 1515
charcoal

E01 - 1516
now these two options, do they have effects on the cups? Do they have an effect on cash, food, livestock on and land? We have seen that they help so that we buy, right?

P00 - 1517
yes

E01 - 1518
yes, now what effects are there if you just look? When someone starts with charcoal and someone starts with groundnuts and these others start with
selling fish, then now these options how can they… let’s say how can they affect the cup for land?... cultivating, inputs because the first lesson we saw to say these cups are connected so that we see to say... maybe livestock starts dying that is not....... not needed and when you look charcoal goes to livestock and someone starts with groundnuts and maybe this one starts with nesting, is there... when you look at these option is there a way they affect these cups in a way which we don’t want or they are just okay these steps. even on land, there are inputs and food.

yes, they affect some them like groundnuts

okay groundnuts

groundnuts are legumes and when you plant them they have some fertility to the soil.

okay

so that when you plant another crop if its maize, your harvest will be good because they have nutrients to support the crops you planted. They make the soil fertile

okay

the same groundnuts we eat at home. They have nutrients needed by the body.

okay nutrition

yes, nutrition, they are nutritious. We sell and find cash, so it’s in 3 ways. We then come to charcoal.

okay

charcoal.... We learn that number one.... when you burn your charcoal that ashes there it can destroy the land and crops cannot grow well.

okay

number 2 we said that water depends on trees

okay

if trees finish just know that you are creating a desert

there will be an effect on water

there will be an effect on.... But money on charcoal or let’s say no sorry let’s talk about the advantages. Charcoal when sold you can find cash and put in the cups, now where you get the charcoal from.......... no wait a bit, let’s do this....

on those cups let’s start with...

groundnuts

groundnuts, what happens to cash? Does it increase or....?

it increases

should it be full

yes

so, we are on this route, this one, then on the available food?

then on the available food it increases

okay

it increases even here?

yes

okay, then of course on the livestock, we have already put it to say it’s the route heading to that one

then on land

it adds fertility

okay

okay

then the food produced?

it adds

it adds

yes

what of rain... on water?

groundnuts on water...no it doesn’t

okay. What of on inputs?

it adds on inputs

it adds yes

okay now you have seen to say we were saying it adds where it does and that is the groundnuts step or option.

yes

now on these same cups let’s use the route of charcoal.
it increases the cash
then on the...
the available food.... charcoal...
it increases you can buy
okay
you sell and buy medicine for
the livestock
then....... charcoal on livestock
it helps
it helps just the same, meaning
even the on groundnuts....
put water even on groundnuts
put water also there on livestock
it adds
yes
what of charcoal on the land?
no, it reduces
okay
don't put there
so, you don't put?
no
but on food produced?
it reduces
okay it reduces
Yes
what of the water.... on the rain?
it destroys. It reduces
it reduces
okay, on inputs?
it adds
it adds?
yes, if you think well
laughing
so, you have seen two steps but
on the cups the other option in
the long run............
there is nothing that happens
there is nothing that happens?
yes
now, it’s like the other one adds
on........
it adds on both
so now if it’s choosing to say
what will help in future, what can
we choose?
growing groundnuts
groundnuts
yes
now if you use that option what
are you supposed to do so that
things of saying there it adds,
there it doesn’t so that we try to
minimize that problem. What can
we do on this option for charcoal
because we have seen where it
adds and we have seen where
it....
so, where it reduces that’s
where there is a problem and
what can we do so that...
because we are looking at the
future in the coming days.
this one in future, we should
stop it.
laughing
he is saying that in the long run
we should stop that.
I have said that because if we
continue with charcoal, even
your healthy as a human being it
reduces. You end up getting
unhealthy and when you
continue with charcoal you can’t
be physically fit for two
consecutive years; the people
will notice some change with
your body but this one of growing
groundnuts will be a healthy one
and this time pull with our hands.
There is no big labour and they
are nutritious. So, for me I can
say if you have a goal and you
have no other source but you
have a goal once you reach that
goal you should stop.
okay, yes
the other thing is planting
planting...
trees
okay planting trees
yes, because when you cut and
you plant again, it can be good
but if you cut and you fail to plant
them its better you just stop
cutting them.
but in Zambia we fail to plant
even just at home we fail to plant
trees
okay
in Zambia life.......... we don’t
plant
also, it’s not that there on land...
and on that one it’s not that until
all the trees finishes but we are
just talking of this habit. It doesn’t
help on the land and that one
okay
so even if we plant trees and
when they grow still you cut
those trees to make charcoal and
then the land will not benefit also on that one, so the most important is to look for the options which can fill all the cups if it substitutes at the same time you substitute with something.

E01 - 1638 okay
P12 - 1639 yes
P08 - 1640 someone will plant quite alright but again someone will come and cut it still.

P00 - 1641 laughing
E01 - 1642 so now what are we supposed to do? The beginning is different, some there beginning is charcoal burning
P00 - 1643 yes
E01 - 1644 but we have seen to say that the charcoal option in future will bring a problem
P00 - 1645 yes
E01 - 1646 problems yes, what advice can you give because someone will tell you to say but this is my beginning and now as a P00, what are we supposed to do? Because even if you are cutting trees or not but when the problem comes, does it come to one person to say rains are.........

P00 - 1647 no
E01 - 1648 it....
P09 - 1649 yes, so meaning that problem in the near future it will not be only for one person but all of us. So, what are we supposed to do so that those who manage to say their beginning on this one. Now how can we help them so that we fight that, of course they have said planting trees. Now, what can we do so that we start planting trees? No don’t talk in the background speak up.

P09 - 1650 don’t start marking committees there.
P08 - 1651 speak up. Also, the other ways, this same person who is cutting down the trees, you just tell him to stop and try to show him another way of like…. maybe you show him the way or option of groundnuts to say use this method because this one you are in .... look in future you are not the only one who wants to benefit but there are other people we are trying to pave way for. But if you continue meaning that your own children will do what......?

P02 - 1652 they will suffer
P08 - 1653 they will suffer. So, this person is to tell him that no stop cutting down trees.

E01 - 1654 okay, then what of.... okay, maybe there is someone to add before we can speak?

P05 - 1655 the method of stopping them or us from cutting tree for charcoal burning meanwhile for us that’s the stepping stone... you should first start by teaching us not just telling us to say stop you are destroying the soil or causing rainfall to be little because we will feel bad. But if you start by teaching us to say look number one is that your life is at risk by burning charcoal because charcoal burning brings diseases like TB, asthma and not only that but also by so doing the soil is destroyed. So, if you teach him/her they can probably stop after they have found some capital but just to tell them to stop there and then would be worsening the situation.

P00 - 1656 they busted in laughter
E01 - 1657 she is saying that charcoal is her starting point; just to stop them is not an option. What you need to do is to give us the reason and where to start from apart from charcoal burning.

E02 - 1658 okay
E01 - 1659 yes............... P10 - 1660 the issue of charcoal, what I have seen...... according to what others are whispering here, it seems like charcoal burning and farming are almost becoming equal in Zambia because most of the people who are not involved in farming they are in charcoal burning. Now you will find that the chiefs write letters to the headmen telling them to say tell you people to stop cutting down trees, so ever wants to burn charcoal should first go to the
headman to ask for permission. The headman will ask for the reasons as to why that person wants to burn charcoal and mainly they will give good reasons like I want to take my child to school and with that reason no headman would say no. They allow and give a limit of trees that person should cut leaving a reasonable distance between trees. Others will also come with a reason to say I don't have food that one is also allowed to say okay you can burn so that you can buy food. So now you will find that everyone will be coming up with convincing reasons of which that might not be the core reason as to why they want to burn charcoal. What is difficulty for the headmen is that they can't really know to say the money is used according to the reason given by that particular person because they don't see the money. If one is allowed to say you can burn charcoal because of the reasons given to say I want school fees for my child, I want to buy food, but at the end the money goes somewhere else, so its difficulty to strictly stop them. As am talking right now there are rules that come last week from the chiefs which have to be ready to the people concerning the same trees. The rule is that if one is found cutting trees for charcoal it's the headmen who will be arrested. You see how things have changed now? If anyone is found cutting trees for charcoal, that person will be asked from which village he comes from and they will arrest who?

P00 - 1661 the headman of that particular mentioned village

P10 - 1662 the chiefs will say we gave the headmen the rules. What has caused this is because people have taken advantage that this is the easiest way of making money. Everyone is rushing into charcoal burning now just like my mother has said, if it was possible to have the whole team to visit so that they look at this issue of planting trees and tell us to meet at a central place to teach us how to go about planting of trees to say this how to plant and then give us nursery to go and plant. Now if you just tell us to say go and plant meaning we will just be planting mangoes, strawberries which can't be cut, that's the problem. It's better to give us knowledge. As you have seen here we are looking at what...

P00 - 1663 the future

P10 - 1664 the future. Meanwhile they are just quiet while the trees are finishing in the end the land will become a desert.

P00 - 1665 yes

E01 - 1666 okay then now…… aah we believe that it is same as you start little by little. It’s like from grade one…. the lessons continue

P00 - 1666 yes

E01 - 1667 now we have reached at a stage…… seeing that these things involve you and your families. Others involve all the people. The government has a part to play on your social economic life and also the rains under environment, the trees are found where?

P00 - 1668 on the environment surrounding us.

E01 - 1669 the area we live in (environment)…. so, you have seen that no one else will come to improve our lives but ourselves. So now… aah our idea was to look at now that things are becoming hard, what is it that should be done, there are a lot of thing that can be done. Then we also said that after looking at what we can do let’s look at the ways or steps that we chose…. what effect does each have on the cups so that we choose to say maybe this one can help us in a short run but
to our children this one is what...?

E01 - 1671
it's a danger
E01 - 1672
it's a danger but we don't want to end there, we want to look at to say there where there are some dangers what can we do? Let's not say the government or whatever P00 will always sit comfortably the problem will be with whom......?

E01 - 1673
with us
E01 - 1674
Yes... so in short, this knowledge from the time we started to now where we have reached, we have seen the steps that can be taken. You what do you think about this knowledge, what ways can we use so that we try harder to say, now planning... The first lesson was more on the short term but this one is concerned with long term effects. What ways can we use... Or maybe what ways can you implement as individuals or maybe as a P00 in trying to follow these ways so that we can improve our live. Have you heard me?

E01 - 1675
we are looking at... in short, the way forward because us.... we were trying to look at how we can help each other on the ideas looking at the problem that we do what...? And to look at what we do because some feels in the cups while others do not feel in the cups. Now we have seen that if one wants to feel the cups you start saying this year am going to do this. So, what is it that we can put in place together to say maybe this, maybe it is in future, or this year we want to do this so that we try and organize ourselves to start doing what...? So that we start following the steps. If you don't want it’s to put it clear because when we started, we did put a rule to say that lets all be free to talk. Let's talk, if it doesn't make sense let's put it clear that this one no. Us we are on the PF side, this doesn't make sense to say things are just okay.... if they are not okay you say that things are not okay. Let's do something. Am asking on the way forward since we have looked at different pathways of which some pathways empty the cups while others add or feel in the cups.

P00 - 1671
where is the recorder? Yes, my own thinking is that, thank you for lesson one and also this lesson two. It has helped us to screen the problems we have and we have seen. Now my thinking is that the P00 which started with at first that’s the same P00 you have invited again, that's where I thank you because we are on the same level in thinking band on the lesson. I'm thinking that in this same P00 if we try to see the way forward or how the development is, though we have different starting points but among ourselves lets know.... knowing that when you go we will be alone so I was thinking that we each identify a project as an individual. We can be monitoring ourselves on whatever we can be doing that which each one of us registered. We can be evaluating our progress to say how is it going or how far have you gone. So, we chose a project each or we can be in a committee like, so that if one of us didn't get the lesson there must be others to come in and help so that no one fails in his or her project. So that we are able to see what each one is doing, if it's keeping goats, we see how it goes. My thinking is that on our own we identify what to do to say this is what am going to do, if its keeping cattle and see how far that person goes, so that at least at the end everyone will have something done that when you come next time we just give reports to say this is what I did, me I did this or this one tried to do this but s/he failed because maybe he bought a cow but it died. So, all of us we
are monitors to see that there is something everyone is doing. That’s my suggestion.

E01 - 1678 you have heard his suggestion.
P00 - 1679 yes
E01 - 1680 okay, I was just listening I may have forgotten, what he is suggesting is that within themselves they find ways each individually to various projects or targets of what they are planning to do and they start monitoring and then he gave an example to say that okay if maybe……

E02 - 1681 individual options
E01 - 1682 yes, individual options and then for example if its banking or saving towards purchasing of livestock or whatever so that maybe within themselves they can be checking to say how far have we gone and in case we are to come back we, we can report to say this one, this is how far and then this one how far and the like so that’s……

E02 - 1683 now have they said something?
E01 - 1684 no, they haven’t made any comments. So, have you heard what he said?
P00 - 1685 yes, we have heard
E01 - 1686 okay what about your others because the idea……
P09 - 1687 okay let’s say that the idea or why I thought like that is just to help one another because there is no one who is going to get money and give you but these lessons they are giving us are the ones that are going to help us. So that everyone will have to say we agreed about this and you supervise yourself so that you find something. So that at least from these lessons we should not come up with nothing but we should come up with something which you can manage to do. It can be a simple one, it can be in anyway so that at least you show such that next time we move from step one to step two and accomplish that so that you can plan for the next thing and you continue just like that until it’s a way of life. I don’t know.

E01 - 1688 yes, the powers are in your hands not to us. Yes, P0W what are saying?
P01 - 1689 say something
P09 - 1690 is it difficult?
P04 - 1691 I think I like the suggestion that uncle has brought out because now we are learning and we should know that what we are learning should not be left here instead be gotten with two hands. Am so happy because the lesson we learnt last time, we have managed to explain it the way it was. So even here now we have learnt how to prepare the future and for me I’m saying yes to uncle’s suggestion. I have agreed because I started keeping goats. I want to try to learn on how to manage them because they sleep outside now.

P00 - 1692 laughed
E01 - 1693 okay
P04 - 1694 so, I want to learn on how to manage them so that next time I say this is how far I have gone.
P00 - 1695 talking in the background
P01 - 1696 thank you even me am happy on the part of charcoal even though we complain to say it destroys land and rainfall is disturbed. But it has really helped because when I burnt charcoal I found cash and then bought inputs and did manage to cultivate.

E01 - 1697 now the idea of continuing……
P09 - 1698 now the idea is it that you want to continue………..?
P01 - 1699 I stopped
E01 - 1700 no not that…. P09 - 1701 here we are saying that we are talking about preparing future
P01 - 1702 the way am preparing the future is that, the way I have planted well this year and when I sell the produce I can buy even a small cow if I manage and through God’s blessings.

P09 - 1703 no, let’s do this you didn’t get it. they said we have taught you and now the way we have taught you what are you going to do or what plans do you have because
you have learnt. So, I came up with a suggestion to say...so that the knowledge we have acquired is working, among ourselves when we remain let everyone choose the project which each one wants to do. Each one should find a way of developing. If it’s buying a goat, a cow or maybe one wants to save the money to buying something of his or her choice so that in future.... preparing for the future maybe 4 to 5 years from now. We should choose one thing which we can keep or because our source of income... so that's why I said we remain and each one of us chooses a project to do so that when they come, we should just give a report to say from the time you went, from the time you taught me I have bought a cow, me I have bought a goat and I only had 1 goat but now they are 4. That from the lesson I learnt I bought this and if we agree to that idea lets follow it now. When they go we should choose what to do if there is nothing let's remain like this with our problems/suffering because we have received the knowledge. So that's what I'm saying let's agree when they are still here.

P09 - 1711 no, you haven’t heard the point rather you have missed the point. The point is that we are different families here, each one has a family, so let everyone chose what to do so that he/she can help the family and that project you chose is yours.

P08 - 1712 each one his or hers?
P09 - 1713 yes, the project of your own.
E01 - 1714 but maybe in other ways what he is saying is up to you
P08 - 1715 yes
E01 - 1716 because he is not just looking at his family
P08 - 1717 us alone....
E01 - 1718 so, him he is looking at it to say even others like the way we have learnt meaning we should also start to teach others as well. So, it’s like......yes as families but also his idea is that.........

P09 - 1719 but you can’t be a teacher before you learn
E01 - 1720 so that why they are saying that what are we going to do....

P09 - 1721 okay continue
E01 - 1722 so am seeing two suggestions
P0M - 1723 yes
E01 - 1724 there was an idea of....
P08 - 1725 planning as a family
E01 - 1726 each one with the family on one project
P09 - 1727 yes
E01 - 1728 then again there is the idea of teaching the people we stay with.
P08 - 1729 yes, like for charcoal we have seen the effects at the end, so should we just leave them after us we learnt.

P09 - 1730 no
P08 - 1731 so, we need to teach them to say, this which we are doing it’s like this and this.

P09 - 1732 but that’s the beginning of that person
E01 - 1733 yes
that person will stop in future because for now that's his or her beginning. He will stop when he/she reaches at a certain point so that he or she can manage to raise money for that thing which is needed.

we didn't say they should stop because we have different problems, I may have cattle but there is something which I may not have. That person, who might not have a cow, let him or her work towards having that cow. If someone doesn't have a goat let him/her work towards having one. We are different so we can't put a uniform to say let's work for one thing no, but each one should do what he or she can manage, which will help him or her family in future.

explaining something to E02 but it's not clear

because if it becomes something that should be done collectively we will waste time. We will not help ourselves.

have we heard what he was saying? He was trying to say that these are just opening our minds they showed us there on cups. If you get this pathway the cups will do what….? Will be full and after the cups have been filled there must be an improvement to the things that makes the cup full. If there is no improvement, we come to charcoal burning. On charcoal, they have told us that we find cash, sometimes maybe we have problems with rains. So now we look at the future that if we continue cutting down the trees, you do that for many years you can end up getting sick of asthma as others have already said and also the trees will finish hence poor rainfall. So, what should be your plans in working hard? You look at what is causing you to be burning charcoal and remove it because if I buy cattle I can be farming right?

so now each and every person knows that I do burn charcoal, now I should always be thinking to say what is it that is causing me to be burning charcoal. You identify the causes to say this and this then you ask yourself you say that what do I have to do so that I stop? Or this side we grow groundnuts maybe I grow 5 hectares of groundnuts and I run out of money. If I grew 5 hectares of groundnuts, when I sell I will sell and will have money and if I have money will I go and burn charcoal.

no

what causes is not producing enough right?

yes

now they have taught us giving us simple options that are causing the process easy. That we don’t go for charcoal burning. When I grow groundnuts, I will grow many and will not make a loss because I had grown a lot. The same groundnuts you exchange with maize. If you produce about 100 bags, you get 30 bags and exchange with maize the 70 bags that remains you sell. How much do you sell in dry season?

a bag is k150

yes, one bag is about k150, if not it is almost now 150*70 bags…….. So that's what they are teaching us, opening our minds on what we should do so that we can enjoy the benefits in future.

not just ending here

so…. mmmm, us we will wait to hear from you on what way you are going to chose….. aaaah because they are suggesting of self-monitoring

to say each, one and the like, then there was another idea this side that each one is supposed to be told but us we don't have authority to tell you what to do no. Our authority ends here, like we have been doing, giving each
other ideas to say this way…. check here it is supposed to be done like this and that…. yes… so I don’t know what you think. One suggestion… yes…. no, you can talk.

P09 - 1752 you can give your ideas
E01 - 1753 yes, give it
P09 - 1754 how are we going to use this knowledge?

E01 - 1755 yes
P12 - 1756 this knowledge is good. We heard that time when you were saying you don’t give us handouts to say you this one, you here, you only give democracy to someone. When you are done showing each one chooses what he or she can manage to do because choosing for someone is very difficult in most cases. If so on these, you writing to say if things become had what would you do? You have just been opening our minds each one talks just like this one have said, it depends on each and every one who feels that the environment indeed has changed, the rains are not enough, the government policy is there but it doesn’t help us to end our problems, from there, down there, lives have become difficult, now that life has become difficult, what are we going to do? When we come to the government, it doesn’t give us enough help, also the environment we are living in also has a direction. So, each and every individual should find what to do. If they will come, these people who are teaching us, I heard he was saying to say what did you do and what was difficult for you. I was not there last time when learnt this but these review questions were there meaning that they still want to come again. Now my wish is that when they come back to ask us to say now that there are no rains what are you doing? If it’s a garden let someone point it out and say here is the garden I cultivate, the goats are here, life is not difficult than it used to be because we are not just sited to say this life is difficult, after being difficult, there are things that can be done so that it becomes what?

P00 - 1757 become easy
P12 - 1758 becomes easy, because that’s the most important idea so let’s remain and discuss ourselves and promising them that, when you come back you will find most of us, there are ways that we are doing that are making this difficult like easy….. if we just let them go just like that they will not come back, those who teach needs children who listens and understands….. if we just say there is nothing next time you should again come back and teach us and find us at the same level we were, and things will become even more difficult, they will go to Nyimba.

P09 - 1759 yes, we fail, our children..................
E01 - 1760 so, in short eer, when can you inform us to say the way forward is this? Because if we just leave to say, we left them with a task of discussing and then they will inform us to say the plans are here, no we want…… so that maybe you say, give us two days maybe after tomorrow or maybe after one year or even after 10 years, us we will do what?

P00 - 1761 write
E01 - 1762 to say you said after 10 years that’s when you will inform us what you want to do, or maybe after 2 months, because these same research assistants we can send them to say, one or two go there is this issue, they had told us that when they discuss that this is what they discussed, all we want is an improvement of our….

P12 - 1763 our lives
E01 - 1764 our lives
P09 - 1765 The problem…. Each and every one who is here knows his or her problem

P00 - 1766 yes
already me I have known my target to say I will touch there, it’s not something that I should think about…… as you are sited you know your problem, we don’t need to prolong the time on when we are going to inform you. Here each one knows his or her problem, unless you are just refusing, failing on what to do. Again, if it is like that it is a problem that continues in your family.

now we are saying just here where we are, after having lunch, each one should register on the list of projects to say me I will do that, I will buy a goat, me I will work on this, just like that.

yes, that’s true

on the same paper?

yes, on one paper

the name

yes, your name and the name of the project in front of it.

and the project in front

if it’s buying what……. yaah

charcoal.........

tyhey busted into laughter

I write, so out of charcoal another thing should be done

yes, what you will come and see

if me it’s buying goats, P09 — livestock. What you register is what you think of doing. So, we register now so that when you come back, we will also be checking ourselves

the mirror is going to remain

yes, the mirror is going to remain…… when we finish, we will be checking what we are doing, what we wish for is livestock, if it’s buying a plough you register it, if it’s a goat, maybe a hallow, whatever you are thinking of doing we register to say this I will manage. At least just one should be able to point at to say I have done this because it will make a difference. Whatever we will do, we will make a step ahead.

there are the things

it is yours
same time, even if you say there is nothing which is going to be done, for her she said that is not a disappointment, that’s your choice.

P12 - 1801
E01 - 1802
it’s a feedback

P09 - 1803
E01 - 1804
E02 - 1805
it’s a feedback, so she is saying that it doesn’t matter whether she comes or not, the goal....

E01 - 1806
so, you have heard what she has said that the idea is not that you do something because she will come back no.

P12 - 1807
E01 - 1808
yes, because you have learnt and so after learning it has to improve you lives and your children....yes.

P09 - 1809
P10 - 1810
yes, that’s good, we understand we will remain with history that, that white woman who came with Dr. E01 ...

P09 - 1811
is the one who made me be like this.... That’s good.

E01 - 1812
okay, so have we all agreed that we will register?

P00 - 1813
E01 - 1814
yes, we have agreed, alright we will register...? What about the nshima?

P00 - 1815
E01 - 1816
it is ready okay it is ready... okay that’s good

P09 - 1817
E03 organize for a paper

P08
E01 - 1818
but you said it’s to prepare The audience gets concentrated to nshima and the paper; they are just talking almost at the same time

E05 - 1819
P02 - 1820
E05 remain writing as we bring the food

P09 - 1821
all the P0W, nothing like I’m married, each should do his or her.... let the groundnats start giving birth to other things.... each one should have his or her own.....it’s not good that when you go you say, I didn’t do anything

E01 - 1822
what they are saying is that they will write their names

E02 - 1823
okay

E01 - 1824
they are insisting that today we have to go with the list

E02 - 1825
okay nice

E01 - 1826
so, there was a debate to say that maybe....... (some information not clear but he was explaining on what the P00 has agreed upon.) What if we do this, as they are still serving food, you can write on this flip chart then we can go with this.... yes

P08 - 1827
you guys write.... you put our names

P09 - 1828
bring we start

E01 - 1829
us there we are not part of it, that one is yours.

E04 - 1830
you chose who is going to write

P08 - 1831
you the same one you will write for us....

E01 - 1832
do you want to write now or after eating?

P08 - 1833
just now

P09 - 1834
whoever comes up with a project, you register even now others have already decided the projects

P00 - 1835
some of them have already decided on what they will do just now

E01 - 1836
can they all write at the same time? I don’t think we should record this.

