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**NRSP PROJECT R8116**  
**Improving Management of Common Pool Resources in**  
**Rainwater Harvesting Systems**

**Annex B2**

**Local Criteria for Identifying Groups of the Poor in Western**  
**Pare Lowlands and Maswa District, Tanzania**

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## SUMMARY

A study was conducted to identify the local criteria for identifying groups of the poor in Western Pare Lowlands and Maswa District. The process of identifying the local criteria for wealth ranking involved three steps namely: identification of broad socio-economic groups, developing criteria for assessing community wealth status, and ranking the individual and/or households into different wealth groups. The study was designed in such a way that participants could build confidence and thus participate freely in giving their opinions. Participatory methods and tools were used. The results indicate that:

- People in the two target districts perceive poverty as an inability to meet basic needs. The basic needs, both material and non-material, that a person should have access to, in order to be categorized either as poor or well off, are based on local comparisons as determined by local people themselves. However Pastoralists in both districts consider quality of house, a poor indicator of wealth status. For pastoralists it is common to find rich people living in a house with mud walls and a grass thatched roof, which is a factor of poverty as perceived by other socio-economic groups.
- Poverty levels varied slightly within and between groups. With regard to the youth group, the level varied with geographical location. A large proportion of youth are poorer in Maswa than in WPLL. This is because most are denied the right of access and control of resources, under the Sukuma culture.
- Poverty assessment using local criteria provides a picture on how community perceives itself in terms of relative poverty. It gives an indication of power relations in the community, which in turn determines differential access to CPR by different socio-economic groups within the same communities. However, since livelihood options for poor individuals in the community are more CPR dependent, inaccessibility to CPR increases their degree of vulnerability compared to their well off counterparts. Local criteria do not therefore sufficiently provide a comparison in poverty levels between different communities and livelihood options between the poorer communities. This is because local criteria are location specific. Inter community comparison can be made if local criteria are supplemented with universal indicators of poverty levels for example income and food poverty.

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## **1. INTRODUCTION**

This report is part of the Natural Resources Systems Programme (NRSP) project R8116: Improving Management of Common Pool Resources (CPR) in Rain Water Harvesting (RWH) Systems. The purpose of the project is to develop and promote strategies for improving livelihoods of specific groups of the poor through the improvement of integrated management of CPR. The project was formulated on the basis of findings from previous research, which showed that wide adoption of RWH for agriculture in the semi-arid areas of Tanzania, is leading to changes in tenure, access and management of runoff and related CPR. These changes coupled with poor governance institutions have led to decreased access to the CPR by groups of the poor. Without a deliberate re-organization of the institutions to make them oriented and focussed on the poor, there is a danger that RWH could lead to deepening of poverty among certain groups. Therefore, R8116 was designed to identify and promote institutional changes (tenure, regulatory, planning etc) that are required to ensure that the planning and management of the CPR give priority to the needs of the poor.

The study reported here was therefore implemented to enable the R8116 researchers and target partners to gain a more detailed understanding of the extent and characteristics of poverty in the study areas of Maswa and Same districts. By identifying the local criteria used to assess poverty, the research team aimed to map the characteristic of poverty in the study areas from the perspective of the poor themselves. This report therefore describes these criteria and how they were used to identify the different wealth categories and hence groups of the poor in the study areas.

## **2. METHODOLOGY**

The process of identifying the local criteria for wealth ranking involved three steps; identification of broad socio-economic groups, developing criteria for assessing community wealth status, and ranking the individual and/or households into different wealth groups.

### **2.1 Identification of Broad Socio-economic Groups**

Identification of broad socio-economic groups was implemented through a one-day workshop in each of the target areas. In WPLL, the workshop was conducted at Makanya village and in Maswa District, the workshop was held at Malampaka Secondary School. Participants to these workshops were community development officers, divisional and ward leaders, village chairpersons and village opinion leaders as shown in the list of participants (Appendix 1). Each workshop was conducted in plenary and group discussion sessions. The programmes (Appendix 2) were designed such that participants could build confidence and thus participate freely in giving their opinions. This was achieved through the following steps:

- (i) Self-introduction in order to build up rapport between researchers and the participants.
- (ii) Presentation and discussion on:
  - Findings of previous work regarding rainwater harvesting in the target areas,
  - Objectives of the current projects (R8115 and R816), and
  - Purpose of the workshop and how the categorisation of target population into socio-economic groups will be used in the research process.
- (iii) Identification of and discussion on runoff related CPR through a free listing exercise by all the participants, leading to consensus regarding important CPR related to runoff in the study areas.