E02 - 1837
Appendix 3. Workshop transcription B

E01 - 1 I was saying that we introduce ourselves quickly. I am E01, I work at the University of Zambia in Lusaka; I think most of you know me.
P14 - 2 I am P14
E03 - 3 Let it start from this side
P14 - 4 I am P14
P15 - 5 I am P15
P16 - 6 I am P16
P17 - 7 I am P17
P18 - 8 I am P18
P19 - 9 I am P19 from Mufwambe
P20 - 10 I am P20
P21 - 11 I am P21 from Mufwambe, Chitumbo Village
P22 - 12 I am P22, I stay in Chitumbo Village in Mufwambe. I can say I am a farmer.
E03 - 13 I am E03, I stay in Lusaka
E02 - 14 My name is E02, I hope you remember me; I came……. I work in Norway at the University, I have been working with E01 for a couple of years now and I was here last year and E01 came to Norway and now I am back here, so I think this is great.
E01 - 15 Okay her name is E02, she also teaches at the biggest school in Norway. She had come last year and she said that she believes that you still remember her.
P00 - 16 Yes
E01 - 17 Yes, she has come even this year. Now we are just going to give 2 rules, the first rule is that everyone should follow that rule and that rule is that let us be free in our discussions because we are teaching each other, the second rule is just requesting that when you want to talk just like we do, you talk through the…… through this thing so that it can be going around and whoever wants to talk is P20 this. I do not know if you have heard on this one.
P00 - 18 Yes
E01 - 19 Okay, now in short, I will try to explain the main ideas why we have come…. the main idea why we have come is that…… we have come for the same message of trying to help each other improve our lives, through sharing of knowledge, we will also learn together and for us what we want most is that our lives should be improving, not just now or next year but also these other coming years, so that even our children should find that we are at a better place than where we started from. So, we know that most people do what…… they come maybe with…… or they give you something but for us the main aim why we come is knowledge, then this knowledge…… like today we will look at where we stopped from last time, and then this year we want to add on a bit, I don't know if you still remember the issue of the cups.
P00 - 20 Yes
E01 - 21 Yes, now there is another lesson which we have brought to say from where we stopped last time…… what if we add a bit again, now the idea with these two lessons is just………. it is just that we will move a bit looking at it to say what options can we use so that we manage to improve our lives now and the years to come in future. Now today we will try to look at what we can do, let us help each other together, what can we do so that the goal we want to see to say the options we can get are these so that when we finish the workshop, each one when going back should know that at least we have seen different options and I think for me, I will use this option or maybe this one so that we improve our lives. Like what I said earlier the most important thing why we have come here is the lesson and looking at the use of these lessons, our lives
or our desire is that they improve so that even if problems are to come, if we have knowledge it can be easy because it can make us have more options to use, let us do this. So, in short that is the idea we have come with here. Then also, the program is going to be like this; the first thing is that we are going to remind each other or what do you say in "lenje"? Okay reminding each other.

**P00 - 22**
It is reminding each other

**E01 - 23**
Reminding each other just like that?

**P00 - 24**
Okay we are going to remind each other because some of us may have forgotten what we learnt, some are still remembering, some just remember a bit. So, if we put together what each one remembers, then we will be able to remember the lesson to say it was like this, so that if there are those who did not learn last time, then it can be a chance to learn through the revision so that they also learn, then after that in English they say commercial break.

**P00 - 26**
Yes, maybe after revision or reminding each other on what we learnt last year, then we will have a short break; if there is food we will eat after that we will look at it to say we have reminded each other and we are on the same level to say we have remembered what we learnt. Then we will start the lessons for today so that we continue from where we left last time. So today I repeat once more – we will look at what we can do now which will help us in the coming years ahead because last time we just looked at…… in short, we did not look at it to say what of the years to come, how are our children going to be because of what we are doing now. So, at the end as it is always, when we finish discussing what we are supposed to do is have a group photo so that we who have attended the workshop can be on the photo together. So, in short that is our program. We will start with what we learnt, from there we are going to look at what it is that we want to do, then we will have a break after which we will continue until we close, we will have what……a photo. I do not know if I have explained the whole program well.

**P00 - 28**
Yes, you have explained very well

**E01 - 29**
Okay…. mmmm……meaning that we start……. aah……maybe others have not come, let me ask maybe you have left your wife because this time we want both of you right?

**P00 - 30**
The wife and husband will learn together. Is there anyone who has been left out? Mr. **P20**, have you left her?

**P20 - 32**
Yes, she is committed with something

**E01 - 33**
Okay, are you going to teach her…. you will try… aah yes because if you remember last time you had made a request that even wives should come, yes because sometimes at the barns...

**P21 - 34**
She is coming as we go on… she will join us.

**E01 - 35**
If she will join us, there is no problem...

**P21 - 36**
Okay

**E01 - 37**
We can be very happy……..so aah in starting aah……maybe you do what……E04 put the flip chart, just one…. yes.

**E02 - 38**
This one

**E01 - 39**
No, no……the plain one.

**E02 - 40**
Okay

**E01 - 41**
Yes

**E04 - 43**
The audience laughing

**E04 - 45**
Okay just one flip chart?
Yes....so now the first question; what did we look at that you remember? What we looked at......no-one can just begin with this one... yes what did we learn?

We learnt how to manage maize barns

Oooh okay, storing maize

And also, business

Okay, keeping/storing maize

Yes

Maize, then what else did we learn... business?

Business, yes where we find cash

Okay, what else?

From there we also learnt about the management of land for cultivation.

Okay, livestock

From there we also learnt about the management of land for cultivation.

Okay, livestock

Where we are supposed to cultivate

And fields, right?

We learnt budgeting, how we should budget our farming.

Okay, budgeting.

And also ploughs

Okay implements, what we are supposed to use like ploughs.

Yes

We learnt that if we produce, that is when we are supposed to buy bags

To say if we produce, we buy what......?

We buy these we call inputs.

Oooh... so you are saying that what we learnt is that when you produce, you buy inputs.

Yes, and fertilizer.

Inputs....... yes, so you are saying from producing then you go to inputs... yes what other things did we learn?

We learnt about how to use money.

Yes... we learnt on how to use cash/money.
Okay, after cultivating, all becomes harvest.

Then it takes us to cash

Okay

Then also, food is reserved from the same harvest.

From this same harvest, you have food as well

Yes

Okay... yes, let us add.

Thank you

Okay

The other thing we learnt about is livestock like cattle

To say how can our livestock increase?

Okay looking at our livestock, how they can increase

Yes

How to increase the livestock

Okay

Let me end there

Explain......you want to end just there?

How are they going to increase?

The way livestock can increase

Yes

...... is by managing to keep/source medicine

Yes medicine.

So that they are not affected by diseases

Drugs

And in another way, you can increase them by buying some more.

Oh, buying in English buying.

So, here you are talking about the ways or options of how to increase livestock.

To increase the livestock.

Oooh options to increase livestock

Yes

Okay what else did we learn?

Just an addition on the issue of options to increase livestock

Yes

The other way so that the livestock can increase is by preventing them from diseases, we can say dipping.

Dipping

And again, another way, in the kraal there must be a bull.

Okay......yes

Come and sit on the chair (new member)

Let us think

Yes, let us think, think...... yes......so we learnt...... yes

The other thing

Yes

We learnt about management of water, which we use for cooking.

Okay water, in English water.... yes, looking at how we are supposed to do what?

Use it

Yes

How can we use it?

Okay

We learnt that.... aah water you fetch from the well......

Yes

You put in buckets

Okay so from the wells then put in buckets?

Yes, in the buckets

Yes, in the buckets......

Yes, and that is the water you are supposed to use on that day so that you do not become careless; just pouring water anyhow.

Okay, so that there is no wastage of pouring anyhow?

Yes

Okay, yes what else did we learn? What were we using in our lesson?

What we were using?

Yes

In our lesson we used land, cash

Okay

Implements

Okay

Inputs

Okay

Livestock

Okay

I think that is where I end

Okay, now what of our desire, how was it? Yes, give her. What
Our desire was that all the cups should be full.

Okay, so our desire was that our cups should be full?

Yes

So, in short when we put them again the way you have explained, you said that there was cash?

Yes

Okay, so our cups should be full?

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Yes

Okay, now...... do you remember the main objective so that even those who were not here can....... Learn.

Yes, so that even we who were there.........maybe there is something we forgot so that you......

Remember

Yes, you remember, so there were cups?

Yes

Yes

Now those cups......can you explain the lesson which was there on the cups.

The lesson which was there on the cups was the issue of cash to say what causes the cup to be full of cash and what causes the cup for cash to be half.

Okay

So, we learnt on how to make it full or make it half, what could be the cause and we used water.

Okay we were using water?

Yes

Then how were our desires?

Our desires were that the cups should be full

Now can you show us what we were doing.

Our desires were that this cup should be full of cash

Okay, money meaning cash?

Yes

Okay hold for me, then what other lesson apart from our desires to make sure the cups are full?

The other lesson, we looked at what can make the cups half.

Okay

So, we were explaining one-by-one if for example inputs; we need cash to make sure that there are there.

So, for the inputs to be more here we needed cash?

Yes

Okay

Okay, then those inputs come here on land?

Yes

Okay

Then from there, this water or for the land to produce food we needed inputs.

Then from there, for land to produce more food, we needed inputs.

Okay

Okay

Okay

Okay

laughing

Group discussing in the background

Here it is......you remember that she said that you learnt about things which can make the cup full or half?

Yes half
Now what things did you learn let us say on that one, cash so that the cup is full... what things? Have you heard the question?

Okay, this one explained to say the cups........the ways of filling the cups.

Now I asked to say what ways did we learn which can make the cup for cash to be full?

The ways we can use so that the cups are full?

Farming; the other way we discussed was doing gardening.

Gardening?

Yes, then we also discussed business.

Okay, business?

Yes business.

The other one is livestock; if we have livestock, we can sell.

So that........

Yes, so that we fill the cup

Okay

Yes

Okay, you can add on.

discussing in the background

Because he mentioned two (2) options.

Very true

To say there were ways we learnt which can fill the cups and there are ways, which do what...

Make the cup half.

Make the cup half, now you... you have only mentioned those, which fill the cup.

So now, we need those, which make the cup half.

Yes, we want all the options we did what...

We learnt

Things that make the cup half?

Yes
We learnt that what makes our food reduce is our carelessness and also, us if the husband is not around we like buying different things with maize.

Okay, buying anyhow. Nice food. Yes, just anything. So mostly for the farmers, it seemed like their crops were being destroyed.

Yes, maybe there are other things we have left out here? Like on food? Yes. Yes because bring the recorder, I also throw my idea... yes because for food to be full like this year, it cannot be full because the rains have been poor.

Ooh okay because the rains were very poor?

Nice things, yes you can add And also, what fuels carelessness or what leads to hunger is that if our friends (the husbands) after harvesting we sell to make money, they don't give us instead they take the money somewhere else.

Okay buying anyhow. Nice things, yes you can add And also, what fuels carelessness or what leads to hunger is that if our friends (the husbands) after harvesting we sell to make money, they don't give us instead they take the money somewhere else.

Yes... meaning that we learnt that, men this you make a budget then the money starts going somewhere else then the wives also start saying let me sell some so that I do what... in the end you are hit by hunger.

What... in the end you are hit by hunger.

Thank you, the other thing that makes hunger hit at home is that maybe, you don't have seed and you just plant recycled seed.

Ooh the recycled seed. So, it makes the maize plants not to have power to grow, because they don't have fertilizer.

Yes talking to each other after seeing what is on the chart, the information that they learnt.

Ah... we want you to try and explain to us. talking to each other as the chart is still being displayed on the ground.

Yes, now we want you to explain to us; we explain to each other...... what lessons did we learn? Yes explain. Explaining what is on this chart. Yes, each one to explain... each one adds what has been left out, until we explain all of them.

These are the things we learnt last time....

Now, no bring it here. He is saying that bring the recorder here.

You can start. Here we learnt......
We have just forgotten some, that’s what I have seen……for this cup to reduce.

Which cup?

He is saying you explain on what is on this chart.

Yes, that is what I want to do………. from there is sickness, if death visits the home.

Okay

That is what I have seen

Okay, so sicknesses, and funerals

Makes the cups reduce

Yes, and funerals

Okay

Okay……..yes

The explanation of the lesson

Yes

We will start with money, maybe if we have money we buy inputs, after buying inputs, then we will come to the soil and farm because that is our custom here in the village. When we have water, we go to the soil and cultivate, from cultivation we produce then we have food from the harvested food we budget it by dividing it; some goes for selling and other goes for household consumption.

Okay

When you sell, you have cash; you can manage to buy some things like livestock that can help you find cash, after selling just like that. Again, you can manage to budget the money, so that even at home they can also buy some things needed; now just here there are “push-out factors” that can make you go down.

Okay

In that it starts from money, because it is the one that is used to buy everything, if you do not have money, you cannot produce a lot of food because you do not have it……….the soil will not produce well. If there are floods again, you can do very well but the crops will be destroyed by the floods meaning that you cannot produce enough, then in the same you can work very well so that you even have money but there are uncertainties’ like sickness at home, death – all these are “pull-down factors” in terms of money home.

Sometimes just the climate change; unstable weather conditions also reduce the cup for cash at home.

Okay

Then on the cup for food, what can make it reduce even when you had reserved enough are unnecessary debts; debts that useless can affect the food such that you can be forced to be hit by hunger.

Okay

Then there are animals’ diseases (cattle) at a wrong time. It becomes hard that you end-up getting the same food so that you can sell and buy medicine. This reduces the food at home.

Are we together on that one?

You have already finished, just finish it completely

Okay, is there any other addition? Maybe there is something that he has left out?

An addition that I want to make….

Is on the land; what makes our cups for land to be bad/half……..some reasons have been mentioned already, is the same method/system of farming.

We talked about conservation farming methods, the type of farming that stands the test of time.

So, we discussed that for our cups to be full, we need to be planting some trees that add manure to the soil.

Okay
Then the other way so that we improve the soil fertility so that the cup can be full is if those trees drop some leaves or maybe I end here

No, you can continue

We need to be planting trees that add manure so that the cup can be full; the same trees help on the issue of rain

Rains, okay.

Okay, soil fertility

Okay.... then you had something to talk about.... you were pointing at something on the chart.

laughing

Ooooh.... here the other lesson that we had was on manure.

Okay

That from the same livestock you have you can get and apply on your fields, so that you produce enough food.

Okay

Yes......what else, were there no other issues concerning what.... concerning piecework?

It was there

Yes...... (Laughs).... aha...... you explain how we learnt.

You explain, you are the one with the recorder already at least you have rested enough.

laughing

Was the piecework filling the cups?

The piecework.....

No, you wait...... give her, you give her the recorder, can you explain.

The piecework.... we discussed that if we do not manage to work ourselves, after farming/cultivating very well if we fail to manage the crops, the money which is supposed to fill the cup for cash is given to those that come to weed our crops meaning that the cup cannot be full because our working culture is bad, the same money we give those people for piecework so that they can help us fight the weeds in the field, for the crops to grow, that is what I got from what we discussed.

Anyone with an addition to make? The issue of piecework......you add.

On piecework, we learnt that if we run short of money, we go out to those people that offer piecework; we work and help ourselves at home.

Okay....... have you heard what she has said?

You can go and do piecework and then add on the cup for cash... yes

The other thing we learnt is that we should not overdo the piecework because if we overdo them, money will always be sweet...... we will always just be weeding other people's fields while our fields suffer in the end hunger shall not spare us.

Okay, so have you heard that we should not just be going for piecework and forget about our fields.

Okay so meaning that the piecework is on both sides; it adds and reduces the cup for cash?

Okay.... yes, what else?

The other thing, I can go to crops, the crops that we plant.... we should not just plant one crop but a number of them, so that if our crop does not sell well, the other will and help again on the same crops...... there are crops that build the
body, others protect; this can help us to be planting different crops.

P22 - 427 Yes
E01 - 428 Oooh
P22 - 429 Yes

E01 - 430 Okay…….alright. There is somewhere you talked of trees bringing what?
P22 - 431 Manure

P22 - 432 Rain….. ooh…. what makes the rain to be poor?
E01 - 433 What makes the rains to be poor is us people…… all in the purpose of charcoal burning.

E01 - 434 Okay
P22 - 435 You find that the air over blows for it cannot be held back by the trees, if the trees are there it can be blocked, hence the clouds are put together in rain.

E01 - 436 Okay
P22 - 437 hence, increasing the chances of receiving rains.

E01 - 438 Okay
P22 - 439 So, it is deforestation that causes.

E01 - 440 Okay
P22 - 441 Yes
E01 - 442 How does charcoal burning affect these cups?

E02 - 443 "laughing"
P22 - 444 It increases the cup, now…. again, it reduces the cup.

E01 - 445 Both sides?
P22 - 446 Yes……it gives us money and we lose out on the other side.

E01 - 447 So, in short you are saying that……okay trees, right?
P00 - 448 Yes
E01 - 449 So, you have said trees here bring rain

P00 - 450 Yes
E01 - 451 Then charcoal…..
P22 - 452 Comes from trees
P14 - 453 The trees bring rain and they also bring charcoal, the charcoal brings in cash

E01 - 454 Okay……the charcoal is between….. trees then charcoal…. then money…. So again, when you cut the tree, no rains.
P00 - 455 No rains

E01 - 456 They are saying that when you cut the trees, the rains reduce.

E02 - 457 Okay…… aah now we want to ask like this to say…. what…. because we…. this side you have talked about tree planting, this side you said good management of food at home……all what we discussed that can fill the cups; the question is that which things did you try/did you do from the time we were here to say one I tried this and it worked, this did not work out? Have you heard the question?

P00 - 458 Yes, we have heard it
E01 - 459 Okay, because we want to know to say what worked and what did not to what…. did not work, yes.

P15 - 460 Bring it here
P14 - 461 Or you can start
P21 - 462 For me, trying to make the cup full,

E01 - 463 Yes
P21 - 464 I tried to look for some little cash.

E01 - 465 Okay
P21 - 466 I managed to buy fertilizer and seed

E01 - 467 Okay
P21 - 468 I planted maize wanting to fill the cup, but being unfortunate, the maize did not germinate well and also the harvest was bad, so I failed to fill the cup or to reach it where I wanted, so I changed…. I bought a water pump with the little money I got.

E01 - 469 Okay, water pump?
P21 - 470 Yes, I used it for watering the crops so that I can be selling rape, tomatoes and other different crops.

E01 - 471 Okay
P21 - 472 And it started giving me some indication that the cup can be full but again being unfortunate the water level went down but I am trying to fill the cup and I think it can happen from the garden if I am lucky.

E01 - 473 Okay
P21 - 474 Yes
Now on that water pump; when did you buy it?

It is about a year now

About a year?

Yes

Okay, alright so you have heard what he tried?

Yes

Okay, alright so you have heard what he tried?

It is about a year now

About a year?

Yes

Okay, alright so you have heard what he tried?

Okay

Okay, alright so you have heard what he tried?

laughing while discussing something in the background though not clear

Okay

For me, from the time we learnt...

I saw that farming is becoming a difficult thing for me, because I do not have oxen.

Okay

Okay

Okay, yes let us contribute, even you here, there was……

That is the same one I had together with that one there.

No explain because even you……

Explain

You can explain

For me, from the time we learnt, we also learnt about the early planting.

Early planting, okay.

And seed varieties.

Okay

Because I saw to say this year the rain seems to be little and now what seed am I going to plant, I planted S13 and if I had planted a late maturing seed, I would not have harvested, but now the maize is okay. And I also planted groundnuts and I said I will not take these groundnuts to Soweto to sell and now maybe I will harvest even 20 bags of groundnuts
and the cup for cash will be full when I sell those groundnuts. P00 - 539 laughed
E01 - 540 Okay, thank you. Now what other thing did you do as a group because here it was just the family?
P00 - 541 Yes
E01 - 542 Now from the time we learnt, are there some things you did together as a group?
P00 - 543 Nothing
P16 - 544 From that time when we learnt?
E01 - 545 Yes
P16 - 546 We have never sat to say from the way we learnt let us make a group and then we make some other plans, nothing.
E01 - 547 Okay
P16 - 548 Yes
E01 - 549 Now what did not…… difficulties or challenges or what did not work, what are they or what made some of us not to try so that even on that we have lessons to say ooh what made some not to try maybe is this, this and that.
P16 - 550 You had money but why didn’t you start a business?
E01 - 551 Yes
P00 - 552 Or maybe what made things not to work was this and that. Have you heard the question?
P00 - 553 Yes
P00 - 554 discussing in the background
P16 - 555 E01 - 556 Move back so that these behinds can see
P15 - 557 These are not seeing
E01 - 558 Yes, what made you not to fill the cups? What is it? Maybe there are some difficulties, which you encountered, we do not want just to hear what worked or to say this one worked, this one worked, this one worked. Yes, on that one we have heard, but now we also want to hear on the difficulties to say but for me this did not do what…did not work. Like this he said he bought fertilizer but rains were not good, also he said some money went to buy a pump again, the rains (the water levels) did what?
P00 - 559 Went down.
E01 - 560 Went down. What of some of us? What made us to have some difficulties?
P22 - 561 What made us to have some difficulties is water; the rains because of the drought.
E01 - 562 Okay
P22 - 563 That is what caused us not to do well, like for me talking on my behalf, we talked of the issue of planting many different crops.
E01 - 564 Yes
P22 - 565 Crops I had planted…. and after planting many different crops, I found that I will harvest cotton and food also will be available at home even though there was a drought.
E01 - 566 Okay
P22 - 567 I also planted soya beans a little and that shows that on the part of my family, like food and children to go to school – it will not be a problem but unless these other big things not these small ones, the minor problems.
E01 - 568 Yes
P22 - 569 No, they will not be here at my home.
E01 - 570 Okay
P22 - 571 Yes
E01 - 572 What of others?
P20 - 573 I thank you, the first thing....
E01 - 574 Yes
P20 - 575 After learning
E01 - 576 Okay
P20 - 577 I saw to say I got little knowledge but I managed.... when the rains started falling I managed to sit with my family, my wife, and our children; we discussed to say how we are going to plant in the field.
E01 - 578 Okay
P20 - 579 So now I said let us try to change the crops in the field, where we had planted maize, let us put cotton. Maybe it can do well. Where we had planted groundnuts let us plant maize, maybe it can do better. So, I managed to buy some small amount of fertilizer and seed. I
planted and fortunate enough
the maize did better and also
the cotton, and I think this year
hunger will not attack me and
my family.

**E01** - 580
Okay, now **P0W** have you
heard to say, he started sitting
together as a family so that they
work together and share ideas,
now do you remember that
others were saying selling
maize in small quantities is the
only change or maybe it is just
the same to say these habits
are still the same or who?

**P20** - 581
Here let us say this year when
we harvest, that is when we will
see the carelessness if it is still
there...... how is my wife
keeping/ using food and also
that is when they will look at
how their husbands make
programs because this is the
second year from the time we
are harvesting crops.

**E01** - 582
Yes... let us add..... because
second hand clothes do pass... chitenge materials...
kapenta.... cooking oil.... okay
maybe there is one with an
addition?

**P22** - 583
This year with this poor rain
pattern, we have experienced,
there will be a lot of them selling
second-hand clothes to say just
a gallon......they will be
bringing a lot of good things.

**P17** - 584
But I think there is some
change because getting money
or credit and paying back with
interest (soft loans among
themselves) ... they stopped
doing it.

**E01** - 585
Yes, give her the recorder

**P17** - 586
I am saying there is some
change because before the
lesson, most of the people used
to get soft loans from fellow
farmers, this in most cases
does not help, it pulls down, at
least nowadays most of them
stopped.

**E01** - 587
Okay thank you.... aah....we
have seen that in one way or the
other our actions are the ones
that determine whether our
cups will be full or it does not do
what?

**P00** - 588
.... does not get full
**E01** - 589
So, we can either put an end to
the problem or do what?

**P00** - 590
Bring it

**E01** - 591
Or fuel it......... that is why we
were saying.....really our
goal.... the most important idea
for us is to say your lives little-
by-little should be doing what?
Should be improving...... as the
years go by you start looking at
this cup which needs to be
worked on. Since this year we
have performed this year,
meaning that this year we
should do what........ we should
improve. So that is the main
idea here. Now maybe we can
ask to say, is there anything
else here that we did not
discuss together but it
happens? Because it is not that
we discussed all the pathways,
maybe we had left out some
things, have you heard the
question?

**P00** - 592
Yes

**E01** - 593
As you have seen this one for
charcoal...... we never did
what?

**P00** - 594
It was not there.

**E01** - 595
It was not there, and then now,
is there anything else any
other? Okay aah... maybe you
have any comments? We are
almost getting done with the
first part.

**E02** - 596
I would not qualify to pass a
comment....... I think so

**E01** - 597
Maybe I ask; what caused you
not to gather yourselves so that
you help each other, so that you
can be improving or making
small groups.

**P17** - 598
That idea did not click at all

**E01** - 599
Where is the recorder? You
give her.

**P14** - 600
What made us not to gather
ourselves to make the program
is that we never chose a leader
to say maybe now that the
chairman has said we should do
this and that, we were just on
our own.
Okay what else? Okay……

We were not told that day that we should make a committee

And also, you never told us that we should do that.

Okay, yes now this issue is crucial; that one is very important because our idea once more is to look at the problems that you yourselves and your children in future will find so that at least they say our father left us on a good note such that where we are starting from is better than if they had not done this, so in short the most important idea/goal for us is that we cannot tell you to say go and do this and that, no. we are just sharing ideas just like we are looking at to say this side the charcoal gives you money, this side or maybe in future what will our children do because maybe trees will do what?

Will finish

Yes, but we will not give you to say do this or do that, no. we are just sharing ideas to say let us consider our actions and let us choose the ones that will help us fill our what?

The cups

So….aah maybe as we continue…. aah as we are continuing aah….. again, I can repeat to say…. the lessons…. lessons are just the same; this lesson and the one we are supposed to learn to day and what…. they are the same and the goal is the same about improving our lives…. mmmh…. then because the most important…. aah that we give is this same idea and knowledge. It is not that when we come…. yes, maybe others give relief food, what and what…. For us we have said no… we just give what…. we give knowledge and then that knowledge to you and then also we are learning, now we are both learning….. yes…. so, our greatest wish is that if you see that you have been faced with a problem…. where you can I touch and after I have known where to lean on, will these others be okay, so that we can help each other to say no let us be more considerate of what we do so that our crops cannot go where? Cannot reduce…. eeh the……maybe we go to the second part……I was explaining this and then that…. so maybe we go to the second part…. you give me…. aah…. just this one (wanted another flip chart). I have a question…. eeh you used a very good word in tense, it is what land…..

land does not just mean land, right? What is land?

It is just land

It involves trees, land…

Yes, so we are going to use that same one, land…. now I want…. if I am too fast, you tell me to say there you are too fast so that I go back because now we want to at this lesson…. the whole lesson that we have discussed……. we want to go to another step…. the aspects/areas we see the areas, the first aspect we said land/environment or management in other words, in English we can say environment but we just say land, the second part we are going to look at……….is to look at………. in English they say maybe there are policies but we are looking at the government……now here it is not that there are politics, no! government in the context of…..like here on the issue of government, one thing that we have not talked about that side, last time we talked about FISP, do you remember?

Yes

Yes, meaning that the government also has a part to play in our everyday lives.
And the environment also has a part in our what?

In our lives.

Because in that land everything like trees, charcoal, rain...... all these are found where?

on the land

Meaning that all aspects of our lives are concerned about the what?

The environment

Yes environment, then the third one also concerns life..... the way we live or socio-economic because in life these two...... there is another part to say the way we live, there are businesses, ways of finding money to say sometimes you are faced with a problem like sickness, maybe a funeral; all these concerns in our lives meaning that all these three..... now on the environment, we just want us to look at rains..... we want to look at rains then apart from that, here we will just look at this program called what?

FISP

Now we are going to look at........ not just looking at this year...... our idea is to look what change we have noticed on the issue of rains. Is the rain improving to say when you look you say now children here are going to be okay..... it is becoming okay, or maybe the rain...... the rain pattern is becoming poor and poorer such that maybe it will be worse for our children in future. Then again in this program you will look at this side where we are coming from, how it is, what about where we are going, can you also say in future you will just be smiling because of this program to say this program will be okay in future or maybe you have some sense of worry to say maybe it will become bad...... are we together on that? So here meaning that the scenarios we will just say the situation...... the situation in future not tomorrow but in future that if you have grandchildren, the situation of rains...... when you just think of the rate at which you are moving, now will it be...... will you smile to say things will be okay or maybe you will have a situation...... because there are only two things, or maybe three; it is either you are smiling to say it is fine, maybe you are saying in future things will be worse or maybe even though things seem bad, but I think it is okay...... yes, have we heard?

Now, how do you look at the rains? How can you evaluate it here, what can you put to represent how it will be in future in accordance to the way it is nowadays? And you are going to use the symbols for smiling or maybe you are sad or maybe you will put the one that represents average to say no it is fine.

You answer P17, you are the one with the recorder..... it is to answer then she will write this side.

Who can write for us here on rain? What do you think?

I think it is okay.

Yes, you think that in future things will be fine...... yes

This rain in future there will be nothing at all......last year it left the crops before complete maturity, then again, this year most of the maize were destroyed so in future there will completely be nothing; we are in danger.

We are in danger?

Yes

Mum you can write “we are in danger,” which one are you going to put?

Where are you going? We are learning

I want to buy some tomatoes
You want to buy tomatoes when you are learning?

Then where……

The first one is the one that represents danger.

It is the one for danger…. okay…. we even put eyes…. it is supposed to be big.

Even just like that, so you are saying in future on the rains we are in danger?

The first one is the one that represents danger.

It is the one for danger….. okay…. we even put eyes…. it is supposed to be big.

Even just like that, so you are saying in future on the rains we are in danger?

Yes

Okay, thank you, what about you men on this one; on FISP, the cooperative…… nowadays you have vouchers?

Even there we are in danger; there is nothing good in the future, nothing good.

Okay, you can draw which one?

Where?

Just there on FISP, yes just there. Or just draw that thing.

We are in a fight

Okay we are in a fight on this one. So, what of the livelihood; life…… is it becoming easy to say at least now we are better or is it becoming hard to say nothing will happen? What do you think on that one, the livelihoods in future?

Just let her write.

Okay, thank you, what about you men on this one; on FISP, the cooperative…… nowadays you have vouchers?

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Okay we are in a fight on this one. So, what of the livelihood; life…… is it becoming easy to say at least now we are better or is it becoming hard to say nothing will happen? What do you think on that one, the livelihoods in future?

Just let her write.

Okay we are in a fight on this one. So, what of the livelihood; life…… is it becoming easy to say at least now we are better or is it becoming hard to say nothing will happen? What do you think on that one, the livelihoods in future?

Okay so even now?

Okay so even now?

Okay so even now?

Okay so even now?

Okay so even now?

Okay so even now?

Okay so even now?

Okay so even now?
Bring it (recorder). The other thing I will say is changing of leaders because when there was Kaunda, things were different; Chiluba came, things were different and now today we have these vouchers and in future it will just end like that.

Ooh so....

Changing of leaders or presidents

Okay

Yes

So, you are saying the time for Kaunda it was there?

Yes

Then they are reducing?

Yes

Until now when you are just given.....

Vouchers! Yes

Ooh okay, now why are we saying that life will be hard? Here to say life will be what...?

It will be hard

We have seen to say life will be hard in future because rains are not good, and when there will be no rains in future meaning life will be hard for us farmers also, the government was helping us on the part of fertilizer and now if we are to say an individual alone cannot manage if rains are not good and if the government is not helping.

Okay

So, you find that life will be hard

Okay

That is the point I had too

Okay, maybe there are some additions which are there?

The other addition is that challenges are there on the part of the rains, it is not raining well

Okay

So, when we look in the future, water will be difficult to find.

Water will be difficult, low water, okay continue

Doing gardens....... water will be difficult for us to find food.

Okay

Then people will opt to cut down trees so that they find food and it will also be found that the trees have done what?

Finished

Has finished so life, for us to find food so that we survive will be very difficult.

Okay, now let us do this – give me the cups because you are saying......or let us say this cup should be for what..... for government because you just explained......now what of this cup if it becomes for land, no rains, then you said that land. Now let us use the cups so that we see what is happening

Give us the water. How is our desire on the part of rains? No even just here, so how do you want it to be?

Our desire on the part of rains?

It is that when rains fall well, we find food.... we cultivate our fields

Then you want the cup to be......

The desire is that.....

There will be a problem, trees will finish, and also the government will come in to protect the trees

The desire for rains

What of land? How do you want the land to be? Your desire....

When we come to land....

There will be a problem, trees will finish, and also the government will come in to protect the trees

Yes, now before you go there, what of the desire.

The desire is that....

Okay let us say this is land....

The cup should be full

The land should be there?

Yes, it should be there
Okay, this environment; trees, land, everything should be okay, then on this one we are looking at fertilizer from where?

From government

Our desire is that the government should be helping us with fertilizer so that hunger can be reduced... so let the cup be filled to brim.

8 * 50 kg bags of fertilizer

From FISP... how is your desire?

Our desire is that the government should be helping us with fertilizer so that hunger can be reduced... so let the cup be filled to brim.

Our desire is that the government should be helping us with fertilizer so that hunger can be reduced... so let the cup be filled to brim.

So, what does fertilizer plus land plus water give us?

Good/comfortable life

Good life

Good living, now this is just your desire, now what really happens? Here we have said in future, we should start, where should we start? In future that is what you were explaining... what happens, this is rain, land then it is government, what happen here?

We come to rain

What is happening nowadays is that the rains are reducing

It has reduced

Percentage

So... now the cup will not be filled, because we would have been hit by hunger in the country.

Okay

Because there is poor rainfall

Alright

Farming will be poor maybe food will not be coming from the field.

25... 25%

Should she reduce even more water?

Yes, let us go down even more

Okay, now what happens to the environment?

What is happening on land?
difficult because there will be nothing to do.

Okay so what about this cup for government, FISP? What is happening? Is the cup still full? At what stage are we, will it remain full just like that or what? What... of government FISP packs?

But here FISP is helping in terms of fertilizer but there is something that the government helps with

If it sees that these people are experiencing droughts, maybe floods, dry spells, it manages to help people by bringing maybe some 50kg bags of mealie-meal every month so it will be helping but only a little not fully.

Okay, what if it is not full? Because what I am seeing here is that it is full.

Yes, that is it, if it can be at this level in....

So here will they continue giving you the same way they are giving you now?

So here fertilizer in future....

Fertilizer will be there but not like it is now

Should we reduce the cup to half?

Yes, you can just leave it half way

They want the cup to be filled to the brim.

Aah alright because I was looking at land here, you cut trees.... what makes you cut trees is because of poor rainfall. Now, when the trees are cut, how is the rain pattern?

It will completely go down...

Then it completely goes down

Okay, alright.... maybe there is someone who wants to add on, have we seen here to say you cut trees then the rains reduce, again cutting down of trees have made the rains to do what?

To finish instead of it increasing the cup, it is now reducing it.

Okay alright, maybe there is someone with an addition? What if we look at what we can do.... I hope, I am sure you have seen that the lesson here does not only look at the present or short term plans but it is about preparing for the years to come in future because you can say this time the rain is like this, we should not just prepare to say, okay this year, no we should start looking at what it is that we can do now so that in future if it reduces even more, it should find that we are already prepared.... this is where the lesson is, previously we were looking at preparation in short term but now we are looking at future plans...... yes, so what is it that we should do? here what we are supposed to do so that in future we benefit is planting trees.

Planting trees.... how do you call tree planting in English?

Afforestation

You are right, tree planting in Lenje; we who are dull cannot read the word Afforestation

Oho tree planting (writing it in Lenje)

So that we can be remembering fast.... because you can just remain staring at the word “Afforestation” without understanding what it is...

Yes.... why do we need to plant trees now...? or maybe you wanted to plant after it has finished raining?

Starting now

You start planting now

Okay, we start now, okay.

Trees are supposed to be planted now because we have seen that the rains have become unstable, now when we plant trees, they will help hold
the air then it will start improving.

E01 - 838 So, what will happen now if you start planting trees this side on the land?
P21 - 839 The cup will become full
E01 - 840 Then again…. you can demonstrate
P14 - 841 This is land
E01 - 842 Yes
P21 - 843 Yes, it will go up a bit.
P14 - 844 It should just go up a bit but now full
P21 - 845 Yes, we should be going bit-by-bit
P14 - 846 It will be at this level I think it is better.
E01 - 847 So, if land increases meaning…… what of the rains, what happens?
P21 - 848 Even rains will increase; it will be okay.
E01 - 849 Rain will also increase
P00 - 850 Yes
P14 - 851 Rains…. like this it is fine?
P00 - 852 Yes
E01 - 853 Okay
P14 - 854 At least 719 seed can mature
P00 - 855 laughed
P22 - 856 After planting the trees, we need the rule now
E01 - 857 Okay
P22 - 858 For cutting of trees so that we do what?
P00 - 859 We do not cut the trees
E01 - 860 Okay, there should be rules
P22 - 861 Yes
P21 - 862 The government will now come in.
P14 - 863 The government now comes there
E01 - 864 So, the government should put a rule
P00 - 865 Yes
E01 - 866 Okay, what else are we supposed to do when the rains are few? You said planting trees…. apart from planting trees you said putting a rule
P21 - 867 The other thing we are supposed to do?
E01 - 868 Yes
P21 - 869 On the part of FISP, we should not just wait to say the government should give us.
E01 - 870 Okay.
Yes, but we just live with them, we do not rear them.

We want to make sure that the cup for cash is full. Cup for inputs should also be full. Even if things are hard because the government stopped giving but at least one should be managing. So, what else can you do? You mentioned two things which are lime and manure, yes.

But the chickens for rearing he mentioned and when you have them, you will know to say I am on this stage and I will know to say I should keep chickens for business, if I want to sell, I just get a vehicle and take to Chibombo to sell…… and I will know that I have gained knowledge.

Let us also know that when you do that, it should help you in future so that even if……

There will be no rains

Okay, so you said you have put business, okay, what of here on FISP; fertilizer is difficult to access and you said there is a danger on this one…… even if there is a danger, our objective is that in future, 5,10 or 15 years from now if they say no more FISP, what we want is that our cups should…. 

Be full

So now what can we do so that the cup will be full even if the government does not give us

FISP? Manure is one, what else?

Lime

Lime. The second one…… What else?

Chicken manure

Chicken manure, okay composite manure?

Okay composite, have we heard the question?

Yes

We want to make sure that the cup for cash is full. Cup for inputs should also be full. Even if things are hard because the government stopped giving but at least one should be managing. So, what else can you do? You mentioned two things which are lime and manure, yes

The other thing which we can do, I can say changing of crops so that the soil is revamped.

Okay, changing of crops; crop rotation. Yes, what else? The government stopped giving fertilizer and then at home we need to make sure that there is no hunger, what is needed to be done? Is it just manure, lime, and crop rotation?

The other....

Yes, continue

I can say if you have some livestock

You can sell so that you buy fertilizer

Okay, selling livestock, yes

Planting so many different crops

Okay, planting many different crops

Yes

Okay, maybe there are other things which we have left out….so in short let me repeat the question – you said that when you plant many different crops and you have livestock which you can sell, also you do crop rotation, apply lime and manure, and then hunger can end through these, yes.
The other thing which can help us not to have hunger in our homes.

Yes

We can make blocks.

Okay

You burn them so that people can buy and money will come in your pocket.

Okay, okay alright what of..... yes

If we build a house

Okay

It can help if we build like our friends do

Okay

So that in future.... we are preparing for the future, right?

Yes, the future

Building houses

Okay, building houses

Yes, and we put them on rent

Ooh okay, okay yes, yes so that you become land lords

Yes

Okay, now what of here when you look at the livelihood to say life in future, what does it do?

It becomes hard

It becomes hard, where can you pass, which options are you going to use when livelihood is hard? So, preparation which you need to do now or what options can help us so that even if life becomes hard, you will be saying but at least because of this and that option, yes give him (the recorder) that side.

I think just to add on....

Yes

If we take care of what we have said....... if it means planting trees, we plant

Okay

Then we also put manure in the field, also building houses in town so that we can be getting some rentals.

Okay

Then it can help to make our lives a bit easier

A bit?

Yes, it can improve for our children

Okay, so in short, he is saying all these can come here, maybe there is someone who wants to add on?

The only addition is that.... but it is still there, if we keep many livestock maybe reach even a bigger number, even if life becomes hard, you can still manage to survive by other means, if there is a problem, you get one livestock and sell

Okay, now what of here if water is a problem, if we go back to this, water does what....... becomes a problem then what options can you use? Yes, water is needed...... because here you just said planting trees, selling livestock but also livestock will need water, right?

Yes

Then and doing business

Here we can say the other way is drilling boreholes

Okay to drill boreholes

Yes

Okay, yes, I said if I am fast you do what? You slow me down, so I repeat, that side we saw the lesson for cups, right?

Yes

And how we can do what? We can fill them, now here it is the same lesson. It is just that here we are looking at it to say how can we make the cups full in times of hardships in future and we looked to say land is changing, the way it rains, the trees also....... land is changing, now how do we prepare so that in future the cups should also be increasing even if things are what... are hard. So, it is preparing for the future. Mostly how do you prepare? Do you prepare for the future or you just prepare for the present?

For the future

You prepare for the future?

Yes, so that things are better in future

Okay, because what we mostly want is not just to prepare for 2
or 3 years, no but you should look at it to say the future.

Let us see

Yes, go ahead

I think here also conservation agriculture can work

Okay

We can put it

Here

Yes

Okay, okay maybe there is someone with a contribution? Now if it is preparing, when are we supposed to start, yes?

Preparations must just be continuous

It should be continuous?

I can say preparations for us who are learning can start now

Okay, alright

explaining to E02 in the background and also group members discussing in the background

So, when we started I said we are going to learn then afterwards we will have a what?

a break

Yes, even those who read news go on commercial breaks right?

Yes

Yes, even when you are ploughing, you go where the field ends and rest or have a commercial break.

After the break

So, I think now we will start from where we had stopped from, we will start or we were saying what to do……now we will start from planting trees, then on the planting of trees, what measure are we supposed to follow or what are we supposed to do which can put us on the level where we plant trees say maybe on the field.

Have you heard the question?

Maybe you can come again

As you saw, we said when preparing if rains change we should do what…. we plant trees which is afforestation. Now when planting trees, there is an order to say we need this and that until you reach a point to say we can plant trees, because the idea is that we want to see the steps which we are supposed to do so that you can see that here there is a tree which we have planted, do we agree that there are steps which we need to take before planting the trees otherwise we would have just said let us go and plant the tree and then get……so meaning there are some things which we need to do what……

To do

Yes, so the steps……after doing this, next thing is this then all the steps until we say okay I have planted the tree, because these steps are the ones which will remain if we want to do this, these are the steps to use or step 1, 2, 3, until you plant the trees or what is needed for us so that we can manage to plant the trees. Have you heard the question?

Yes

Okay because, because our desire is that land does what…. is okay. The cup for land should be what…. should be full because that is our goal, then now we will look at from that goal, what we want to do is that we need to do these steps; this, this and that so that when we reach there our land should be…… okay, so what are we supposed to do now so that we manage to do what…… we manage to plant trees so that our goal…… the cup for land should be increasing and going on top. Yes, let us start talking or number one

We need seed

We need seed?

Yes

So…. 
After having seed, we prepare the nursery and plant.

E01 - 1015 Nursery, then?

P22 - 1016 After the nursery, we plant and when they grow we transplant.

E01 - 1017 Okay, so where do you find these nurseries or seed because here we want to know the route to say from here we should go to this step and you said seed from where? We want concrete steps, what you said is okay, now let us add from what he has said, where are we going to find the seed, yes?

P0W - 1018 *discussing in the background*
P16 - 1019 Here let it start first then that is when I am going to come in

P14 - 1020 Where we find them

E01 - 1021 Yes, trees

P14 - 1022 About trees we can see the Conservation Farming Unit (CFU)

E01 - 1023 Okay you see CFU

P14 - 1024 *talking in the background*

E01 - 1025 No speak up and talk through the recorder there

P22 - 1026 Also, from the climate change

E01 - 1027 Okay, organization for climate change?

P22 - 1028 Yes

E01 - 1029 Okay, yes so let us say I start off and go to CFU or Climate Change Organization, then?

P21 - 1030 Even DAPP

E01 - 1031 Okay even DAPP. So, what am I going to get or to do?

P21 - 1032 at DAPP we also find plants

E01 - 1033 Okay, DAPP?

P21 - 1034 at DAPP they have plants and seeds at CFU

E01 - 1035 okay, these...

P21 - 1036 Yes

E01 - 1037 Seeds okay

P21 - 1038 Even those other organizations are found with seeds and plants

E01 - 1039 Okay

P21 - 1040 Yes, so we go and buy from these people

E01 - 1041 It is to go and buy?

P21 - 1042 Yes

P22 - 1043 Like the climate change... because they work for people, they just give without charging and CFU also gives us, but if we go to Golden Valley, they make their own nursery then we go and buy plants

E01 - 1044 So, you are saying that you buy some and are just given others?

P00 - 1045 Yes

E01 - 1046 Okay, okay let us say you buy or you are given, what else is needed? So, step one you said that you go to these organizations, you get if it’s seed or plants and bring them home then what?

P22 - 1047 So, when we bring that seed they give us some plastic papers where we should plant it.

E01 - 1048 Okay

P22 - 1049 We put soil which has manure

E01 - 1050 Yes

P22 - 1051 Then you put in the plastic paper but before that you need to wet the soil, after that you put in that plastic paper and when it is fill that is when we get the seed and plant, like when we talk of the Musangu seed, you need to cut it on top because it takes time to germinate, and when cutting, we use the nail cutter or even just rub it on a stone, then plant.

E01 - 1052 Okay

P22 - 1053 Yes

E01 - 1054 So......

P22 - 1055 Then from there

E01 - 1056 Yes

P22 - 1057 We just give them, 5 weeks to be in the nursery then they will be ready to be planted.

E01 - 1058 Okay, now in short do we all know that knowledge that he has explained?

P00 - 1059 No, we do not know it

E01 - 1060 So, what is needed?

P0W - 1061 It is to learn

E01 - 1062 So, I asked whether we are all aware of what he explained; then they said that they are not really aware of it.

E02 - 1063 Okay

E01 - 1064 Then I asked what we need and they said that it is knowledge. Then that knowledge meaning that you go to get plants from there or if it’s
from DAPP and then after that, that is when you will need knowledge - is that what you said?

P14 - 1065 We need to learn first before we go to DAPP

P0X - 1066 **arguing in the background**
P14 - 1067 Sorry I was too fast, so before we look for seed we need to learn first just like the way we are learning here after learning we look for seed then we plant.

E01 - 1068 Okay
P14 - 1069 Yes
E01 - 1070 So, you are saying first its knowledge?
P00 - 1071 Yes
E01 - 1072 Then after knowledge that is when you go to get the seeds or the plants?
P00 - 1073 Yes
E01 - 1074 Okay
E02 - 1075 Who gave them knowledge?
E01 - 1076 Yes, where do you get the knowledge from?
P14 - 1077 From the people, just like the way we are sited here, we have learnt already
E01 - 1078 No, knowledge…. because this is knowledge about planting what....
P14 - 1079 Trees
E01 - 1080 Okay
P14 - 1081 Because here we are learning that we need to plant trees
E01 - 1082 Yes
P14 - 1083 Now the way we are learning how to plant trees…… we should learn how to find them
E01 - 1084 Yes, now where does this knowledge come from? Who is going to teach you how to plant trees so that you tell them to say what you want is to learn how to plant trees, the knowledge on how to plant trees…….. here do you go?
P16 - 1085 We will come here to P22 because he has the knowledge
E01 - 1086 Okay
P14 - 1087 Just the way we are in groups and like the way you asked us to say did you sit before…. now we will start sitting.

E01 - 1088 Who else gives this knowledge where you can find it, where you get it

P24 - 1089 CFU……. when they call farmers, they teach about these lessons

E01 - 1090 Okay, yes but the CFU gives mainly the Musangu tree?
P00 - 1091 Yes
E01 - 1092 Lessons about Musangu?
P24 - 1093 Yes
E01 - 1094 Okay
P24 - 1095 Jatropha as well
E01 - 1096 Also, Jatropha?
P00 - 1097 Yes
E01 - 1098 Okay, where else can we get the knowledge? What of these other organizations, don’t they give knowledge?
P00 - 1099 They do
E01 - 1100 But why are you not talking? Did we make a mistake to have a break?
P00 - 1101 **laughed**
P14 - 1102 Yes, maybe the cups are too full (jokingly)
P00 - 1103 **laughed**
E01 - 1104 Yes, because you have stopped talking

P00 - 1105 **laughed and passed some comments**
E01 - 1106 Because it is like the knowledge is just from CFU

P22 - 1107 We said from CFU, DAPP, and Climate Change

E01 - 1108 Okay, CFU, DAPP, and Climate Change. Okay so you are saying having knowledge is number one, then number two you get seed, after that you plant

P00 - 1109 Yes
E01 - 1110 then? Yes
P15 - 1111 the second is to plant
E01 - 1112 then that’s all?
P15 - 1113 next is to take care of them so that they don't get burnt with the fire

P19 - 1114 here it is
E01 - 1115 so…. give her so that she talks through that recorder
P16 - 1116 here it is
P15 - 1117 we need to take care of them so that they don't get burnt with the fire
managing them so that.............

they don’t get burnt with fire, okay so.... okay give him

the method of planting trees okay

the first thing we will have the knowledge from the organizations we have mentioned.

okay

the next thing is, when they give us the seed, we need to put them on the nursery

from there we need to look for land where we can plant our trees and that place....

yes continue

that place needs to be prepared if it’s digging basins, we did the basins, if it’s applying manure we should get animal manure and apply. After applying animal manure then we get our plants and plant them, after planting we need to see if they need or the rains are raining or the area is it dirt if dirt we clan the area for plants to grow well and then I think on how we are going to plant them.

okay are we together?

because the idea here, we said the ways..... Where do we start from to say okay where to start from is..... where do we get the knowledge and we see where we can find it? After that we get the seed using the knowledge we prepare where we want to plant our trees. And after planting the trees then we said it’s maintaining them. Okay now how can we know that here, now we have reached where we wanted, land does what......... the cup has reached where it is supposed to be, have you heard my question? I started by doing this right?

now how I’m going to know that I should stop now..... it’s fine.... give him.

for us to know....

yes

our trees will grow to the level where they start giving us profit, if its trees in the field they start shedding off the leaves and when you cultivate you are able to find food. Meaning that we will know that those trees we planted have started giving us profit in our lives.

okay, that’s one way he has mentioned, meaning you are talking of the trees on the...........

field

the field

The other option is that, we can plant trees at our homes or the farm. From which we will be getting some fruits to eat, fruits like bananas, guavas, lemons, and those trees can help us in the part of eating fruits. On the other part is selling if they grow, you can find profit through those trees.

okay alright, so in short you are saying that you can know when you start realizing the profit. Now what if I ask like this, how can you know...... yes, I have started selling and profit is there, now how can you know that trees are enough, I don’t need to plant anymore. Have you heard the question?

yes

because here we said the cup for land is doing what.........?

it’s going down

it’s going down, now how can we know o say now it has done what....... It’s full to say okay, now we can stop planting

Thank you, the way we can know, it’s to look at the land we have

okay

if we manage to plant the whole land meaning you will know to say it’s enough now and in okay now.
okay so you are saying that looking at the land you have

P20 - 1151 okay
E01 - 1152 yes
P25 - 1153 just to add on that
E01 - 1154 yes
P25 - 1155 if the government can help us putting a rule on the cutting down of trees

E01 - 1156 okay
P25 - 1157 these trees that are small now they will grow also those which we have planting will grow. When those we have planted if they grow, also the government helping us with the rule to prevent the trees, meaning that the forest will be okay and we will know that rains will be okay now.

E01 - 1158 okay, okay, okay maybe there is some with some additions? Our mothers what of firewood, charcoal don’t you burn?
P15 - 1159 we just fetch firewood
E01 - 1160 now here we want to look at……you want to say something?
P15 - 1161 no
E03 - 1162 just say what you are talking about
E01 - 1163 yes, just say it
P16 - 1164 she is talking about the phone
P14 - 1165 I think in this program we should be putting rules, you have started making your own meeting again. I thought you are contributing to this, now you are talking about the phone which you are always with.

E01 - 1166 yes, so let’s look……we have seen the options, right?
P00 - 1167 yes
E01 - 1168 number 1having knowledge. 2 you get the nursery, 3 you prepare, 4 you plant, 5 management, and then you will know that you have reached the point you want through realizing profit from your plants and also according to the place you do what?
P00 - 1169 you have
E01 - 1170 yes, you as well look at the land to say how the growth of the trees is so that these which are small they should grow. In short, I think that’s where we have reached, now the question am asking is that what of when you look at the cup…….. can you get this one down talking in the background

E01 - 1171 just leave it just like that, okay give him, so now we want to look at this option you have mentioned here, but I beg you not to get lost, we have seen that before the break, we saw what can be done?
P00 - 1173 yes
E01 - 1174 Now the other one, we want to look at the steps so that when you want to start you know to say this is where I will start from and go to this, from this to this, which are needed so that I manage to do these. That’s where we are; now we want to look at these steps we have out here. What effect do they have to our cups, have you heard where we are?
P00 - 1175 yes
E01 - 1176 yes, because there are steps… give me the cups. There is a cup for inputs, implements and what is here, that’s what is there right?
P00 - 1177 yes
E01 - 1178 yes. There is a cup for cash, then there is land, then on this one there is food available at home, yes then there is livestock, there is livestock…. okay we put water also
P15 - 1179 yes, because water is important
E01 - 1180 okay, the water then there is produced food. Now we want to look at things and when you choose that option to do you should know that is has some effect on the other cups. Let’s not just look at it to say me I will just do this without seeing how it will affect the other cups, now we want to see the option we have chosen, you started buying going to the organization and you acquire knowledge, after that if its buying, you buy
or if they give you plants, you are given. So, these options, how are they going to affect these cups or maybe let’s start bon cash, if a person does this in future how is cash going to be?

P15 - 1181 it will increase
E01 - 1182 you will increase, explain…. I there a bottle of water
E02 - 1183 no, no, not my bottle
P00 - 1184 laughed
E01 - 1185 yes, pour some water if it will add…. or where are the pins…wait ok just put yaah anyway but….. so meaning this option of planting trees in future it can add on the cup for cash, do we agree?

P00 - 1186 yes, in which way and if we agree, where there is a green pin meaning it is increasing. Here it has added, now explain how it increases when I plant the trees…. ooh is this the recorder or it’s the backup
E02 - 1187 no, that the one for backup
E01 - 1188 yes
P21 - 1189 the option of tree planting can add on the cup
E01 - 1190 the cup yes
P21 - 1191 because the trees that are being planted here we find that they are not just trees that will be standing idol, it’s about trees that will benefit us like, selling fruits that they bear
E01 - 1192 yes
P21 - 1193 so that when you sell they increase the cup for cash. From there these trees hold the air thereby improving the rains which in turn gives us money.
E01 - 1194 you stop there…… you said trees increases rain?
P21 - 1195 yes
E01 - 1196 okay you can pour some more water on the cup for water…. oooh it is on this one. So, meaning here they do what?
P00 - 1197 they increase
E01 - 1198 they increase…yes
P21 - 1199 from increasing the water, these same trees increase on the part of food,
E01 - 1200 yes

P21 - 1201 because if you have water, you can manage to produce food because every crop needs water
E01 - 1202 yes
P15 - 1203 you increase the cup….it is just increasing not feeling completely
E01 - 1204 yes, it’s just increasing the cup not feeling it completely
P14 - 1205 where is it improving?
P15 - 1206 it’s here on food available
P14 - 1207 okay on food available
E01 - 1208 yes…. okay because this one, it is just the same, he said if it rains this side meaning that the farming produces food due to the rains being there again, the same tress improves this side on farming
E01 - 1210 yes
P21 - 1211 yes, because when we have rains that’s when we farm
E01 - 1212 okay
P21 - 1213 yes
E01 - 1214 okay you can add, what about…okay…. yes
P21 - 1215 again, these trees do add on inputs
E01 - 1216 yes how?
P21 - 1217 in that when we sell the fruits we get cash and then use that money to buy inputs
E01 - 1218 okay so you get cash after selling some fruits and buy inputs?
P21 - 1219 yes, we buy inputs so that you find food
E01 - 1220 okay
P21 - 1221 yes
E01 - 1222 yes
P21 - 1223 again, these same trees on livestock, they add
E01 - 1224 okay, explain
P21 - 1225 after selling the same fruits, the money that you get…
E01 - 1226 yes
P21 - 1227 the same cash you find you can buy chickens, goats...
E01 - 1228 okay so the same cash you can buy….
P21 - 1229 goats
E01 - 1230 yes, goats or anything else…. you can increase the cup
P21 - 1231 let me leave the floor for P19 to add
someone else to pick it up from where he has left it

if maybe they manage to hold the air so that it can rain

so that you can produce hence managing having enough food...

yes

again, the same trees... to add on the same, they drop leaves which are used as manure and produce food

you repeat that one.

these same trees shed off the leaves which is manure in the field, this makes the crops grow well

okay

so, manure then.... okay

okay now, what of the trees we are talking about.... what kind of trees aaaaah...... the trees, you said there those trees that drops manure, other trees for selling and again there are other trees.... you mention what trees are we talking about

Musangu

ooh Musangu tree, what is it used for?

it is for manure

okay they add manure, what other trees?

there are trees that we need to be planting so that we can feel these cups

the first one is the Musangu tree that they have already mentioned

when the Musangu trees have fully grown they shed off the leaves that in turn adds manure to the soil

from there we have trees that produce quavers, lemons, oranges...

From these trees, we find fruits that we can use for selling to find cash and also for food.

okay

then we have blue gums, you can plant and sell, people can be using on crops and find cash from this.... also from it.

okay.... these are the trees I'm talking about that can help to feel these cups.

okay.... then aaar.... there are, is there another way of doing what.... the way this option reduces the cups to say the cups are reducing to say if you do this. If you follow this option the cup will go down. We have seen that this cup is affected this way if you follow this step right. Now is there a way that this step can reduce the cups or maybe they will be full. Have we heard the question?

Musangu

yes

i.e.

yes.... these are the trees I'm talking about that can help to feel these cups.

okay.... then aaar.... there are, is there another way of doing what.... the way this option reduces the cups to say the cups are reducing to say if you do this. If you follow this option the cup will go down. We have seen that this cup is affected this way if you follow this step right. Now is there a way that this step can reduce the cups or maybe they will be full. Have we heard the question?

yes

we try on this one

okay

we try on this one

okay

again, because there are no trees around, the same trees you cut them down for firewood in the kitchen, so that you can be cooking food, that way also can be used, now if there are no trees, you be careless in cutting these trees meaning that the cups will be going down

okay...

so you guide me, so what you are talking about is that, 1 if you don't take care of them meaning that the cups will go down?

yes

okay, 2, where I didn't get you clearly, cutting down trees for firewood, if you do not manage the trees properly it also

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reduces the cup. Is that what you said?

P20 - 1276 yes, that’s it
E01 - 1277 have you gotten those two areas
P00 - 1278 yes
E01 - 1279 to say if you do not care for them, this same step for, if you don’t take care of the trees, if there is no care meanwhile you are cutting for firewood

P00 - 1280 yes
E01 - 1281 then the net is that it will go down
P00 - 1282 yes
E01 - 1283 okay, yes what other ways? Okay maybe you have a question E02 or a comment but generally the two threats is the firewood if they care for the tree.

E02 - 1284 okay
E01 - 1285 and also, if there is no replanting of them, those practices will drain the cups. Okay any comments?

E02 - 1286 no
E01 - 1287 you have seen that the most important lesson we wanted to look at is that side, we said planting of trees, now we have seen the options of going to CFU. Is it going to make your cup go down no, having knowledge is it going to make your cup go down? No what of planting trees no, what of caring of trees so that they are okay, meaning that this option we have used it will help us in future so that our cups can do what…. I think we are together on that one.

P00 - 1288 yes
E01 - 1289 now if we go to…. to what…. no, it’s okay. Now what I want to ask from what you have seen, what of if we get one again, there we were saying that livestock selling, to say you buy then you go and sell the cow or the livestock or if it’s goats or chicken because of life, the rains do what……. it’s difficult but you want your cup to be full. If you have livestock you can get and sell. Now the question is that, what steps or ways can you take so that you are on that step of selling so that you are on that step of selling so that also the cup can be going up, have we heard the question? Step number 1, the other options was tree planting, the second option was selling livestock, and now for you to have…. have you heard the question?

P00 - 1290 yes
E01 - 1291 yes, so we are going to the next one……. pardon
E02 - 1292 okay
E01 - 1293 yahah
E02 - 1294 to be done together?
E01 - 1295 yes, I think let’s do it together
E02 - 1296 okay
E01 - 1297 in case it brings the dynamics here
E02 - 1298 okay sure
E01 - 1299 yahah, so we are looking at the livestock, we said that time has changed, rains are also reducing but we need to make sure that the cups for food at home should be what… should be there and then we said that one way we can use to fill the cup is selling livestock. So now we want to see what is needed so that everyone here may manage to use livestock, so number 1, where do we start from so that you manage to sell livestock…. yes, our mothers there….yes to start….

P00 - 1300 laughed
E01 - 1301 bring
P00 - 1302 laughed
P14 - 1303 it’s coming here, how you can start making plans on how to sell, you should start first by planning
E01 - 1304 okay
P14 - 1305 now if I sell this cock, how much cash I’m I going to have?
E01 - 1306 okay
P14 - 1307 from there, what do I buy from this cash?
E01 - 1308 okay
P14 - 1309 is the money going to be enough or not?
E01 - 1310 okay
P14 - 1311 that’s all then you sell now
If we come to livestock, for you to reach the point of selling livestock, sometimes it happens that you have a problem and it happens that it's a long distance maybe in southern province. Now, you will look at all the livestock and see if I say a goat is the money going to be enough, meaning that you go for cattle and see which one can be sold. Then you can get that cow and sell it so that you use the cash on that problem. If it's a funeral you have, you use transport after selling that cow. If you have livestock and you are not taking good care of them, you can't sell in future because those things need to be dipping and other things.

If we come to livestock, for you to reach the point of selling livestock, sometimes it happens that you have a problem and it happens that it's a long distance maybe in southern province. Now, you will look at all the livestock and see if I say a goat is the money going to be enough, meaning that you go for cattle and see which one can be sold. Then you can get that cow and sell it so that you use the cash on that problem. If it's a funeral you have, you use transport after selling that cow.

If you have livestock and you are not taking good care of them, you can't sell in future because those things need to be dipping and other things. So, dipping like goats it’s the same just like that, that’s when you can make a program of selling because if you take good care of them they can be more and you can sell. Okay, so him he has given the idea to say what is supposed to be done is taking care of them, now before taking care, like for me I don't have, where do I start from so that I see to say the beginning is this, from this I go to this, from this to this, from here I go there, have you heard the question?

The stages for us to start selling, the first thing we need to find capital. This capital can be found from the food produced, because we are preparing the future. Okay, so you are saying that from food produced you sell then cash you buy. Yes, from the produced food, we will get some and sell. Okay, we get cash and buy one cow or if it's a goat, if it's a cow we should build a kraal where it will be sleeping. Okay, so you are saying that from food produced you sell then cash you buy because those things need to be dipping and other things.
since it's a cow it can be attacked by diseases, so you need to be dipping it.

okay.... Yes

that cow through taking care of it, it will start reproducing

okay

when it has produced, they will be many at home.

okay

when they are many you can be helping yourself to say let me sell this livestock so that the money gotten is used to help myself.

ooh...okay

then,...now...have you heard his explanation

yes

he started to say, when you have harvested well, you sell then the money....

you used to buy a cow

you come and buy if it's a cow or a goat. Yes, then from there you need to take care of where it lives, feeding it, dipping managing it well, then they produce, when they produce meaning that the cup that side doing what?

yes

he started from here (food produced)

he started from food produced now is it every one of us who starts from here (food produced)

no

starting if I don't have cattle then Mr. P21 has, I can go to him and talk to him so that we can be working together

okay

after that, we start working together such that he comes to plough for me

yes

after he has ploughed for me then I produce food

yes

I plough I have food, after that I sell some and I leave some for food

okay

yes

so, some of it you sell and other remains

yes, for food, then?

after I have food, the money that remains I take it and buy a goat or a cow....ok let me just go to cattle I buy a small cow, then again, I continue with Mr. P21

okay

I come back to the same circle

yes, I come back to P21 -, we come and plough, after that maybe the production is sound, again I buy another cow now a big one

okay

then by that time the one I bought last would have grown

ooh so the second round again you buy another one

yes

okay

then from there, aah seeing that now I have a pair of oxen, I tell P21 that you have helped me my friend, now I can start working alone

okay, after the pair of oxen is complete, the hiring ends

because I have bought mine

then you become independent

yes

okay...... after the pair of oxen.... okay....do we all start from cow because you have seen the examples, like this one it just started straight on cattle this one he has just us. He started by working together then when you sell maybe it is maize then you buy a small cow, do we always start from there, mothers?

you can start on chicken

yes explain, you bring the recorder

you explain just there on chicken
you cannot start on the same point, you can explain on groundnuts

don't you sell groundnuts in Lusaka at Soweto market

you explain

no, you can explain

no, you give so that she can also talk

no let the one with the recorder explain....

laughing and talking....

laughing and talking....

you are explaining

you are explaining

you cannot just sit quietly, it is important to at least say something

yes...you can continue

you continue with the program

where to start from. Meaning that, you don't have any desire to see the livestock increase...yes because in life....

you explain like me I have brought a cock

yes, you explain

you are failing to explain, she is listening

laughing

we are wasting time, me am covered

because don't forget that one day you will remain alone. Your husband will do what?

die

so, where are you going to touch, because we are helping each other.

where will you start from, what can you do so that we see to say, even me on the cup for livestock, I can use this option so that I can have livestock. We all don't start from one point, each one starts on a different level but the desire is what...the same to say even me I want.... they will be improving bit by bit.... are we saying there is only......

cattle

the ways to follow for instance you want...when you produce you buy cattle

the other option is, there some organizations like DAPP who gives goats

okay

then what you need to do is preparing where they will be living, after that they will start reproducing and you start selling afterwards, sometimes they give goats, at times it's chickens.

okay

yes, when you are given chickens, when they are ready you start selling. So that's another option

okay... year.... so, all these three have come from our father's side

you mothers

you have just sold a cock

let her explain how she got it....

aar, did I say you give the recorder sure

yes

another way is that when you go to visit, they normally kill a chicken for you and if they give you a live one to say go and rear this one, don't eat that one as well when you get home. You take care of it, make nest until they are many like what I did, when they became a lot, you sell the produced cock. I have money because I sold a cock here and with that money I'm going to buy empty bags.

so, when you are given you take care of I so that it reproduces and there after you sell when they are many?

if we look at these two ways, when you start working together with someone, we start with working together; we will consider these cups like we did on trees

step number 1, to say me I don't have cattle but you have
and I have come so that we work together, then.... what about this step of working together with someone, what influence does it have? Let's start here on cash. Have you heard my question?

P14 - 1451 influence like how?
E01 - 1452 is this cup for cash going to increase or reduce because I have taken the option of...?

P14 - 1453 working together
E01 - 1454 yes, working together
P15 - 1455 it cannot be full because....
P19 - 1456 no use a recorder
P15 - 1457 it cannot be full because I'm working for someone unless you work extra hard with the desire to improve until the Lord blesses you, by luck the cup can be full

E01 - 1458 okay but can it add?
P15 - 1459 adding it can but it cannot the desired goal
E01 - 1460 okay
P15 - 1461 yes
E01 - 1462 so, it can add. Then what of the cup for inputs, seed, fertilizer because we have picked this option of saying you start working with someone. You continue until you reach a level where you buy a cow and the you continue until you buy another cow, now you have your own pair of oxen

P15 - 1463 now you have yours meaning that you have known that fertilizer now I have managed
P14 - 1464 it's okay working with someone as long as you have a plan
E01 - 1465 yes
P14 - 1466 here where I'm I worked with someone, now I have a cow, with these Mr. P19 I'm going to buy another one. So, if you are working with someone, you should know what you are looking for. So here it's all about planning

E01 - 1467 okay
P24 - 1468 working with someone....
E01 - 1469 yes
P24 - 1470 it adds such that you can manage to buy fertilizer and seed. I managed to marry, buy cattle and now I am independent because have my own cattle

P15 - 1472 talking to fellow P00 in surprise
E01 - 1473 yes
P19 - 1474 it is trick working with someone
E01 - 1475 you can explain
P25 - 1476 on working together just like they have explained, like here on fruits, we were talking about planting. These same bananas if you don't have seed you can come and ask you to go and plant. When it produces like this one has produced, you sell and buy maybe it's a chicken, then that chicken when it produces and if there are cocks that are produced, you can get and sell so that you buy seed but you continue working with someone

E01 - 1477 okay
P25 - 1478 you buy seed from a banana
E01 - 1479 yes
P25 - 1480 there where you are working from, they come and cultivate for you, you plant that seed, and the cup will then be full if you have a plan. Without planning you can just be at the same level until the cup completely runs dry

E01 - 1481 yes, anyone with an addition to make?
E03 - 1482 yes, you can add
E01 - 1483 give him the recorder
P19 - 1484 working with someone is okay if you have good plans, some people do it so that they can increase on their labour

E01 - 1485 yes
P19 - 1486 most people can be working so that they cultivate for him a good time especially with the poor rainfall pattern

E01 - 1487 yes
P19 - 1488 but you find that they do not cultivate for him in good time such that the crops are left by rains before they mature. Can the cup be full or it can not?
P15 - 1489 it cannot be full
E01 - 1490 it cannot be full
Because someone you are working with is a drawback, yes there are others who are good whom you can be working with and they cultivate for you in good time, like that it can be full. But others will cultivate for you late such that before the crops can completely mature the rains stop. So, there are two situations on this cup, being full and a reduced cup...these two.

Okay meaning so you have seen that this method you need to be very careful. Meaning when you see that the cup won’t be full you stop. This one you really need to be considerate to say, this method maybe the cup won’t be full or it will do what? It will be full. Yaah... Then we looked at planning. Is important maybe the last one...eerr which one...you were saying......

Okay so you are saying that planning matters, there others with their own implements but it’s difficult to fill the cups. Others don’t have but they manage to fill the cup but other who has fail to fill the cup...so you are saying that planning...if you want to have a good plan, the first thing you need to set goals to say if you want to produce maize, you should have a reason why you want to grow maize. If you don’t know, you will just misuse the money that you get afterwards but if you have a goal it means that your plan is good.

Okay alright.... are we together? Then my question is, I seem to understand that planning is very important. How do we make sure that we plan? Yes, have you heard the question, how do you make sure that you.... that you plan right. Yes, have you heard the question? Okay, she said planning is the most important thing. Now what of this planning, what can you do so that your planning, you are sure that its right?

Because I plan a lot of things but not all of them happen...
yes, her sometimes she plans but there is nothing that does what……?

yes, but she also does what plan, so now what is needed that the plan is successful to say this plan is okay.

planning, if you make a program you should know what to do.

okay

when you make that plan, you should do it, don't just plan without doing it, but if you plan make sure that you do it and you will have what you have planned.

okay, in short have you heard what he has explained to say you should know what you want to do and you should do that which you have planned. Now mostly what makes us not to do what we have planned or what makes us to do according to the way things are planned.

what makes you do that thing is the desire

desire

yes

okay desire continues,

if you don't have cattle you should work hard so that you find what....? You find cattle. If you don't have goats, you should also work hard so that you buy that goat.

okay

meaning that's the desire to find what you want

okay yes what?

pass it that side

because you have seen her question is that maybe you can just be saying planning, planning, yes, they plan, but there is nothing which does what?

happen

happen but why?

bring it, if you plan for something,

yes

you should try by all means that you do it and by trying to do that also lucky comes so that your plans can go through.

okay, so you are saying that if you desire, then you do it, then you will be lucky

yes

now what of if you are not lucky? You have done it but you are not lucky

meaning that thing will not go through

okay, okay alright so in other ways those are the elements and his explanation is that sometimes if you do implement everything according to the plan, if you are unfortunate it might not work out meanwhile you have done everything.

and you see what works for me if I tell someone to be checking that I really do what I said I would do.

so, for her what helps her to make sure that the plans are followed; she gives someone to be checking if it is done yes, has this been done? Yes. Has his been done? Yes. Otherwise your plan........ so, for her that's what she does, checking to say has this been done, has this one done so she gives someone. Yes, what are you saying?

discussing something though not clear

yes

I think it's just okay

oooh its okay

yes, because at times it can happen, it's just like a plan.... when making a plan of what you want to do, some do it alone and those who do it alone sometimes they end up doing wrong things but if you are two at least you can control each other to say let's do this

okay, if you are two rights?

yes, you can make something sensible maybe your friend is suggesting of a wrong thing then you control.

okay, so that why she said this is okay and what you have said
is much better to say if you are two, yes so, she agrees to say if you are two it’s much better and that’s why she said husband and wife you should do what…?

P00 - 1575
E01 - 1576

come both so that when you look at planning, it’s not just what…?

P00 - 1577
E01 - 1578

one person. Because she/he can make a wrong thing so that you help each other so that, that cup need to do what?

P00 - 1579
E01 - 1580

yes, to say maybe you don’t have a cow or a chicken but maybe you can start form groundnuts until if it’s after 10 or 20 years people should start saying that they are the ones who have more cattle.

P00 - 1581
P15 - 1582

and they will start saying that the way that person was, he was poor

P00 - 1583
E01 - 1584

laughed

okay, (E01 talking to E02 and the group discussing as well in the background). Now we want to do this, I want us to separate, each group is going to choose what is to be done and then they will write to say where do we start from……okay we can start from here just like the way we did and then you come and explain to say…or let’s say here there was budget,

P00 - 1585
E01 - 1586

yes

P00 - 1587
E01 - 1588

laughed

if you start from…. until you reach the….

P14 - 1589

there is nothing like P0W alone but we should be mixed.
if you still need some more paper tell us, we will give you but what we want to see is how you can start and where do you start from, and then you can even do two parts to say there are some people who don’t have and where can they start from, also there are those who have and where can they start from. Yes, bit by bit until you reach the desired goal

so, let’s see, are there some things that we can do?

but let’s remember that the idea is for the cups to get full we will start by getting capital

yes, if you produce food, you get some you sell from produced food okay

after harvesting that you get, you sell

it’s just a suggestion because there are different and here they want to record

after selling maybe you get k500 then you take it into business

okay, we said first its food produced, and then from food we get capital

yes, capital and after capital you maybe get a k500 or a k1000

okay cash and how much did you say we will get?

we get maybe a k1000 from the sold produced and that’s when we start here

so, you are saying we get and how much is it in total

okay, let’s say we get a k1000

We get k1000 right?

yes

k1000 okay and we will start a business of how much?

we start a business with k500 and then the other one you use at home.

okay, business here, you start with k500

yes

then what do we order or buy?

what do we get?

okay we buy things for k500. Yes, let’s contribute

yes, here we buy two goats

okay two goats

yes

from k500

I buy them at k500 and then I go to sell at k400 each

then you sell them

meaning I will have a k300 as my profit

then we come to sell

or maybe let’s put 3 goats

okay

yes, so that we start with this small number

then how much do we sell them?

we sell them at k350 each

k350 each and we will have k700 and we sell them maybe at kasumbalesa

now what of transport costs?

yes transport

we will get from the same and we should make sure that .... has is made profit?

yes profit

so here you should do this

yes, so that we find transport

no let’s do this; let’s find the price you mentioned first because the price is the guide. Let’s say you buy each at k250 and sell at k500 each, you have seen, right?

so, its k500 each

let’s put the same k500 as a roughly price so that transport is catered for.

yes, k500 each so that when we remove transport costs then we will remain with that amount, so we should know the amount needed for transport

yes, also for food

yes, also for food and we put the money aside

so that’s business?

no, the cash for business is used already

so, we find k1000 after selling the goats at k500 each

and now let’s say transport cost is k20 per goat or k30 each

okay we remove k30 per goat
yes, per goat
then we say these are the expenses
yes
then we say k30 per goat. Then…….
food
so, we say this is our starter, right?
yes
then we say k30 per goat.
Then…….
food
so, we say this is our starter, right?
yes
total, lunch, and refreshments
add to the transport cost
okay transport cost
yes
okay and how much is that?
k60
okay k60 and then what else?
lunch
okay lunch, now what we are doing here is it for going and coming back?
it’s just goats, right?
yes
now when going as a person do you pay?
oh, we don’t pay it’s just for coming back and then lunch
yes, then lunch how much should it be?
lunch should be k80 so that you buy drinks and other food stuffs from morning till evening
Okay and then how much is the total?
that’s k220
k220 right?
yes
so, we remove from k1000
yes
k1000-k220=780. Then how much remain?
nothing because the total has remained k780
okay, that’s good, so we have found that its k780 when we remove the expenses
yes
so, let’s subtract so that we see the profit
yes, we subtract k500
yes, we find profit so we say k780-k500
we are learning here
he will come he is busy
calculating now, so this is the……. right?
yes k280
then now
so now we go to someone who doesn’t have anything and where does that person start from?
have we finished on this one?
when it’s time for explanations, we will be helping each other.
we explain that we started with this amount and we got this
it’s to say that we started with beans
where have we gotten that one, from k500?
from k500, we buy two goats after that we sell them, after selling they give us how much?
it gives us k1000
takes us k1000, the money…… the expenses we…. can’t we put even this side, for food, this side on food produced because we have produced our own food
we reserve a k500 for food
where is it?
we have not written it just mentioned it that we get from k1000, that’s the reminder which is to be used at home. While the other k500 should continue circulating in the same business
yes sure
where is the other k500 so that we indicate as well here?
the k500 for home use…. you are saying we should indicate it here?
the balance
okay balance here…. balance is k500
then you said we start again for a person who doesn’t have capital
talking about one who doesn’t have…. Where to start business
okay
how can he/she start the business?
because here it was found through growing soya beans first…… we produced and then we came here on capital. Now, the one who doesn’t have…… doesn’t have anything to start a business, how does he start?

The one without anything, don’t have cattle to use

he will start from start by getting from someone on credit

laughing at the idea

uncle, he is supposed to start with a chicken, the smallest.

yes, starting from a chicken then....

how does he arrive at having a chicken for him to start from there?

because those who don’t have here on food produced, they cannot take to cash because maybe even the food they have harvested is not enough. So, there is nothing to sell that’s why he is asking that what about those...

that doesn’t have

yes, what way can they use?

if it like that then let’s go to this

he can start with piecework

piecework

those who cannot get a credit they can do piecework; they give him/her a chicken or something else

what did you say he should do?

we said he can either get money on credit or do a piecework

you can also put piecework and...........

and getting money on credit from AGORA

yes

okay piecework

even from OSAWA, one was just from telling us that she went and got money on credit from OSAWA and piecework too piecework…. then you are saying what kind of work did he do on this piecework?

if it’s a man he cut one ox-cart of firewood

ooh…we just put that firewood, he went and cut an ox cart of firewood

then he was given how much?

these days an ox cart of firewood is k20, from that k20, maybe he cut 10 ox carts

meaning he made about k200

okay we put, one ox cart equal to k20

yes

then you said how many ox carts did he cut?

10 ox carts

10 ox carts

he worked cutting 10 ox carts and he came to earn how much?

k200

k200 then now

he says let this k100 be put aside it’s for food

okay k100 for food… food right, then the k100 that has remained?

the k100 that has remained goes for business, for what business….. so now what kind of business is he going to start with this k100?

it is just fritters here

what about chickens?

what about chickens?

chickens, how many chickens?

even chickens, how much do you sell one chicken?

one chicken is k30, so you will only buy 3 of them
you have never found a chicken at k25 one

you can still put one chicken at k25 each

even for k25 or k30 are found

you can put just like that

there are those for k25 which they go sell at kasukwe. There others who do that

you go to sell how many?

4 chickens

yes, let’s put 4

okay…4 chickens

even going to lukanaga swamps, how did Mumba do it?

yes, even going there (doing business of selling fish is what they are talking about)

4 chickens…. each you said k25

yes, each at k25 so that we have 4 chickens

okay, then how much will one chicken out these four costs?

we sell at kasukwe k50 each

you look for someone to go and sell

so, 4 chickens at k50 each, how much all together?

k200

k200, yes again it goes back this side

sell 4 chickens…. You said selling chicken at how much k50? How much all together?

k200

so, you said 1 is what?

its k50

okay, k50 each chicken and the total money is k200, that’s so?

laughs at…………. that’s all

oh, no, then we come here, he started with what?

no here the program ends

okay we now come here, he comes to this

so, we are saying that when we went to sell, he did not incur some expenses?

he went with a bicycle

he drunk some beer

yes, he drunk some beer

it was just lunch

it is just k20 for beer

okay, other expenses……

lunch

okay, how much for lunch

k20

k20

k20…. k20 then…..

he has problems so he should not eat too much money

yes, he is going through hardships this time

we said, we started with how much

with k100

with k100

is it not that we are getting from k200 so that we find the profit

yes, we remove the k100 he started the business with…….

oho we are adding?

yes, then the expense the money he used for lunch; he remained with k 180, then the order he is supposed to remove some

the profit is k80

so, profit is k80

so, you are saying that we get k200 right?

yes

k200, we started with k100 right?

yes

100+20=120, then you said 80, right?

yes

profit is equals to k80… is there anything we have left out?

nothing that’s all

let’s plan for another one, its better…

like what now?

what we are going to look at?

yes, for trees

laughing

yes, one for trees

yes

you should be done in 5 minutes time, you can continue

let’s talk because the recorder is recording

let’s start from this side…. so, we can go back through what we have been doing so that we can….

if you need another paper we can give you

no, 5 minutes is not much
haa, people here…. oh, okay I have seen now
okay
I thought we have ended on this one meanwhile we come here, I have seen the k500 we started with. It was the starter the profit is not this one here yes, it is this one we came and found this much then you take it back in business you buy at k120 each we get capital and put…. you get capital which is k500 and put, again, remain eating this one no, you buy something even a stool you buy no, we don't like that, before you have generated a lot laughing you first make sure you generate a lot of profit, so this one you can reserve so that maybe you run on loses, this one must be kept intact yes, you keep this one, and then you add with this one, you also do piecework nothing more, 5 minutes it’s okay, 5 minutes is too little yes, you can explain…. it’s done now am being called, let me go and answer yes, you go and answer you call me when it's time for explanations yes, you come back so that we explain (…. Nothing is happening as everyone is waiting for 5 minutes to elapse….)
you who was writing, you know the stages so you’re going to go through what we have been discussing… laughing (Group discussions end)
okay we have all finished, right?
yes, so what are we going to do? Each group is going to explain to us…. they will teach us the same way we have been doing it, now it’s your time to teach everyone here. Each group will be given limited time to teach while the others learn…….
Group 1 (G01) is about to start explaining
let the one who was writing explain or maybe we move in the shade?
yes, let’s move ok maybe we do this, this is group number what, Group 2 (G02)?
yes maybe let’s start with group 1, let’s hear form group 1 they teach us but we should not leave our papers…………
ooh we learn as group yes, so that when they finish explaining here, we go where?
we go to group 2 where they were discussing the issue of landlords from the landlords group?
no from the business group…… yaah………. you can start explaining
aah… what we have done here is that we cultivated, after that we found k1000 cash, from this k1000 we got k500 and did put it aside for use at home. We then started a business with k500 and for it we bought 2 goats which we went and sold them, after selling we raised k1000, from that k1000 there are some expenses incurred. Each goat needed k30 to be transported so for 2 goats k60 was used for transportation. Then transport for the person taking the goats we used k60, lunch k100, so the total expenses we found that its k220, then from k1000 we remove k220 and remain with k780 from which we subtract the capital we started with which is k500. So, the profit was found to be k280.
number 2, we came and did piecework of cutting 10 ox carts
of cutting firewood. From there one ox cart was costing k20 of which from the 10 ox carts we raised k200. Form this money we said no let’s do a business. The business we did was to buy chickens, from k100 of which each chicken was costing k25. So, we bought 4 chickens from the k100. Then these chickens were taken to be sold of which each chicken costed k50, so we managed to raise k200 from the 4 chickens sold. And the only expense we incurred was lunch because transport we used a bicycle…. aaaah… lunch was k20. Now for us to know the profit we added the k100 that we started the business with and the k20 for expense, it gives us k120, and then we subtracted from k200 and found that the profit is k80.

E01 - 1913 okay….. we all have the papers?
P00 - 1926 yes
E01 - 1927 then…. these goats add where… this side on cash, so now am saying the cup for cash has increased. Now what about livestock?
P22 - 1928 it has added because I can buy more goats from the k280. It has added
E01 - 1929 no
P14 - 1930 it has gone down, you bring the recorder here, the cup for livestock has gone down, you don't have any goats that have remained. All of them you have taken them for business
P19 - 1931 from the business that when we come to buy
P14 - 1932 you have money but you don't have goats, right?
P16 - 1933 we are still looking for them
P14 - 1934 yes, you have money but you don't have any goat yet…. let's be together…. like the way I have sold the chicken, where I got it do I still have it or not? I have taken it for business.
P15 - 1935 now that's when we are starting
P16 - 1936 but we have the profit we have realized
P14 - 1937 now there afterwards do you have goats?
P15 - 1938 they will be there
P19 - 1939 there you have money for the chicken you have sold, right?
P14 - 1940 yes
P19 - 1941 what do you want to buy?
P14 - 1942 I will buy something
P19 - 1943 even us this money we want to buy goats
P14 - 1944 but there, it’s not showing that there are some goats that have remained, that’s why he is asking that, on livestock are goats there?
P16 - 1945 so now
P14 - 1946 the goats have been left out
P22 - 1947 the money that we have, the profit meaning that it will bring goats...
P21 - 1948 use a recorder
P19 - 1949 you start afresh
this money which is left, the profit, these are the goats on livestock, this same profit okay now are you taking the whole profit to livestock? yes so how many are you going to buy? here you buy 2, k140 each we just buy small ones for rearing not those ones like the ones we bought for selling. we will buy small ones so that we buy 2 have you seen the lesson at hand, to say when you pick a pathway, each pathway you need to take a serious consideration to say how the cups are going to be influenced otherwise you may just concentrate on cash meanwhile the other cup this side is going where? it’s going down so, as you are removing others should be doing what? should be remaining then…. maybe there is another addition this side on the examples? we have seen that some pathways reduce the cups but they are ok. you only need to be very considerate to say some…. you may find that the whole livestock is what? finished yes, maybe there are any comments? I don’t know yes, you cannot answer on something you can’t understand then what about this side, the other options, the starting point, it’s what its piecework right? yes you started with piecework and then you said what?

this one who ventured into firewood is the one being asked on the cup for cash it is adding but on the land, it is reducing ok, so on cash it is increasing, on land… it’s destroying the ox carts were too many…… laughing oho…. the ox carts were too many yes……… laughing continues the second option, on cash it’s adding, and then on land the water is going down because where 10 ox carts can come from its deforestation, destroying the land exactly okay it destroys yes, it destroys meaning that your children, there life will be worse because what we have done now does not help them in what? in future but have you seen that, the point we have brought in is good, we have now learnt…… busts in laugher so, learning is the most important to say if we do this what about other cups, what’s the effect yes…. okay so what should be done in such situations for us to control the mistake so that land does not do what? so that it is not destroyed? here what is needed is a law that binds the cutting down of trees okay the law
punishing those that would want to continue destroying

ok alright maybe we go to group 2, you have seen the lesson, right?

group 2 the landlords

what we were doing with group 1 is the same

we need to crap for them

she is saying that we crap for them for the work they have done............... okay let's go the other group

let's go teacher

where do you want us to go? Just here, bring the flip chart here.

this is where there is a shade...

where is my lesson plan...?

it was difficult here

so here you were looking at....

Group 2 (G02) starts explaining

group 2 we were looking at landlord so that in future we don't suffer these problems that we are facing. What can we do that can help us in future or our children to say if we die, what is it that can be helping our children. We thought that if we build a house people can be renting it or using in different ways. To be helping our children to have money for school. Now the stages, so that the house is built, we started whit the first step, where can we be getting the money so that this house can be built, we started with the first way that one can build a house. We have looked at the kind of food one would have, he can grow soya beans, maize sunflower, when these crops are all harvested they are put on budget to say how much food I'm going to reserve for household consumption. How much should I leave so that I can be grinding for pigs to be eating? What remains you sell and then the money you keep it to say this money should be used to build a house so that in future it helps me. We find this person has money now, in having money, you look for a place where you are going to build the house from. is it here in where I'm living now or is it at 4 ways or Chibombo where there are lot of people so that people can quickly admire it and use it. This person has found a plot and after finding the plot, from the money he has found after selling harvested crops he hires a brick layer so that he measures how the house should be. Then from the same money he puts some aside so that he can use it on working, then depending on how he has made the budget whatever money is remaining he buys materials so that the house can be put in place.

From buying this.... there we finish the house. Maybe it is in Kabwe, Chibombo or anywhere where there are a lot of people, there are people who are working but they don't have where to stay so they can admire that house and rent it in. the money comes where? The money comes to fill in the cup for cash at home. Then after this house has filled in the cup because this person is a business man, he is a farmer he again gets the money and uses it to buy inputs because the children are still young to start using the money. Here we are talking about the future, he buys inputs he plants and produces food, we then come back to food which he put in the budget and uses it in different ways. The way he can think of using it, he can get cash and come to feel the cups for livestock when the tenants pays, he then buys inputs. So, this means that if one manages to build a house, the house doesn't get sick neither rotting, tenants just exchange the house meaning
that children can endure hardships like we have seen. Then again, we find another person who doesn't have where to start from, one who hasn't reached a level where he can produce but not enough to reserve and sell some food, all he can do is produce and leave the food for consumption. Sometimes it is even difficulty to produce enough food for consumption, so here is a wife, they say don't just sit the chickens are cheap now, that one your grandfather gave you, it produced come and get 2 cocks and sell at k50 each. Go and join OSAWA, he gets his cocks and sell he raises a k100, he goes to OSAWA. What OSAWA does is that they give you money that is bigger than the amount you saved, what is important is that you need to use the money that you get so then you can be able to pay back with the interest required, if in this group he raised the money through selling chickens, after selling these chickens, he managed to buy 1 bag of seed because he is a person who doesn't have money. So that seed he plants in the CF basins where he had put cow dung, when the rains come the maize grows. Well the he produces and raises a k400, he pays for FISP and they give him 4 * 50 kg bags of fertilizer, he then cultivates and he reaches at a level of producing enough food for consumption and be able to sell some. When he reaches at that level, it means that he also in the position to build a house that will be giving him money so that children can use in future. This is where we have ended.

E01 - 2013 ok anyone with what to say?... Now can you manage to, is it within the same year...... the money that will be realized from food can you manage to build within one year of producing?

P00 - 2014 no

E01 - 2015 it can take years..... if it is years what is needed because in the years there are uncertainties that befall us. You just find that on the foundation you are stack. What is that which is needed because this side you said it takes years

P21 - 2016 yes

E01 - 2017 meaning you continue with the same process until the money becomes a lot such that if it is a house each year it is improving........

P21 - 2018 What is needed much is a proper budget, the house is in the program, when you find money you need to put it in proper budgeting, the other money you use on the other side so that you manage to produce food, the other money at home

E01 - 2019 ok maybe there is someone with an addition?

P19 - 2020 my addition......my addition is that days are not the same, you may manage to source money to start with, and then the following year you may fail to source any money to build a house. So, at that time, the days of dying catches up with you......laughing

P16 - 2021 but here he started with farming

P19 - 2022 yes, but farming doesn't mean you will be doing well every year till the house finishes no

P16 - 2023 yes, then you run to business, so that you it can move

P15 - 2024 but still here you are not preparing for yourself but your children

P19 - 2025 yes, but the children would not have reached at the stage of building a house

P14 - 2026 if time to dies catches with you, it’s to die... busts into laughter

P00 - 2027 laughing

E01 - 2028 yes, you can repeat that, what are you saying?
we are talking about food, these crops we produce we don't just produce maize, in case there is a drought such that all the crops die, as a farmer we plant different crops like soya beans a hectare of cotton, a hectare of sunflower not just maize, then in the same if you have not produced well, if it's maize the house can be on standby and you concentrate on the side where you have failed you say let me first produce food so that I continue building that house.

ok I think one important thing he has explained here is that, every year you are revolving at the same point, and then little by little you are what? depending on the money you have even alone you need to be disciplined.

now so that you can manage, what is the most important thing to do here?... yes, because maybe it will take 7 years for the house to finish. What is it that you really need to do? it's to build something you can manage not a very big house that you fail to finish it. yes, now what should you do so that you become a landlord? what is needed here, we are different in levels, don't start a very big house, you first start with a small one so that maybe it is 2 rooms then that's when you can start a big one.

ok alright.... so what else mothers are you saying you can manage to be landlords it the husband is getting and taking.... for beer drinking then you also, you buy chitenge materials while the plan is there, you start being wasteful, are you saying you can succeed? no so, what's needed here? not being wasteful what is needed is doing what is right thank you, what is needed is working together as a couple in the house okay working together, cooperation.... but.... now for you to start working together what should you do? there is a question here, on where we talked about cooperation between couples. Now what about us who are not married.... should we also just be disciplined?

maybe let's start with the same question to say, you who are married, how can you work together, in what ways? working together you can manage to work together but we talked about maybe there is carelessness so for you to work well you need to remove what?

how do we remove carelessness? yes, yes, how do we remove carelessness, you find that each one is doing it secretly yes, how do we remove carelessness? yes, how do we remove carelessness.... get the recorder, mine is not started yet you just get the recorder and explain what you think, why is it
not finishing, are you not working together?

P14 - 2068 you explain we here
P15 - 2069 the reason we have not finished the house yet is because of carelessness because they don't give us enough money, so let me also get a tin and sell.

P17 - 2070 then how do you remove carelessness?

P15 - 2071 how to remove carelessness, all we need is togetherness and agreements
E01 - 2072 okay, in discussions not in budgeting
P15 - 2073 in all things
P14 - 2074 if we want to build a house with my husband
E01 - 2075 yes
P14 - 2076 we sit and discuss on the design of the house, the amount of money and other expenses. So now my dear let's be careful in the way we use cooking oil, eating well we can reduce
E01 - 2077 okay
P14 - 2078 so that we manage to build, so, me as a wife, I will be able to understand because he has put things clear, the way the money should be used. Now we come to the wives, I'm going this side, am going to buy cement but this money is little, the wives comes in and say I also want to go, how do you go when the money is little. The money you are going to use for transport can be used to buy a bag of cement. So, carelessness starts. Friends building needs cooperation in thoughts and actions so that you become a landlord, you need to be united people of God.

P22 - 2079 discipline is important
E01 - 2080 oohh discipline is needed
P22 - 2081 yes, when handling money
E01 - 2082 ok discipline.... ok, have we heard how she has explained?
P00 - 2083 yes
E01 - 2084 she said togetherness in both thoughts, in actions and bring things on the table so that even your partner can know how you are giving. So that he prepares to say this kapenta you want to give someone, don’t give them the whole gallon, but just a little because we are also going through tough times because we are building that side. But if you are not discilined at the time you find some money you use you will have a plan but nothing can do what?
P00 - 2085 that can happen
E01 - 2086 yes, then I wanted to ask about SILK, how do you call it, SILKU is it there?
P21 - 2087 OSAWA yes, it's there
E01 - 2088 why is it called OSAWA?
P17 - 2089 yes OSAWA
E01 - 2090 ok OSAWA what do they do, when did they start?
P17 - 2091 it first started in 2010
E01 - 2092 ok it started in 2010
P17 - 2093 yes, is started in 2010
E01 - 2094 so, what do they do?
P17 - 2095 we save money
E01 - 2096 okay you save money....so from the time we started no one told me that you save money, so maybe even that saving is important even when it is only a little.... yes, you can continue
P17 - 2097 Yes, we save, like we are sited here, it can be one group, then a member contributes maybe it is k50. Then this money they add together, maybe it adds to k1000, so whoever wants to get on credit, in same k1000, you get and every month k100 at the interest rate of k25
E01 - 2098 okay
P17 - 2099 yes k25, per month k25
E01 - 2100 okay
P17 - 2101 yes, then every month we meet to save, again every month there are people who get on credit and do business. That's how business started.
P15 - 2102 what about the end of the year?
P17 - 2103 at the end of the year, it depends on how much money each member has managed to save then you share the money.
E01 - 2104 okay
in October we share it, now it depends on how much each one saved with his/her interest

P17 - 2105 okay
P17 - 2106 yes
P15 - 2107 then they go and buy inputs
E01 - 2108 ok, then that side you go and buy inputs
P15 - 2109 yes
P14 - 2110 then you come on land
E01 - 2111 okay then eeeh...... as we are coming to the end of the lesson, I’m sure you have seen that the purpose of the lesson, there are three parts, there is an aspect of environment, a part for.................
P19 - 2113 government
E01 - 2114 the area for the government and the part for social economic life. Then all these aspects centres on these whether hard or easy, it is centred on these aspects. Then we looked that in future things will be hard, now we have come or help each other by sharing ideas so that we prepare for the time yet to come. Then from there we looked at the ways to say what ways can we put in place so that in future we’ll be ok or maybe for our children to be okay. From there we looked at these options to say these options are different, some do fill the cups and other cups are reduced. Then we said we should check the options you have chosen or ways you have chosen so that the cups should not be going down because our idea is to go up or improve so that even if we come after 2, 3 or 4 years and ask to say where have the cup reached, you should say at least for us its better. If is the house, you say its maybe on window level. Okay that’s it. So, for us that was the idea because when we came last time, it was just a short-term planning but now we are looking at the future or the years to come.

E02 - 2115 said something though not clear
E01 - 2116 yah
E02 - 2117 laughed
E01 - 2118 she has reminded me that the group two we didn’t do what......
P15 - 2119 yes, you didn’t clap for us
P00 - 2120 laughed while clapping
E01 - 2121 yah, thank you very much, now we want to give you a home work because we we have done our work and we have thought, it’s up to you the way you have seen to say if life is becoming easy or maybe the FISP is okay, cash becoming more or its opposite. Now the question we have is that from here what options do you think to do and by us asking like that we don’t mean you should tell us to say nor for us the way we have learnt so we think of doing this and that no. if you think of not doing anything its fine with us we will not feel bad. Just tell us that we don’t think of doing anything. It doesn’t mean we will not come back, but we may come back and ask you to say why did you say that you don’t think of anything to do after you learnt? And also looking at the options, you can use because if you wait for the government to improve your lives it will take time because now they have introduced the voucher system and maybe they will........
P00 - 2122 they will finish
E01 - 2123 and then the children will need to go to school, meaning we should improve our lives ourselves. So, in short what we are asking is that what is the way forward for you who have learnt from the time we started? What do you think? Have we heard the question? So, if you want to answer you can answer and if there is nothing which you are thinking of just tell us to say we are thinking of nothing....... yes, you can tell us to say yes
we have learnt but there is nothing we are thinking of.

P20 - 2124 thank you for all the lessons you have taught us

E01 - 2125 okay

P20 - 2126 I think it can help to improve our lives, now our wish is that you should continue visiting us don’t go for good so that you keep on reminding us where we are lucking behind, thank you

E01 - 2127 okay, now you what........... because you said we should continue visiting you, now we continue visiting but now you, what do you want to do and that’s where there is a question to say its 2 years, even last year we were here right?

P00 - 2128 yes

E01 - 2129 yes, now what do you want to do and that’s why we were asking to say what challenges did you face from the time we learnt last time for those who tried what we learnt, and you said it’s this one and the challenges. Now we are asking you to say what are you planning of doing or what is the way forward?

P21 - 2130 for me seeing that some challenges on what is happening now and also in the future and I have seen that growing maize is becoming a challenge, even cotton also needs a lot of rains and now what am planning to do, I chose to have a garden, even though I have a garden I saw that water from the well is becoming problem when we reach somewhere in September and at times it finishes. So, I’m planning to say I need to prepare even if there are challenges so that the children do not suffer. If God helps I’m planning of having a borehole so that I can be watering the plants of which I will have more cash for building, buying cattle and also using other things. I think that’s the plan I have.

E01 - 2131 okay you have heard his plans, according to what we have learnt, he is thinking of having a borehole so that he can be doing gardening. Then from gardening that’s where he can make these other cups to be full.

P21 - 2132 to be full

E01 - 2133 yes

P15 - 2134 let everyone do whatever he/she thinks

E01 - 2135 let’s everyone do whatever he/she thinks?

P15 - 2136 yes

E01 - 2137 okay then now like for you on the plan for the borehole, you said you want to have a borehole, now what options are you going to use so that whenever you want to move away from the plans, you go back to say no here even if this has happened and maybe you want to use the money for borehole, then you will say no this is for the borehole. What will help you stick to your plans?

P21 - 2138 opening an account for the borehole

E01 - 2139 to open an account, okay are we together because here we are just teaching each other, sometimes your friend maybe talking now but in future, you start saying that, that one is living a good life, forgetting that it’s from this same planning. Yes, now as a group is there any plans which you have in which you can use this knowledge you have learnt from these lessons......... Yes, P16

P16 - 2140 I think that question like in a group, what can help us is just to use or maybe save something as a group and I think that can be an idea also, so that we have cash and as a group we agree to say let’s do this. Number 2 even a business we say okay let’s do this or maybe let’s contribute such amounts and we start this and it’s for the group.
maybe there is someone with any additions…………yes
what I want to say is that thank you for the knowledge you have given us, there are a lot of things we have learnt, now in most cases, like the way you have taught us, others may have ideas ringing in their minds but it’s just hard to let them out. So, you should give us a chance to say if you will visit us you will be able to see to say, these people this is what they have done.
okay we give you time?
we leave you now and when we come back you will tell us?
now just there you talked of planning, even us we want to plan to say, when do we visit these people, then we look at what people want to do. If it’s not us, even these same guys our assistants we can send them to say this list of people, if you give us maybe a week or 2 days, we will send them to say go and record their plans so that we help each other, we make a road map to say, do you remember there was this plan, how far have you gone? So, you will tell us the amount of time you want us to give you. If its plans, they can have them written down so that we can know to say here are the plans.

here the time we are going to give you because our crops are still in fields, so we will give you up to September

okay
me that’s my suggestion
giving us your plans
give them plans so that if they come they should find……
that’s what we are going to do
no
before you harvest, what you are planning to do
yes, when you harvest
like this we will fail
yes
to say the plans that you have since you have cultivated…. my plan is this.
yes, what you are planning to do
if that’s the case then time will be short, uncle you tell these people
The audience busts in laughter
because for us our job has done what?
has finished
if there is any more job to be done, it’s to look at what and how the plans of these people
then I was thinking that each one should register if it’s with E03 or with you maybe……
laughing
okay we will ask E03 and friends to get a flip chart and write
yes

yes, P21 has already mentioned what he really wants or maybe even if maybe it will take him 3 years we know that how far have you gone, he says maybe now we have reached a level where a borehole can be sank, maybe this time how far at the bank the money is enough to sink a borehole so that the people who are monitoring me should know that I have succeeded

even when you want to build a house

yes, even if you want to build a house, whatever you want to do, what you want to do, if it is putting iron sheets, just like that……… so, after a long debate, the suggestion should be recorded individually……I think maybe we can finish

we pray…
he still wants to go and make plans
so…… so aah what we were thinking ourselves is like this, like you have said that you will choose each one his or her project, what one wants to say where I am now is here. So, us
what we have been thinking about is that we will try to make some books, something like a table, something like paper, a book so that we give each and every one can........ you write to say now I am at this stage, so that when we come we will just ask to say where have you reached? When we look at the... or maybe you tell us to sell on this one I succeeded or maybe on these things it did not go well or here its better, so that we help each other from that point. So that was our request or our thinking, it's up to you, let's be free, do you remember the first rule when we started the lesson? It seems this madam (P18) .... it's to be free, right?

P19 - 2174 yes
E01 - 2175 yes, so let's be free, I have explained our idea, and it can help us, so I don't know what you think, are we together?

P0W - 2176
P17 - 2177 have you heard?
P18 - 2178 no
P15 - 2179 he is saying that, if we are agreeing they can give us books so that we can be recording

E01 - 2180 yes, just like what you do when you go for under five clinics to say now the child how is he growing just like that and we are asking to say how is it?

P21 - 2181 it's just okay
E01 - 2182 okay
P22 - 2183 it's a good idea

P15 - 2184 yes, because you will be doing it your own
E01 - 2185 okay we will bring, then you can.... because that one is not just a suggestion, so even you, you can discuss if you want to do it as a group it's fine. So, as we have gone to the end I think these people from the kitchen are waiting for us, as we reach the end maybe you have something to say?

E02 - 2186 that's much more I'm impressed by the energy here and I hope this will continue to go further that will be interesting to get the feedback.

E01 - 2187 okay for her, the words she has is that she is very much happy with your willingness from the time we started to now and also looking at it to say, she really wants to have what you want to do and how are things going to be progressing. Now we want to thank you for the time, we know you were supposed to do your own work which can make the cups full but since morning the time we came, you were honest up to this time, we have talked, we have taught each other's. So, on that part we thank you so much and may God bless you in all what you want to do. So maybe the owner of the place can say something then after that a closing prayer of which after praying I think there is food prepared that side. And they will tell us what to do, yes, the owner of the place/ household.

E01 - 2187
P22 - 2188 what can I do?
P22 - 2189 no maybe you have something to say before we pray
E01 - 2190 are we together?
P00 - 2193 discussing in the background
Appendix 4. Follow-up transcripts groups A and B

FEEDBACK GROUP A – October 2016

E01 - 1 we all go to church here, so let a volunteer pray for us as we start the discussion.
P08 - 2 Mr. P10 you can pray for us.
P10 - 3 Praying
E01 - 4 thank you so much. Without wasting much of the time we start. We have come again with three major discussing points for today. Our discussion won’t take long maybe just an hour. We just want to remind each other on what we have been discussing and also to see the way forward. So, the first discussing point is that “what benefits and challenges did you find in the workshops and the exercise of recording believing that you all have books”.
P00 - 5 yes, we do have the books what benefits did you find and also what challenges did you find? After you have answered I will also explain what we concluded after analysing the data we got. We collected data from 10 families who are not under this program within this village so that we see if there is a difference between you who learnt and those who never learnt in the way you do things. But before I do that I want you to tell us the benefits and challenges you found in the past workshops. After that we will go to the second part. Thirdly we will talk about the way forward. Without wasting much time let’s start discussing. What benefits did you find and also what challenges did you encounter in the learning process? If you were not recording just tell us to say I never used to do that because of this and that. You can start there……
P01 - 7 where do we start from? Give P08 to start as I am still thinking.

E01 - 10 oh okay we had plans of achieving some things as we promised you but the challenge we faced was finances. We get our finances after selling our produce but this past season our crops were affected by drought hence low production. Coming to the book, I personally saw the book as a summary of our life’s aspects. It’s beneficial in such a way that if you forget something you just go and check in the book. Since we record every month we are encouraged to work hard every month so that we continue improving. We are struggling so much due to insufficient rainfall we are receiving for the past two farming seasons.
P09 - 11 I will start with benefits we found. We acquired knowledge on how to do record keeping. Record keeping enables us to trace how you use the money and also know how the progress is either positive or negative. This program also exposed us that we were careless because we never used to audit ourselves. The workshops helped in that we still have the assignments of feeling in the cups. Coming to the challenges, the first challenge is resource management especially money. As farmers, we don’t get money as a lamp sum no. whatever money we find we use it and record though its difficulty to take account of very small amounts spent. Keeping accurate record on food is so problematic. For example, you go somewhere and you eat something when you reach home you won’t think of recording that money you spent. And the prices of things are fluctuating due to Zambian unstable economy.
Record keeping on food was a problem but not on livestock, land management, water and others. The other reason why it was difficult for us to record is that other foods we buy and others we don’t so we were not able to estimate how much those food stuffs we don’t buy can cost. The small things we buy are difficult to assemble together. We used to overlook small things but when you buy a bigger thing that’s when we could record. All in all, being accurate in recording day to day food consumption was a problem. That’s what I can say.

E01 12 what of women, what are you saying?
P01 13 thank you, our heads were opened due to the knowledge you gave us. Starting from the cups we realized that we needed not to be wasteful of anything. We realized that we need to be careful on how we use the available resources. Coming to the books, they are so helpful to us. For example, before you gave us books, when some livestock die we never used to keep record of how many we have lost but now since we record we are able to trace everything that is happening around us. By so doing we are able to assess if we are progressing or not.

E01 14 another one to add?
P05 15 before me being given that book I never used to do record keeping but from the time I started recording I even know where am heading to. That’s the benefit I found.
P03 17 I will also talk about the goodness of books. At the end of each month we are reminded of recording all the activities that took place in that particular month. It helps us to be working hard every month so that we can be finding what to record. That’s the goodness I found from the books.

E03 18 what of the challenges you faced?
P03 19 do I have to talk about that too?
E03 20 yes, you need to tell us the challenges you faced too.
P03 21 okay let me think through on challenges.
E05 22 give your neighbour the recorder.
P06 23 am still thinking though but just bring it. About the books I only saw benefits. As others have already alluded to, most times we never used to know if we are being wasteful or not because of not record keeping. We just used to do things anyhow. For us to realize that we are not progressing we could have already misused all the resources and we can’t reverse that so that you start afresh. We now know how to use the available resources more efficiently. We also know how to serve on the aspect of the available food because we stopped being carelessness. I failed to make the cups full due to lack of enough resources but am trying my best to do so. Thank you.

E05 24 which cup amongst them all is being problematic to feel up?
P06 25 the cup for cash. This is the main body for all the activities we do and other cups are also attached to it. Even when you want to cultivate you look at the cash available and other things like inputs, hiring labour etc. All these are dependent on the cash cup.

E05 26 anyone with anything to say?
P08 27 P10 has not said anything yet
P10 28 my wife has already spoken
E05 29 no that was her experience but now it’s your turn to tell us your views.
P10 30 as others have already said the biggest challenge was rainfall. Here we have taken farming as a business. Due to insufficient rainfall, we never produced enough as we
expected hence less money we got from the sale of crops. We sale the surplus after removing some for consumption but now we just produced little and it all went for consumption. Meaning we are handicapped in doing other activities. For other activities to take place, money is requiring so we are forced to get some from the consumption maize to sale so as to do other activities. These other cups to be full they are dependent on the produced food. If we produce well, we sell the surplus and get money which we budget for various things. I think on the cups that was the only problem. Coming to record keeping, we saw it to be a good exercise because we are normally not active after harvesting until the onset of rainfall but now we are kept busy with it. Record keeping is good because it makes us plan properly in areas we are not doing well. The categories of things in the book help us to know the things we have and that we don't have. It encourages us to keep on working hard so that we improve our livelihood standards. You can't just be recording zeros from January to December no but you need to replace the zeros with real numbers. Record keeping is good than just mastering things in your head for we are bound to forgetting as human being but if you recorded you can just check in the book. As for me I never faced any challenges and if I say the challenge I faced is not buying a cow then that means I just didn't buy it. Record keeping also makes you know the level you are at. Let me end here.

the reserved maize for consumption. When the husband is no around the wife will sell some maize and when the man comes back he will be like let me say too because my wife sold too hence finishing the reserved food. But these days we do things together as husband and wife. By so doing we will take account of resources properly especially on food security.

E01 - 33  okay
P09 - 34  the other benefit I can add on is that this knowledge you brought made us start thinking outside the box. We have now explored many other ways of sourcing funds besides farming. It has given us knowledge on how to improve our livelihoods. We are no longer limited in thinking. And we are able to assess ourselves on what projects we can do better. Before learning we never used to do all that.

E01 - 35  the other question is, what examples can you give of things you managed to do and also those you didn't manage to do, because if you remember you gave us goals to be achieved by the end of this year? You might have failed to achieve some goals but maybe there is something you are doing though not yet done all that is an achievement. If its seed, you tell us that I already bought seed. What did we manage to do because of this program and also what didn't we manage to do? Have you understood the question?

P00 - 36  yes
E05 - 37  anyone can start because each one of you will say something.
P06 - 38  am still thinking
E05 - 39  continue thinking as he speaks
P10 - 40  let me talk before my wife because she might mention my points.
P00 - 41  laughing
according to my records may, June and July are the months I had good money. So, I thought to myself to say since I had just grown maize last season... ...This program is so good and it's not that a person is only faced with problems in one month no. I thought of buying okra seed so that I can be selling from December to May. Last time we were asked to say what crops did you grow last season and most of us were just mentioning maize only and I thought I should plant okra too. Okra is not affected very much with droughts. I want to be taking okra to nearby towns maybe twice a week. That's my way forward from the time we learnt. 

what of you Madam P07?

what I didn't manage to do is to produce reaching my target due to insufficient rainfall but I managed to buy maize seed and also, I bought guinea fowls.

what of you?

through the knowledge we got I budget well, bought some chickens and we are no longer careless as we used to be. We have now realized that things are hard and so we need to take care of available resources properly. 

what did you buy P05?

okay

as for me I had big plans but things didn't work out the way I wanted them to hence I ended up doing what I never planned for. I managed to buy 10 kg seed plus 6 gallons of groundnuts seed. I also managed to hire labour in advance to cultivate for me when rains come.

P03 you have not said anything?

I bought groundnut seed, chickens and guinea fowls. These are the only goals I managed to achieve due to little cash I had.

you even had a garden, weren't we buying vegetables from your garden?

oh

I had made a vegetable garden too and I raised some good cash.

meaning the cup for cash increased?
yes, though the money was being used up there and then.

I had forgotten to mention also that I had a garden too. Money for buying soap, mealie meal grinding and other expenses was not a problem. I was just cut short by animals which ate my vegetables.

I had forgotten to mention also that I had a garden too. Money for buying soap, mealie meal grinding and other expenses was not a problem. I was just cut short by animals which ate my vegetables.

my wife has actually forgotten something which I thought she will mention but let me just say it. Gardening helped us so much considering those months when money is hard to find. With the little money, she was getting from the garden she managed to take care of the family without me removing any money. Did you ask us to mention even those we failed to do?

I failed to take any money to the bank. I thought you only take large sums of money to the bank but I just realized that you can take any amount. Even a k20 you can take because when starting you start little by little. The problem with keeping the money in the house is that we tend to spend anyhow. But it’s safer when we keep our moneys in the banks. What am going to do now is that I will open a bank account so that I can be putting my money there than in the house. I didn’t really fail to take money to the bank but it’s just that I never had the knowledge on how to go about it. There is also mtn mobile banking so I need to open one as that’s the only way to safe guard my money.

give the recorder to Madam P07. From the workshops we were having, what goal did you manage to achieve and which one didn’t you manage to achieve? You have a book, right?

Yes, I have. As for me am not educated I was just helped to record in just one month.

oh, but why weren’t you helped to record in these other months?

most of the times I was not home and that I can’t manage to write unless I am helped.

what did you manage to do or what goal did you achieve?

I produced maize and sold surplus to raise money for buying seed which I did and I kept the remaining money in the house.

how many kilograms of seed did you buy?

I bought it from the farms at k300.

how many 20 liter tins?

1*20 liter tin at k200 plus 2*5 liter gallon at k100

what of fertilizer?

I have not yet bought fertilizer.

what of groundnuts?

I only sold 2*50 kg bag and the money was used during sicknesses

alright. We now come to the second part where I need to tell you our observations after comparing you with those who never learnt. The last survey you saw these research assistants here; they were not just interviewing you alone no we told them to interview ten families of farmers around here who are not under this program too. The reason was for us to compare how they do things and how you do things also. It was noted that there is a big difference between them and those of you who used to record in nearly every month in terms of planning. We discovered that there are three groups amongst yourselves, the first one is for those of you who used to record nearly in all the months, the second one is for those of you who recorded half plus of the months and
the last one is for those of you who never used to record such that the book is almost empty in most of the months. It was also observed that some of you consult each other when recording. Those who are not part of this program do not write their plans anywhere which you do. They were like we know how we do things all the time hence no need of writing but what they forget is that as human beings we are bound to forgetting. They were also like when we find money that’s when we will think of what to do with it but as for you, you plan first and later when you find money you use it on the planned things. Planning and budgeting you are really doing well compared to those who are not part of this program. They were happy to notice this difference just after short time of teaching you. But when we come to group three were some of you belong, there is no much difference in the way you do things with those who are not part of this program because you never used to record every month. If you don’t record this month you can’t assess your progress hence just being like those who were not taught. But to those of you who record every month you are so different from those who are not part of this program because you assess yourselves. Less I forget have you already received inputs from FISP? no, we haven’t.

but if you ask those who are not part of this program, they will tell you that I kept money to pay for inputs from FISP instead of just buying in advance. That’s why we asked you about what you have done so that we see if you already bought inputs. So there is a difference because for you don’t depend 100% on FISP for inputs. We need to start developing ourselves through hard work little by little. I know things are hard but don’t just sit doing nothing but work harder as well. You should always think of those loops to say if this loop reduces which ones can I use to increase these cups. So those are some of the things we found out.

E02 was supposed to come but she failed so I requested to say we need to go tell the farmers that we are not continuing with the program because we have run out of funds. I was told to come which we have done. She didn’t tell me but I know to say maybe it’s because the Norwegian embassy was closed in Zambia. Normally their projects are taken to countries where their embassies are. I think this also contributed to us not being given funds. But she said that no matter how small the knowledge we gave the farmers let them put it to proper use and by so doing they will prosper. She also said we don’t know maybe something might come up then we might come back but all in all thank the farmers for me for allowing me to work with them.

We normally come here with either food or soap but today we said no we should just give them something different because things are hard. It’s not allowed by the law to give you money no but we looked at the coming farming season. We said maybe there is a person who wants to buy seed but s/he has a shortage then this can help a lot. This money is to be added on the one you have for inputs. You will be given each a hundred kwacha. Don’t take the money for beer drinking please because beer just reduces the cup. So that’s the reason I will give to E02 as to
why this time I am giving you money. So, you will sign against your name and then the treasurer will do his job.

P00 - 91 thank E02 on our behalf too.

FEEDBACK GROUP B – October 2016

Informal conversation before the meeting

E01 - 92 how was your production this year Mr. P22?
P22 - 93 it was not good even if we managed to produce enough for food and sell some. It’s just by the grace of God because we never thought we would produce that much. After selling I talked to the area counsellor to buy my maize which he did and after that I bought inputs in advance. I never sold to Food Reserve Agency (FRA) because of transport costs.

E01 - 94 oh, that’s good
P22 - 95 and the seed for maize is expensive this season.
E01 - 96 oh
E03 - 97 and how much is a 5 liters gallon of maize now?
P22 - 98 its k8.50 if not k9
E03 - 99 okay
P22 - 100 but somewhere near 4 ways they are buying a 50kg bag at k115
E01 - 101 meaning hear a 50kg bag is at k102
P22 - 102 but a 50kg bag is being bought at k108 here.
E01 - 103 oh k108
P22 - 104 yes
E03 - 105 the maize will reach k130 per 50kg bag
P22 - 106 yes, because that k115 per 50 kg bag am talking about was in September not knowing about now.
E01 - 107 okay
P22 - 108 in July, it was k120 per 50 kg bag but during the election period the price went down okay
E01 - 109 okay
P22 - 110 but at least the prices are now rising
E03 - 111 it’s okay let the price of maize just increase because the inputs are also expensive this year.

P22 - 112 inputs are expensive yes because a k25seedco seed was at k550 but now it’s at k700 plus. This was new variety last year and it seems to be good though it didn’t yield well because of droughts. Also, zam seed was at k400 plus and now it’s at k600 plus. Last season the cheapest was a 10kg bag of seedco 403 which was going at k150 though now its k180.

E01 - 113 oh
P22 - 114 and it seems rains are coming very soon maybe before October ends.
E01 - 115 yes
P22 - 116 your mother E03 built a house but when are you bringing the iron sheets so that she can put a roof?
E03 - 117 I will soon. That’s the project she promised to do during the workshop.

P22 - 118 yes, I also want to drill a borehole because I want to start doing gardening like P21 is doing. There is also another man near Chibombo turn off who is also in gardening and he is really doing well. At the moment, he has tomatoes and maybe in few months’ time he will plant maize.

E01 - 119 what is needed is just proper planning.
P22 - 120 yes, and water should also be available not always relying on rainfall.
E01 - 121 yes
P22 - 122 if I have a borehole maybe thing might be less tough
E03 - 123 when things are hard that’s when people start planning
P22 - 124 yes, because in the past I was thinking of buying a car but now since water is a problem I just have to drill a borehole.
E01 - 125 okay
P22 - 126 but I don’t understand why people are late for the meeting. They were all communicated to say by 9:00 hours we are supposed to be here. When you called them, what were they saying?
that they are on their way coming

three are here so we are just remaining with three from this side.

are you already done with group one?

not yet, we thought of starting with you here because group one is where we pass when to going to Lusaka. So, from there we will just proceed back to Lusaka.

the prices have gone down but a big goat is at k350. The prices are go high if no one brings from kalomo because them they have bigger breeds.

what of sheep do they buy too?

which one is more profitable between goats or sheep?

sheep

okay

how much are goats in Kasumbalessa boarder post?

yes

let me be the first one. The book helps me a lot in that it makes me know how to do my business and also how to manage, buy and sell my livestock.

what challenges did you face?

let me think through first

let someone take it up as she is still thinking.

the benefit we found is that the book made us know how to audit the money we spend. Also on budgeting it really helped us a lot such that now we are able to budget no matter how little the money we might have.

okay and what of the challenges?

though it was beneficial the only challenge I had was forgetting to record in some months

but what used to make you forget to do so?

just being busy

I think it’s because this thing of recording is new and that we are not yet fully used to it.

okay, another one?

on the part of relish, it was difficult to record but these others there was no problem. That’s the part we used to forget recording.

a different person to also tell us the benefits and challenges in the recording exercise.

it acts as a reminder to us on what we are to do. We also think to say, what must I do to improve on the part of food, livestock, and other aspects. It’s a reminder to me. The
challenge is that some of us we used to just record same things every month due to us not having a diverse of livestock. It used to make me lazy recording maybe one chicken always every month but to those who have a lot of livestock it really encourages to record.

E01 - 167 okay, someone to add something. It seems no one but what if we say the program has come to an end can you continue using the knowledge we brought plus recording in the books?

P14 - 168 yes, we can continue because those books are really a reflection of what we are doing and what we are yet to do. So, if we continue I know we can develop. The major thing is not to take recording lightly because if that happens you can be forgetting to record.

E01 - 169 maybe there is another one to add something. Can anyone of you give an example of something you never used to do before learning which you now do due to the knowledge you got from the workshops we were having or you can tell us that we just do things just the same as we used to do before learning? Is there a difference before learning and after learning terms of how you do things?

P22 - 170 the way I do things now is different from the way I used to do before learning. This time I calculate properly the money I use per month because I do record every month unlike those days I never had the book. We never also used to do a proper budgeting hence we were just careless but now we are careful. We thank you for the knowledge you have brought for us.

E01 - 171 okay let P17 say something too.

P17 - 172 just as the former speaker said, we never used to take account of how we use the money. But from the time we started learning we have now started budgeting properly and we now take account of money we spent.

E01 - 173 alright yes.

P22 - 174 we also used to plan to say when I have money I will do this and that but when we find money we used to forget about the plans we have rather we used to spend the money on something different. But now we work towards the set goals/targets unless we have a big problem that’s when part of the money can be used to solve that problem.

E01 - 175 alright

P22 - 176 we have started achieving some of our set goals because of being focused.

E01 - 177 give us an example of goals you have achieved.

P22 - 178 I promised to finish building my house which am working on and am finishing it before November.

E01 - 179 okay that’s interesting and what of you P14?

P14 - 180 am yet to sell my groundnuts so that I buy maize seed for the coming farming season.

E01 - 181 are you selling now?

P14 - 182 yes, am selling

E01 - 183 how much is a 50 kg bag?

P14 - 184 its k100

E01 - 185 and then how many bags of groundnuts do you have?

P14 - 186 I have 8 * 50 kg bags

E01 - 187 okay

P17 - 188 I had set a goal of building a house but that wasn’t achieved of which I just thought of buying inputs for the next farming season.

E01 - 189 how far have you gone in buying those inputs?

P17 - 190 for now, I have just bought 20 kg of maize seed and yet to buy fertilizer.

E01 - 191 do you already have money for fertilizer?

P17 - 192 yes, and I also paid towards farmers input support program (FISP). I pray that I will get something.
okay. What of you madam there?

as for me it's just building a house with my husband which we are doing.

pass the recorder to Mr. P20.

I had promised to buy a cow which I never managed to do but I also just bought 50 kg maize seed and 6*50 kg bags of fertilizer. I thought of buying inputs so that if I produce well next year I will still fulfill my promise/goal of buying a cow.

okay thank you so much. We now go to the next part of our meeting but when those who are still on their way arrive they will be given a chance also to tell us the benefits and the challenged they faced.

yes the main focus of this program was to educate one another so we thought to say, for us to change the way farmers think what methods can we use? I had gone to Norway because couldn’t manage to come due to her not having money for the flight. We discussed and she told me that on our part we are done and it’s up to the farmers to either continue using the knowledge given to them or not. She said she doesn’t know what the future holds because they might come again even for something different next time. Then I said we can’t just stop like that but we need to go and say bye to the farmers so that if it happens that we go again they should not be surprised to say after a long time this is when you are coming again. She also liked the idea and that’s why we have come here. The discussions we used to have were all sent to them and there were some observations. We discovered that there are three groups amongst yourselves, the first one is for those of you who used to record nearly in all the months, the second one is for those of you who recorded half plus of the months and the last one is for those of you who never used to record such that the book is almost empty in most of the months. It was also observed that some of you work together in terms of recording and was very happy with you who do that. When the research assistants came last time, we told them to interview ten families of farmers around here who are not under this program. The reason is for us to compare how they do things and how you do things also. It was noted that there is a big difference between them and those of you who used to record in nearly every month in terms of planning. Those who are not part of this program do not write their plans anywhere which you do. They were like we know how we do things all the time hence no need of writing but what they forget is that as human beings we are bound to forgetting hence not knowing if you are progressing or not. Planning and budgeting you are really doing well compared to those who are not part of this program. They were happy to notice this difference just after short time of teaching you. But when we come to group three were some of you belong, there is no much difference in the way you do things with those who are not part of this program because you never used to record every month. If you don’t record this month you can’t assess your progress hence just being like those we never taught. But to those of you who record every month you are so different from those who are not part of this program in the way you do things because you assess yourselves. Less I forget have
you already received inputs from FISP?

no

even when coming I was actually talking to the research assistants about when the inputs will be delivered to farmers, then I said this is what we were teaching to say you should not rely too much on government but in the near future you need to be independent. We should be able to buy inputs from your own money so that the inputs from FISP are just used as a supplement. If we continue relying on FISP we and our children will be stuck someday. Before we conclude let us give time to these who have just come to give tell us the benefits they found from the workshops and the book, also the challenges they faced. If it never helped you in any way just tell us don't be afraid. You just say this program didn't help me due to this and that.

there are no challenges as to me because that book you gave me is a reminder of what I need to do every day. I write my plans in that same book.

at the end of each month we record and compare with last month to see if we are improving or not.

we always used to rely on the government for inputs but now we are able to buy inputs on our own due to the knowledge you brought.

how did this program help you to achieve your goals or what goals did you achieve and the one you didn't?

I budget properly now unlike before learning.

what of you, what example can you give us of what you achieved and what you didn't?

I bought 5 goats plus 3 chickens after doing business and am still working towards completing building a shop. Those are my achievements.

eyes, I have goats and chickens now.

you are building a shop?

yes, so that I can be getting some cash from it too.

okay. So, as I said earlier the program have come to any end but we don't know what might happen in future we might come again and these are words from E02. As for today we have thought otherwise, we were supposed to be here around 09:00 hours and knowing that our meeting won't take long we didn't bring any food today. We just thought to say since we are closing the program today each one should receive something after which they need to sign for us. We hope that the little you will be given won't be taken for beer drinking but it will go towards filling up the cup for inputs. So, you will be given K100 each of which after receiving you need to sign to prove that you have gotten. We nearly went back with the money because you were nowhere to be seen. But am glad you came even though late. For those who are absent some of you need to sign for them and receive the money on their behalf. E05 you can give them but make sure they sign.

Mr. P22 sign for P19 too and miss P16 sign for P21.

but we don't want to receive calls to say they only signed but they didn't give me the money.

No, they will be given

because you might say let me use the money and I will pay back when I have.
but it’s not in order to be giving money no, we are just allowed to give you incentives like soap, sugar, or food but we just thought that you can add on to what you have as you prepare for the coming farming season.

thank you so much though we are sad that the program has ended.

it’s bad that the program has ended

no, they might come back again. And those books are your please use them.

thank you

this is where our meeting ends and let someone close in prayer.

Mr. P20 pray for us.

Praying

Thank you so much.
## Appendix 5. Follow-up table

<table>
<thead>
<tr>
<th>Part.</th>
<th>Follow-up</th>
<th>Action taken</th>
<th>Reasons</th>
<th>What happens next/way forward</th>
</tr>
</thead>
</table>
| Livestock | 1<sup>st</sup> | • Bought some livestock  
• Bought salt (medicine) | • Lost many livestock in the previous year  
• Salt is used for deworming (disease prevention) | • Buy cows and chickens |
|       | 2<sup>nd</sup> | • Bought salt (medicine) | • Salt is used for deworming | • Sell goats in order to buy iron sheets (for the roof of the house) – livestock business |
|       | 3<sup>rd</sup> | • N/A | • Busy harvesting | • Keep cash in the asset form |
| Cash  | 1<sup>st</sup> | • N/A | • Get a loan | • To buy iron sheets (for the house) |
|       | 2<sup>nd</sup> | • Joined OSAWA (lending group) | • Avoided Carelessness | • Reserve a big amount of food so after she can hire labour (piecework) and reserve some for household consumption |
|       | 3<sup>rd</sup> | • Reserved more maize | • To sell food when the price rises | • Sell maize |
| Food Security | 1<sup>st</sup> | • Avoided Carelessness | • To sell food when the price rises | • Cut down trees on a dormant land in order to burn them, so the ashes can be used to improve the soil fertility |
|       | 2<sup>nd</sup> | • Reserved more maize | • Earn cash | • Practice crop rotation |
|       | 3<sup>rd</sup> | • N/A | • No manure | • Practice crop rotation |
| Land   | 1<sup>st</sup> | • N/A | • Still harvesting | • Practice crop rotation |
|       | 2<sup>nd</sup> | • N/A | • Disease prevention | • Bring her animals together from the people she had given |
|       | 3<sup>rd</sup> | • N/A | • Control the number of livestock | • Sell livestock – livestock business |
| Livestock | 1<sup>st</sup> | • Deworming  
• Dipping  
• Counted the livestock | • Disease prevention  
• Control the number of livestock | • Bring her animals together from the people she had given |
|       | 2<sup>nd</sup> | • Dipping | • Disease prevention | • Sell livestock – livestock business |
|       | 3<sup>rd</sup> | • N/A | • Pay personal expenses – school and medical check-up | • Sell crops after harvest |
| Cash  | 1<sup>st</sup> | • Sold cattle (livestock)  
• Sold groundnuts | • Pay personal expenses – school and medical check-up | • Sell chickens – livestock business |
<p>|       | 2&lt;sup&gt;nd&lt;/sup&gt; | • Sold groundnuts and sunflower | • Earn cash | • Sell chickens – livestock business |
|       | 3&lt;sup&gt;rd&lt;/sup&gt; | • N/A | • Avoid the need to food purchase | • Store enough food for household consumption and for sales business |
| Food Security | 1&lt;sup&gt;st&lt;/sup&gt; | • N/A | • Waiting to finish harvesting | • Store enough food for household consumption and for sales business |
|       | 2&lt;sup&gt;nd&lt;/sup&gt; | • Produced food for household consumption and selling | • Avoid the need to food purchase | • Store enough food for household consumption and for sales business |
|       | 3&lt;sup&gt;rd&lt;/sup&gt; | • N/A | • Avoid the need to food purchase | • Store enough food for household consumption and for sales business |</p>
<table>
<thead>
<tr>
<th>Part.</th>
<th>Follow-up</th>
<th>Action taken</th>
<th>Reasons</th>
<th>What happens next/way forward</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Winter ploughing burying the grass</td>
<td>No other option</td>
<td>Apply manure from livestock (inputs)</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>N/A</td>
<td>Not the right time to apply manure</td>
<td>Apply manure</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Livestock</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Made nest for chickens (good care)</td>
<td>Having a place to lay the eggs</td>
<td>Continue taking good care</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>N/A</td>
<td>N/A</td>
<td>Disease prevention and good care</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>Bought livestock – chickens and guinea fowls (P03-61 p.5)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Sold groundnuts – groundnuts business</td>
<td>Pay personal expenses – school</td>
<td>Selling crops after harvesting</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Sold charcoal – charcoal business</td>
<td>Pay personal expenses – school</td>
<td>Continue doing charcoal business</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Food Security</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>No money to buy food</td>
<td>Eating what from her own harvest</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Bought maize</td>
<td>To increase the available food</td>
<td>Proper storage</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Still harvesting</td>
<td>Apply manure after harvesting</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Bought groundnuts seed</td>
<td>Groundnuts do not require manure</td>
<td>Waiting for the rain season so that she plants the groundnuts</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>Bought groundnuts seed (P03-61 p.4)</td>
<td>Gardening (P03-64 p.5)</td>
<td>-</td>
</tr>
<tr>
<td>Livestock</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Built a house for the goats (good care)</td>
<td>To prevent the livestock to destroy the crops</td>
<td>Livestock business</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Dipping – disease prevention</td>
<td>Disease prevention</td>
<td>Continue with the disease prevention</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>The harvest was not good so wanted to invest the cash on food</td>
<td>Selling fish – livestock business</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Sold maize</td>
<td>To buy food – soup and relish</td>
<td>Charcoal business</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Food Security</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Had enough for the family</td>
<td>Proper storage of the food</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Stored food</td>
<td>To have enough for the family</td>
<td>Proper storage of the food</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Still harvesting</td>
<td>Continue with the crop rotation</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>N/A</td>
<td>Just used fertilizer</td>
<td>Apply fertilizer</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Livestock</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Busy harvesting</td>
<td>Buy livestock after harvesting</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Bought goat and chickens – livestock</td>
<td>Increase the number of livestock</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Part.</td>
<td>Follow-up</td>
<td>Action taken</td>
<td>Reasons</td>
<td>What happens next/way forward</td>
</tr>
<tr>
<td>-------</td>
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<td>---------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Cash</td>
<td>3rd</td>
<td>Bought chickens – livestock (P05-55, p.4)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1st</td>
<td>Charcoal business</td>
<td>Pay personal expenses – school</td>
<td>Planning to save money through the bank (savings)</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Took the money from the bank (savings)</td>
<td>Pay personal expenses - school</td>
<td>Charcoal Business</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Food Security</td>
<td>1st</td>
<td>Had food for household consumption and for selling</td>
<td>To avoid hunger</td>
<td>Find alternatives to improve the amount of food</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Proper storage of maize, Bought groundnuts</td>
<td>To avoid pests</td>
<td>Store maize to sell after</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1st</td>
<td>N/A</td>
<td>Waiting for the right time to harvest</td>
<td>Practice crop rotation, Apply manure rotation</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Applied manure from livestock</td>
<td>To improve land fertility</td>
<td>Practice crop rotation</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Livestock</td>
<td>1st</td>
<td>N/A</td>
<td>Lack of money</td>
<td>Sell maize in order to buy disease prevention for the goats, Buy chemicals, Disease prevention</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Sold goats – livestock business</td>
<td>Pay personal expenses – school, buy clothes</td>
<td>Start a business/commerce – selling salt, cooking oil, cabbage</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash</td>
<td>1st</td>
<td>Lent money for others</td>
<td>To profit due to the interests</td>
<td>Start a business/commerce – selling salt, cooking oil cabbage</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Charcoal business, Lent money for others</td>
<td>Pay for fertilizer, Pay personal expenses</td>
<td>Continue doing charcoal business</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>Hired labour (piecework) (P06-59 p. 5)</td>
<td>To cultivate when the rain season</td>
<td>-</td>
</tr>
<tr>
<td>Food Security</td>
<td>1st</td>
<td>Proper storage, Avoided carelessness</td>
<td>Because food would deplete</td>
<td>Gardening – to sell vegetables, Charcoal business to buy inputs and selling maize</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>Bought groundnuts seed (P06-59 p. 5), Gardening (P06-67 p. 5)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1st</td>
<td>N/A</td>
<td>Still harvesting</td>
<td>Apply manure</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>N/A</td>
<td>Waiting for the rain season</td>
<td>Apply manure from livestock, Apply fertilizer</td>
</tr>
<tr>
<td>Part.</td>
<td>Follow-up</td>
<td>Action taken</td>
<td>Reasons</td>
<td>What happens next/way forward</td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
<td>--------------</td>
<td>---------</td>
<td>-----------------------------</td>
</tr>
</tbody>
</table>
| Livestock | 1st | • Sold livestock  
• Bought disease prevention | • To solve personal problems | • Does not know |
| | 2nd | • Bought a goat – livestock | • Increase livestock | • Provide clean water – good care  
• Disease prevention |
| | 3rd | • Bought guinea fowls – livestock (P07-53 p.4) | - | - |
| Cash | 1st | • Cash from livestock business  
• Bought maize | • To solve personal problems | • Start a new business/commerce |
| | 2nd | • Sold food (cooking oil) | • To earn cash | • Continue selling cooking oil |
| | 3rd | • Sold maize (P07-77 p.5) | • To earn cash (P07-77 p.5) | - |
| Food Security | 1st | • N/A | • Still harvesting | • Avoiding carelessness |
| | 2nd | • Storage enough food | • Ensure food security | • Doing business so she will not need to sell food |
| | 3rd | - | - | - |
| Land | 1st | • N/A | • Waiting for rain season | • Apply fertilizer  
• Apply manure from livestock |
| | 2nd | • N/A | • She only uses fertilizer | • Buy fertilizer |
| | 3rd | • Bought maize seed (P07-53 p.4) | • To sell and earn cash (P07-77 p.5) | - |
| Livestock | 1st | • Bought medicine – disease prevention  
• Cows were sick | • Buy livestock (cow and goats) |
| | 2nd | • Bought livestock (goat and chicken)  
• Increase livestock number | • Buy livestock (cows) |
| | 3rd | • Reared chicken (P08-45 p.4) | - | - |
| Cash | 1st | • Sold cotton | • Earn cash to buy food | • Starting commerce – fritters |
| | 2nd | • Sold maize | • Earn cash to buy livestock | • Continue selling fish |
| | 3rd | - | - | - |
| Food Security | 1st | • Bought food | • To add on the harvested food | • Buy more food to add on the harvested |
| | 2nd | • Produced food  
• Proper storage  
• Bought relish | • Ensure food security | • Proper storage |
| | 3rd | - | - | - |
| Land | 1st | • N/A | • Still harvesting | • Apply lime |
| | 2nd | • N/A | • No money to buy lime | • Practice crop rotation  
• Apply fertilizer |
| | 3rd | • Bought fertilizers (P08-45 p.4)  
• Bought groundnuts seeds (P08-45  
.p.4) | • To use in the following season (P08- 
45 p.4) | - |
<table>
<thead>
<tr>
<th>Part.</th>
<th>Follow-up</th>
<th>Action taken</th>
<th>Reasons</th>
<th>What happens next/way forward</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>P09 (A)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>• Deworming • Dipping • Counted</td>
<td>• Disease prevention • Control the number of livestock</td>
<td>• Change the breed, especially for beef</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>• Disease prevention</td>
<td>• To reduce diseases • To buy more livestock</td>
<td>• Increase the livestock so he can sell later – sales business</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>• Sold food (maize)</td>
<td>• Pay personal expenses – school, household expenses</td>
<td>• Sell produced food • Sell livestock – livestock business</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>• Sold livestock • Sold maize</td>
<td>• To buy inputs</td>
<td>• Sell maize and buy livestock</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>• Budgeting properly – savings (P09-51 p.4)</td>
<td>• To manage the money better (P09-51 p.4)</td>
<td>-</td>
</tr>
<tr>
<td>Food Security</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>• N/A</td>
<td>• Still harvesting</td>
<td>• Store enough food for household consumption and for sale business</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>• Produced food for household consumption</td>
<td>• Ensure food security</td>
<td>• Maintain and keep food for household consumption and sell the food surplus</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>• Winter ploughing burying the grass</td>
<td>• No other option</td>
<td>• Apply manure from livestock</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>• N/A</td>
<td>• Waiting for the rain season</td>
<td>• Apply manure from livestock</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>• Bought inputs (P09-51 p.4)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>P10 (A)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Livestock</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>• Bought medicine</td>
<td>• Disease prevention</td>
<td>• Buy a cow</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>• Bought livestock (goat) • Dipping</td>
<td>• Increase livestock • Disease prevention</td>
<td>• Provide clean water (good care) and dipping (disease prevention)</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>• N/A</td>
<td>• Still harvesting</td>
<td>• Sell produced food</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>• Sold food (vegetables and maize)</td>
<td>• Pay personal expenses – school</td>
<td>• Continue with gardening</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>• Sold food (P10-30 p.3)</td>
<td>• Earn cash (P10-30 p.3)</td>
<td>• Buy okra seed to sell in the next season (P10-42 p.4) • Open a back account (P10-71 p.5)</td>
</tr>
<tr>
<td>Food Security</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>• Bought food (maize)</td>
<td>• Add to the harvested food (available food) • Ensure food security</td>
<td>• Buy more maize</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>• Bought food (maize)</td>
<td>• Add to the harvested food (available food)</td>
<td>• Proper storage of food</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Part.</td>
<td>Follow-up</td>
<td>Action taken</td>
<td>Reasons</td>
<td>What happens next/way forward</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Land</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Still harvesting</td>
<td>Apply manure from livestock&lt;br&gt;Plant soya beans to improve the soil fertility</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>N/A</td>
<td>Used to apply fertilizer</td>
<td>Buy fertilizer</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>Gardening (P10-69 p.5)</td>
<td>To sell and earn money (P10-69 p.5)</td>
<td></td>
</tr>
<tr>
<td>Livestock</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Bought livestock (goat)</td>
<td>Goats reproduce fast so that he can start a livestock business</td>
<td>Buy a cow</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Slaughtered some chickens</td>
<td>For eating</td>
<td>Buy livestock</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Sold food (maize)</td>
<td>Earn cash</td>
<td>Continue selling maize</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Sold food (maize)</td>
<td>Earn enough money to not have to sell the produced food</td>
<td>Continue doing the fish business in order to buy inputs</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Food Security</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Sold crops&lt;br&gt;Bought beans&lt;br&gt;Bought kapenta (to resell)</td>
<td>Earn money to buy relish</td>
<td>Increase the food reserved&lt;br&gt;Start gardening</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Proper storage</td>
<td>To avoid losing available food</td>
<td>Avoid carelessness with food</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Chicken manure was not enough</td>
<td>Continue doing crop rotation</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>N/A</td>
<td>Avoiding weeds</td>
<td>Liming</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Livestock</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Bought medicine</td>
<td>Cure a disease which attached the chickens</td>
<td>Good care&lt;br&gt;Increase livestock</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Waiting to sell the crops</td>
<td>Start a business after selling maize</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>Sold groundnuts (P14-180 p.10)</td>
<td>To buy maize seed (P14-180 p.10)</td>
<td>-</td>
</tr>
<tr>
<td>Food Security</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Dividing the food available – for household consumption and for sell</td>
<td>To know how much food she can sell</td>
<td>Buy more food</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Applied manure in the land</td>
<td>To improve soil fertility</td>
<td>Crop rotation</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Part.</td>
<td>Follow-up</td>
<td>Action taken</td>
<td>Reasons</td>
<td>What happens next/way forward</td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
<td>--------------</td>
<td>---------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Livestock</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Lack of money</td>
<td>Buy a chicken</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Bought livestock – goat and chicken</td>
<td>For reproducing and sell – livestock business</td>
<td>Good care</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Pay personal expenses – spare parts for the bicycle</td>
<td>Selling fish business</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Sold food (maize)</td>
<td>Earn cash</td>
<td>Groundnuts business</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>Building a house (P15-194 p.10) Savings (P15-210 p.12)</td>
<td>Still harvesting</td>
<td>Proper storage of the food</td>
</tr>
<tr>
<td>Food Security</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Still harvesting Had enough food</td>
<td>Buy kapenta and beans for relish</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Sold food (groundnuts and maize)</td>
<td>Pay the membership fee for the cooperative</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Still harvesting</td>
<td>Ripping</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Took soya beans residues</td>
<td>To improve land fertility</td>
<td>Apply fertilizer</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Livestock</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Bought livestock (goats and chickens)</td>
<td>Invest in livestock</td>
<td>Buy more livestock (goats)</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Bought livestock Disease prevention</td>
<td>Increase the number of livestock</td>
<td>Continue the disease prevention Continue to buy livestock</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>Bought livestock (goat and chickens) (P16-212 p.12)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Bought maize for reselling</td>
<td>Earn cash</td>
<td>Saving for build a kitchen</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Business</td>
<td>She is used to do business</td>
<td>Continue doing business</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>Business (P16-212 p.12)</td>
<td>Earn cash (P16-212 p.12)</td>
<td>Build a shop (P16-212 p.12)</td>
</tr>
<tr>
<td>Food Security</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Bought food (beans, cooking oil, fish) for relish</td>
<td>It is hard looking for relish after harvested</td>
<td>Start growing vegetables for relish</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Proper storage Bought more food</td>
<td>To reduce the food purchases</td>
<td>Avoid carelessness in food</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Still harvesting</td>
<td>Buy lime</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>N/A</td>
<td>Apply manure from livestock</td>
<td>Apply fertilizer</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Part.</td>
<td>Follow-up</td>
<td>Action taken</td>
<td>Reasons</td>
<td>What happens next/way forward</td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
<td>--------------</td>
<td>---------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>Livestock</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Bought livestock (goats)</td>
<td>Increase the number of livestock</td>
<td>To do livestock business and build a house</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Disease prevention</td>
<td>Increase the number of livestock</td>
<td>Buy more livestock</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Sold food (maize)</td>
<td>It was the only way to start up what she had lost</td>
<td>Continue doing livestock business and start another one</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Bought assets</td>
<td>Wanted to equip the house</td>
<td>Get a loan</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Food Security</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Already harvested but she will not sell</td>
<td>Sell cotton and buy more food</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Proper storage, Bought food</td>
<td>Ensure food security</td>
<td>Avoid carelessness</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Still harvesting</td>
<td>Apply livestock manure</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>N/A</td>
<td>Applied fertilizer</td>
<td>Apply fertilizer after planting</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>Bought inputs (P17-188 p.10)</td>
<td>To plant in the next season (P17-188 p.10)</td>
<td>-</td>
</tr>
<tr>
<td>Livestock</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>She does not have livestock</td>
<td>She does not know</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>N/A</td>
<td>Lack of money to buy livestock/medicine</td>
<td>Buy chickens (livestock)</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Still waiting to be paid by the people she worked for (piecework)</td>
<td>She will wait to be paid so she can spend the money</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Sold grass</td>
<td>Pay personal expenses</td>
<td>Continue selling grass</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Food Security</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Receiving maize as a piecework payment</td>
<td>Increase the available food</td>
<td>Keep cultivating</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Proper storage</td>
<td>Increase the available food time</td>
<td>Take good care of food – avoid carelessness and proper storage</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>Still harvesting</td>
<td>Crop rotation</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>N/A</td>
<td>She did not have where to find manure</td>
<td>Buy fertilizer</td>
</tr>
<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Livestock</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>N/A</td>
<td>No money to buy</td>
<td>Buy a cow</td>
</tr>
<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Bought livestock (chicken)</td>
<td>Increase the number of livestock due to reproduction</td>
<td>Buy more chickens</td>
</tr>
<tr>
<td>Part.</td>
<td>Follow-up</td>
<td>Action taken</td>
<td>Reasons</td>
<td>What happens next/way forward</td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
<td>--------------</td>
<td>---------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Cash</td>
<td>3rd</td>
<td>N/A</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>1st</td>
<td>N/A</td>
<td>-</td>
<td>Open a bar and a shop so he can earn cash</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Sold crops</td>
<td>-</td>
<td>Charcoal business</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Food Security</td>
<td>1st</td>
<td>Sold food (maize)</td>
<td>Did not sell yet the legume crops</td>
<td>Increase the food reserved</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Proper storage</td>
<td>Earn cash</td>
<td>To buy beans</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1st</td>
<td>N/A</td>
<td>-</td>
<td>Take legumes residues to his fields (manure)</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>N/A</td>
<td>-</td>
<td>Apply livestock manure</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Livestock</td>
<td>1st</td>
<td>N/A</td>
<td>-</td>
<td>After selling the crops wants to buy livestock</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Disease prevention</td>
<td>Increase the livestock health</td>
<td>Buy more livestock</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>P20</td>
<td>1st</td>
<td>N/A</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Business</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>P21</td>
<td>1st</td>
<td>N/A</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Proper storage</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash</td>
<td>1st</td>
<td>N/A</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Business</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Food Security</td>
<td>1st</td>
<td>N/A</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Proper storage</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1st</td>
<td>N/A</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Bought fertilizer</td>
<td>Waiting for harvesting</td>
<td>Keep increasing the number of livestock</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>Buy lime</td>
</tr>
<tr>
<td>Livestock</td>
<td>1st</td>
<td>Bought livestock (chickens and goat)</td>
<td>Increase the number of livestock</td>
<td>Keep increasing the number of livestock</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Sold livestock (cow)</td>
<td>To use in the following season (P10-196 p. 10)</td>
<td>Sell the produced food and buy a cow (P10-196 p. 10)</td>
</tr>
<tr>
<td></td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash</td>
<td>1st</td>
<td>Sold tomatoes</td>
<td>Earn cash</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>2nd</td>
<td>Bought hammer mill</td>
<td>Earn cash</td>
<td>-</td>
</tr>
<tr>
<td>Part.</td>
<td>Follow-up</td>
<td>Action taken</td>
<td>Reasons</td>
<td>What happens next/way forward</td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
<td>--------------</td>
<td>---------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Food Security</td>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1st</td>
<td>Produced food</td>
<td>Ensure food security</td>
<td>Increase the food reserved – proper storage</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>Reserved more food than enough (maize) – proper storage</td>
<td>Increase the available food time</td>
<td>Crop diversity</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>Gardening</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1st</td>
<td>Applied manure</td>
<td>Increase the land fertility</td>
<td>Continue adding manure</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Plant musangu trees</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Add lime</td>
</tr>
<tr>
<td>2nd</td>
<td>Applied manure</td>
<td>Increase the land fertility</td>
<td>Apply fertilizer when planting</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1st</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2nd</td>
<td>Dipping (disease prevention)</td>
<td>Disease prevention</td>
<td>Buy more livestock</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Livestock</td>
<td>1st</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cash</td>
<td>2nd</td>
<td>Sold food (maize)</td>
<td>Buy inputs</td>
<td>Does not know</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Continue building his house</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>Sold maize (P22-93 p.7)</td>
<td>Buy inputs (P22-93 p.7)</td>
<td>Finish to build his house</td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2nd</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Food Security</td>
<td>3rd</td>
<td>Reserved enough food and money for food purchases</td>
<td>Depends on selling crops for other programs</td>
<td>Avoid carelessness</td>
</tr>
<tr>
<td>1st</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2nd</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3rd</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Land</td>
<td>1st</td>
<td>N/A</td>
<td>Waiting for the rain season</td>
<td>Ripping the land</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Apply manure</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Apply fertilizer</td>
</tr>
<tr>
<td>2nd</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3rd</td>
<td>Bought inputs (P22-93 p.7)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
**Appendix 6. Coding Charts workshop A**

<table>
<thead>
<tr>
<th>Main argument:</th>
<th>What to do with cash?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casual structure:</td>
<td></td>
</tr>
<tr>
<td><strong>Cause variable:</strong></td>
<td>Cash</td>
</tr>
<tr>
<td><strong>Effect variable:</strong></td>
<td>Land Owned/Rented and Inputs</td>
</tr>
<tr>
<td><strong>Relationship type:</strong></td>
<td>Positive</td>
</tr>
<tr>
<td>Notes:</td>
<td>Start farming and land maintenance</td>
</tr>
<tr>
<td>Information source:</td>
<td>Comments heard from the revision of the previous workshop (2015)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main argument:</th>
<th>How to increase/decrease cash?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casual structure:</td>
<td></td>
</tr>
<tr>
<td><strong>Cause variable:</strong></td>
<td>Food Surplus</td>
</tr>
<tr>
<td><strong>Effect variable:</strong></td>
<td>Cash</td>
</tr>
<tr>
<td><strong>Relationship type:</strong></td>
<td>Positive</td>
</tr>
<tr>
<td>Notes:</td>
<td>“(...) selling that food, yes you can sell some and leave some for food (...)”</td>
</tr>
<tr>
<td>Information source:</td>
<td>Comments heard from the revision of the previous workshop (2015)</td>
</tr>
<tr>
<td>Main argument:</td>
<td>How to get food?</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Casual structure:</td>
<td>Livestock (productive land)</td>
</tr>
<tr>
<td>Cause variable:</td>
<td>Livestock</td>
</tr>
<tr>
<td>Effect variable:</td>
<td>Land (productive land)</td>
</tr>
<tr>
<td>Relationship type:</td>
<td>Positive</td>
</tr>
</tbody>
</table>

**Notes:**
- Help to improve farming: N/A

**Information source:** Comments heard from the revision of the previous workshop (2015)
### How to improve land fertility/farming?

<table>
<thead>
<tr>
<th>Casual structure:</th>
<th>Input</th>
<th>Rain/Water</th>
<th>Crop Rotation</th>
<th>Crop Diversity</th>
<th>Weeding</th>
<th>Rain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cause variable:</td>
<td>Land (productive land)</td>
<td>Land (productive land)</td>
<td>Land (productive land)</td>
<td>Land (productive land)</td>
<td>Land (productive land)</td>
<td>Land (productive land)</td>
</tr>
<tr>
<td>Effect variable:</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
<td>Negative</td>
</tr>
</tbody>
</table>

**Notes:**
- "(...) if you over-use the land, it loses its fertility (...) why we learnt that we should be practicing crop rotation"
- "we should be planting different crops not one crop every year on the same field, it will be destroyed"
- "(...) we suggested that we should be weeding"
- "(...) floods destroy crops"

**Information source:**
- Comments heard from the revision of the previous workshop (2015)

---

### How to increase livestock?

<table>
<thead>
<tr>
<th>Casual structure:</th>
<th>Cash</th>
<th>Good Care</th>
<th>Disease Prevention</th>
<th>Breeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cause variable:</td>
<td>Livestock</td>
<td>Livestock</td>
<td>Livestock</td>
<td>Livestock</td>
</tr>
<tr>
<td>Effect variable:</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
<td>Positive</td>
</tr>
</tbody>
</table>

**Notes:**
- "to make sure that they (livestock) help you and you should also take care of them."
- "(...) there is some medicine needed for livestock so that your livestock can increase ("
- "for cattle to be increasing, to be reproducing your desire should be that you look for a breed which is good ("

**Information source:**
- Comments heard from the revision of the previous workshop (2015)
<table>
<thead>
<tr>
<th>Main argument:</th>
<th>How to increase livestock?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casual structure:</td>
<td></td>
</tr>
<tr>
<td>Cause variable:</td>
<td>Cash</td>
</tr>
<tr>
<td>Effect variable:</td>
<td>Livestock</td>
</tr>
<tr>
<td>Relationship type:</td>
<td>Positive</td>
</tr>
<tr>
<td>Notes:</td>
<td>Keeping livestock</td>
</tr>
<tr>
<td>Information source:</td>
<td>Comments heard from the revision of the previous workshop (2015)</td>
</tr>
<tr>
<td>Causal variable:</td>
<td>Casual structure:</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Casual variable:</td>
<td>Casual structure:</td>
</tr>
<tr>
<td>Gender</td>
<td>Rain</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Notes:
- "(...) I can not do even a garden because there are no rains meaning there is no water"
- "even a cow needs water and grass (...)"
- "Family planning: no polygamy: no unnecessary drinking beer"
- "Manure from livestock can be bought to buy cattle (livestock)"
- "you are using that step on the way we were saying that in time of difficulty, you can do what... You can sell"
- "(...) when you burn your charcoal that ash remains there it can be used to make land and crop carn grow well"
- "(...) if you continue with charcoal even their health is human being reduced be healthy"
- "(...) if they have nutrients to support the crops you plant"
- "(...) growing groundnuts will be a healthy one (...)"
- Start a business -- Sewing or selling flitters

Information source: Comments heard from the workshop scenario exercise

Scenario "No rain and without any help from the government"
### Appendix 7. Coding Charts workshop B

<table>
<thead>
<tr>
<th>Main argument:</th>
<th>What to do with cash?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Casual structure:</strong></td>
<td><strong>Cash</strong></td>
</tr>
<tr>
<td>Cause variable:</td>
<td>Cash</td>
</tr>
<tr>
<td>Effect variable:</td>
<td>Inputs</td>
</tr>
<tr>
<td>Relationship type:</td>
<td>Positive</td>
</tr>
<tr>
<td>Notes:</td>
<td>“(...) we first have cash and then the cash is used to buy inputs”</td>
</tr>
<tr>
<td>Information source:</td>
<td>Comments heard from the revision of the previous workshop (2015)</td>
</tr>
<tr>
<td>Main argument:</td>
<td>How to increase/decrease cash?</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Casual structu re:</td>
<td></td>
</tr>
<tr>
<td>Cause variable:</td>
<td>Sales “Busine ss”</td>
</tr>
<tr>
<td>Effect variable:</td>
<td>Cash</td>
</tr>
<tr>
<td>Relations hip type:</td>
<td>Positive</td>
</tr>
<tr>
<td>Notes:</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Information source: Comments heard from the revision of the previous workshop (2015) Comments heard from the feedback from participants
<table>
<thead>
<tr>
<th>Main argument:</th>
<th><strong>How to get food?</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Casual structure:</td>
<td>Cause variable:</td>
</tr>
<tr>
<td></td>
<td>Effect variable:</td>
</tr>
<tr>
<td>Relationship type:</td>
<td></td>
</tr>
<tr>
<td>Notes:</td>
<td>“We learnt about management of water, which we use for cooking.”</td>
</tr>
</tbody>
</table>

Information source: Comments heard from the revision of the previous workshop (2015)
<table>
<thead>
<tr>
<th>Main argument:</th>
<th>How to improve land fertility/farming?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casual structure:</td>
<td>How to improve land fertility/farming?</td>
</tr>
<tr>
<td>Cause variable:</td>
<td>Inputs</td>
</tr>
<tr>
<td>Effect variable:</td>
<td>Land (productive land)</td>
</tr>
<tr>
<td>Relationship type:</td>
<td>Positive</td>
</tr>
<tr>
<td>Notes:</td>
<td>“From the inputs, we go to the field and cultivate”</td>
</tr>
</tbody>
</table>

Information source: Comments heard from the revision of the previous workshop (2015)
<table>
<thead>
<tr>
<th>Main argument:</th>
<th>How to increase livestock?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casual structure:</td>
<td></td>
</tr>
<tr>
<td>Cause variable:</td>
<td>Disease Prevention</td>
</tr>
<tr>
<td>Effect variable:</td>
<td>Livestock</td>
</tr>
<tr>
<td>Relationship type:</td>
<td>Positive</td>
</tr>
<tr>
<td>Notes:</td>
<td>Keep/source medicine</td>
</tr>
<tr>
<td>Information source:</td>
<td>Comments heard from the revision of the previous workshop (2015)</td>
</tr>
</tbody>
</table>
### Scenario “No rain and without any help from the government”

<table>
<thead>
<tr>
<th>Cause variable:</th>
<th>Govemment</th>
<th>Charcoal</th>
<th>Afforestation</th>
<th>Legislation for Deforestation</th>
<th>Tree(s)</th>
<th>Produced Food</th>
<th>Inputs (manure)/Liming</th>
<th>Cash</th>
<th>Breading</th>
<th>Livestock (chicken)</th>
<th>Crop Rotation</th>
<th>Crop Diversity</th>
<th>Building House</th>
<th>Drilling Boreholes</th>
<th>Conserver Farming</th>
<th>Feed</th>
<th>Good Care (place to sleep)</th>
<th>Cash</th>
<th>Partnerships</th>
</tr>
</thead>
</table>

### Speaker name:
- CIN: 244

### Notes:
- "(...) cow also, the government was helpin g us on the part of fertilizer (...)
- "(...) we find money through charcoal so then we can buy food"
- "(...) there what we are suppo sed to do so that in future we benefit is plantin trees" (rain pattern)
- "(...) rules for cutting down trees"
- "(...) trees in the field they start shedding off the leaves and when you cultivate you are able to find fruit"
- "(...) on the other part it is selling if they grow, you can find profit throug h those trees" (fruit trees from afforestation)
- "(...) when we use manure (from livestock)
- "(...) thing of waiting to be given fertilizer (from FISP) will reduce and our crops will grow well (...) Lime Musang u trees"
- "(...) I should keep chickens for business, if I want to sell, I just get a vehicle and take to Chibombo to sell"
- "(...) changing of crops so that the soil is revamed"
- "(...) planting so many different crops"
- "(...) increasing the cash due to the Rental Business"
- "(...) then on the chickens also you build for them where to be sleeping in, the food should be available"
- "we get cash and buy one cow or if it's a goat, if it's a cow we should build a kraal where it will be sleeping"

### Working with someone can be a drawback or a positive thing

### Comments heard from the workshop scenario exercise – group 1 discussion/explanation
## Main argument:

**Scenario “No rain and without any help from the government”**

<table>
<thead>
<tr>
<th>Cause variable:</th>
<th>Produced Food</th>
<th>Cash</th>
<th>Cash</th>
<th>Livestock (goat)</th>
<th>Cash</th>
<th>Cash</th>
<th>Livestock (goat)</th>
<th>Loan</th>
<th>Piece work</th>
<th>Piecework (ox carts)</th>
<th>Piecework (ox carts)</th>
<th>Legislation for Deforestation</th>
<th>Piece work (ox carts)</th>
<th>Cash</th>
<th>Food Purchases (fritter)</th>
<th>Cash</th>
<th>Livestock (chicken)</th>
<th>Cash</th>
<th>Livestock (chicken)</th>
<th>Abusive Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effect variable:</td>
<td>Cash</td>
<td>Personal expenses/Household Consumption</td>
<td>Livestock (goat)</td>
<td>Cash</td>
<td>Transportation (goat)</td>
<td>Food Purchases (goat)</td>
<td>Cash</td>
<td>Livestock (chickens)</td>
<td>Land Owned/Rented</td>
<td>Water</td>
<td>Trees</td>
<td>Cash</td>
<td>Cash</td>
<td>Food Purchases (fritter)</td>
<td>Cash</td>
<td>Livestock (chicken)</td>
<td>Cash</td>
<td>Livestock (chicken)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

"(...) If you produce food, you get some you sell" Cash k1000

- "We start a business with k500 and then the other one you use at home"
- From k500 buy 2 goats (k250 each) After completing a sale cycle: buy others goats from the previous profit k280, k140 each g for rainin g
- Sell the 2 goats for k500 each at Kasum balesa Cash profit: k500
- Transportation cost: k50/goa t
- Lunch cost: k80
- Expens es: k500 (price of 2 goats) + k600 (transportation of 2 goats) + k160 (to pay people) = k720 Earning s: k1000 (for selling 2 goats) Profit: k1000 - k720 = k280
- "Once you get them and they can do piece work, they give them or a chick or something else"
- "If it's a man he can cut one ox cart of firewood. 10 ox cart s, k20 each"
- "Then from that he comes and say let me not just sit, let me start a business, so k100 for food, k100 for flour and sugar, then he starts a business"
- "Every chicken he can buy" Buy 4 chickens, k25 each
- "I am just k20 for beer"
- "(...) On the livestock, it is reduc ing because the money is just going to busin ess"
Main argument: 

Scenario “No rain and without any help from the government”

<table>
<thead>
<tr>
<th>Casual structure:</th>
<th>Produced Food</th>
<th>Produced Food</th>
<th>Cash</th>
<th>Rental “Business”</th>
<th>Cash (Rental “Business”)</th>
<th>Inputs</th>
<th>Cash (Rental “Business”)</th>
<th>Breeding</th>
<th>Livestock</th>
<th>Loan</th>
<th>Cash</th>
<th>Produced Food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cause variable:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effect variable:</td>
<td>Household Consumption</td>
<td>Cash</td>
<td>Building Houses</td>
<td>Cash</td>
<td>Inputs</td>
<td>Produced food</td>
<td>Livestock</td>
<td>Livestock</td>
<td>Cash</td>
<td>Debt Payback</td>
<td>Inputs (seeds, fertilizer)</td>
<td>Household Consumption/ Sales “Business”</td>
</tr>
</tbody>
</table>

Notes:

“(…) he can grow soya beans, maize, sunflower, when these crops are all harvested they are put on budget to say how much food I'm going to reserve for household consumption” – this can take years according to E01 – 2015 p.47

“(...) he can get cash and come to feel the cups for livestock when the tenants pay (...)”

“Sometimes it is even difficulty to produce enough food for consumption, so here is a wife, they say don’t just sit the chickens are cheap now, that one your grandfather gave you, it produced come and get 2 cocks and sell at k50 each” Profit: k100 (to go to OSAWA)

“(...) he buys inputs he plants and produces food (...)”

“(…) he again gets the money and uses it to buy inputs because the children are still young to start using the money Cash from Rental Business

“(...) he can grow soya beans, maize, sunflower, when these crops are all harvested they are put on budget to say how much food I'm going to reserve for household consumption”

“(…) he can grow soya beans, maize, sunflower, when these crops are all harvested they are put on budget to say how much food I'm going to reserve for household consumption”

“Maybe it is in Kabwe, Chibombo or anywhere where there are a lot of people, there are people who are working but they don’t have where to stay so they can admire that house and rent it in”

“Look for a place, hire a brick layer, buy materials; “it will take 7 years for the house to finish” according to E01 – 2039 p.47

“(...) he can get cash and come to feel the cups for livestock when the tenants pay (...)”

“(...) he again gets the money and uses it to buy inputs because the children are still young to start using the money Cash from Rental Business

“(...) he can grow soya beans, maize, sunflower, when these crops are all harvested they are put on budget to say how much food I'm going to reserve for household consumption”

“(...) he can grow soya beans, maize, sunflower, when these crops are all harvested they are put on budget to say how much food I'm going to reserve for household consumption”

Information source: Comments heard from the workshop scenario exercise – group 2 explanation

Speaker name: CIN; Transcription page: P21 – 2012 p.203/205

Well the he produces and raises a k400, he pays for FISP and they give him 4 * 50 kg bags of fertilizer, he then cultivates and he reaches at a level of producing enough food for consumption and be able to sell some. When he reaches at that level, it means that he also in the position to build a house that will be giving him money so that children can use in future.”

Cash from Loan

Profit: k100 (to go to OSAWA)
Appendix 8. Words-and-arrows Lessons Learned

What to do with cash?

<table>
<thead>
<tr>
<th>Cause</th>
<th>Effect</th>
<th>+/-</th>
<th>Words-and-arrow diagrams</th>
<th>A/B</th>
<th>MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>Land Owned/Rented</td>
<td>+</td>
<td>Cash → Land Owned/Rented</td>
<td>A</td>
<td>1</td>
</tr>
<tr>
<td>Cash</td>
<td>Inputs</td>
<td>+</td>
<td>Cash → Inputs</td>
<td>A/B</td>
<td>2</td>
</tr>
<tr>
<td>Cash</td>
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### How to increase/decrease cash?

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Note: The table and diagram represent the relationships between various factors and their impacts on cash.
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How to get food?

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How to improve land fertility/farming?

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How to increase livestock?

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## Appendix 9. Words-and-arrows Policy proposals

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255
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<tr>
<th>Cause</th>
<th>Effect</th>
<th>+/-</th>
<th>Words-and-arrow diagrams</th>
<th>A/B</th>
<th>MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>Transportation (goat)</td>
<td>+</td>
<td><img src="#" alt="Cash" /> <img src="#" alt="Transportation" /></td>
<td>B</td>
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<tr>
<td>Cash</td>
<td>Food Purchases (goat, fritter, chicken)</td>
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<td><img src="#" alt="Cash" /> <img src="#" alt="Food Purchases" /></td>
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<tr>
<td>Loan</td>
<td>Debt Payback</td>
<td>+</td>
<td><img src="#" alt="Loan" /> <img src="#" alt="Cash" /> <img src="#" alt="Debt Avoidance" /> <img src="#" alt="Debt Payback" /></td>
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<td>97</td>
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<tr>
<td>Piecework</td>
<td>Livestock (chicken)</td>
<td>+</td>
<td><img src="#" alt="Piecework" /> <img src="#" alt="Livestock" /></td>
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<td>98</td>
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<tr>
<td>Piecework (ox carts)</td>
<td>Land Owned/Rented</td>
<td>-</td>
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<td>Water</td>
<td>-</td>
<td><img src="#" alt="Piecework" /> <img src="#" alt="Trees" /> <img src="#" alt="Rain/Water" /></td>
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<tr>
<td>Piecework (ox carts)</td>
<td>Cash</td>
<td>+</td>
<td><img src="#" alt="Piecework" /> <img src="#" alt="Sales &quot;Business&quot;" /> <img src="#" alt="Cash" /></td>
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<td>Livestock</td>
<td>-</td>
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<td>Household Consumption</td>
<td>+</td>
<td><img src="#" alt="Produced Food" /> <img src="#" alt="Available Food" /> <img src="#" alt="Household Consumption" /></td>
<td>B</td>
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<tr>
<td>Cash</td>
<td>Building Houses</td>
<td>+</td>
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<td>B</td>
<td>104</td>
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<td>Rental &quot;Business&quot;</td>
<td>Cash</td>
<td>+</td>
<td><img src="#" alt="Rental &quot;Business&quot;" /> <img src="#" alt="Cash" /></td>
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<td>105</td>
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<tr>
<td>Cash (Rental &quot;Business&quot;, Loan)</td>
<td>Inputs</td>
<td>+</td>
<td><img src="#" alt="Cash" /> <img src="#" alt="Inputs" /></td>
<td>B</td>
<td>106</td>
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<tr>
<td>Inputs</td>
<td>Produced Food</td>
<td>+</td>
<td><img src="#" alt="Inputs" /> ![Land (productive land)] <img src="#" alt="Produced Food" /></td>
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<tr>
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<td>Sales &quot;Business&quot;</td>
<td>+</td>
<td><img src="#" alt="Produced Food" /> <img src="#" alt="Available Food" /> <img src="#" alt="Food Surplus" /> <img src="#" alt="Sales &quot;Business&quot;" /> <img src="#" alt="Cash" /></td>
<td>B</td>
<td>108</td>
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## Appendix 10. Causal Loop Diagrams notation (Source: Videira et al. 2014)

<table>
<thead>
<tr>
<th>Causal Loop Diagrams symbols</th>
<th>Representation</th>
<th>Reading and interpretation</th>
</tr>
</thead>
</table>
| **Positive links**          | ![Positive Links Diagram](image) | **Colloquial:**  
• If A goes up (down) then B will go up (down);  
• If there is a change on A then B will change in the same direction.  
**Formal:**  
• All else equal, if A increases then B increases above what it would have been;  
• All else equal, if A decreases then B decreases below what it would have been;  
• In case of accumulation (i.e. stock-flow relationships) if A increases it will add to B. |
| **Negative links**          | ![Negative Links Diagram](image) | **Colloquial:**  
• If A goes up (down) then B will go down (up);  
• If there is a change on A then B will change in the opposite direction.  
**Formal:**  
• All else equal, if A increases then B decreases above what it would have been;  
• All else equal, if A decreases then B increases below what it would have been;  
• In case of accumulation (i.e. stock-flow relationships) if A subtracts from B. |
| **Reinforcing (or positive) loops** | ![Reinforcing Loops Diagram](image) | **Colloquial:**  
• A feedback loop is positive if the number of negative links is even, thus reinforcing a given initial change.  
**Formal:**  
• Tracing the effect of a change in any of the variables around the loop reveals that the feedback effect reinforces the initial change;  
• Positive feedback loops are sources of growth, erosion and collapse in systems. |
| **Balancing (or negative loops)** | ![Balancing Loops Diagram](image) | **Colloquial:**  
• A feedback loop is negative if the number of negative links is odd, thus opposing disturbances and self-correcting/balancing a given change.  
**Formal:**  
• Tracing the effect of a change in any of the variables around the loop reveals that the feedback effect opposes the initial change. |
| **Time delays**              | ![Time Delays Diagram](image) | • Time delays that are perceived relevant to the dynamics of the system may be represented explicitly in causal loop diagrams (e.g. using mark crossing the causal link arrow). This convention denotes that the causal effect A has on B is significantly delayed in time, although the delay time is not usually specified in these diagrams. |