- (iv) Then, participants were asked to divide themselves into working groups of 5-6 members. Each group was assigned one type of CPR as a reference and asked to list community sub-groups that depended on the CPR.
- (v) Reports from the groups were then used in the plenary session to agree on how to categorise those dependants on CPR into different socio-economic groups.

## **2.2 Development of Criteria for Wealth Status Ranking**

Fifteen meetings were held with representatives from different socio-economic groups at village levels in one catchment in each of the study areas (Appendix 3). In the WPLL, Makanya and Mwembe villages were selected. The villages are located at different positions on the toposequence. Makanya represents a run-off-receiving area (lowland) and Mwembe represents a run-off-producing area. In Maswa District, Isulilo, Njiapanda, and Bukangilija villages were selected. Isulilo represented upland; Njiapanda represented midland while Bukangilija represented lowland areas of the catchment. As in WPLL, the villages were selected to represent different positions on toposequence. Individuals involved in the meetings were purposively selected based on their knowledge about the community. This was achieved through collaboration of village leaders.

After building up rapport, participants were asked to propose criteria for assessing the wealth status in their respective socio-economic groups. The procedure involved each individual or pairs writing their ideas about criteria for determining wealth groups on a statement sheet. These were then transferred onto flip charts and displayed for discussion. The criteria were then agreed upon by consensus. Then, using the agreed criteria, attributes were defined for each of the wealth ranks.

Based on agreed criteria for determining economic well-being, workshop participants divided their respective social groups into three wealth ranks: the better off, the middle income and the poor. Lastly they estimated the proportion of individuals falling under each rank.

## **3. RESULTS**

### **3.1 Socio-economic Groups in WPLL**

It was agreed that ethnicity, gender, enterprises and age were the key broad socio-economic variables differentiating members of the target community in WPLL (Table 1).

Major ethnic groups in WPLL are the Pare and the Maasai. These groups have different cultures and life styles. The Pare people have permanent settlements while the Maasai are nomadic and move out and into the areas at different times of the year. This has different implications on the use and management of CPR.

There is differential access to and ownership of resources between males and females in all ethnic groups. This leads to variations in economic well-being. The traditions and norms mostly guarantee men ownership of and access to resources. For example, sons commonly inherit resources and assets from their fathers while daughters do not. Divorced women and unmarried daughters are usually allowed to cultivate in their parents farm plots but are not guaranteed ownership rights to them.

There was a lengthy discussion on the classification of youth based on age. The general practice is that the society considers the youth to be single (unmarried) individuals aged between 18 –25 years. Married individuals are automatically considered to be in the elders' group irrespective of age.

After a lengthy discussion it was agreed to consider those between 18 –25 years of age to be in the youth category.

Categorization based on CPR- based economic enterprises was agreed to be as follows:

- i. **Crop production:** The group was homogeneous in relation to ethnicity. Only Pare people depend on this enterprise, but could be stratified according to gender and age. The group depends mostly on agricultural land and water/run-off as their CPR.
- ii. **Agro-pastoralism:** This is a dual-purpose group depending on both crop and livestock production enterprises. It was sub grouped into ethnicity, gender and age. However, the degree of dependence on crop enterprise by the Maasai ethnic group is very low. Also engagement of youth in this mixed economic activity is low compared to elders. The group essentially depends on agricultural land, rangeland and run-off.
- iii. **Vegetable production:** Those engaged in this activity are of the Pare ethnic group. Actors are women who engage in the enterprise on a part-time basis and male youth who depend greatly on the enterprise. Basic CPRs for this group are land and water (run-off).
- iv. **Sand/gypsum mining:** The main actors are Pare male youths although most of them are just selling their labour to large proprietors/traders of sand and gypsum.

**Table 1: Broad socio-economic groups of stakeholders in WPLL**

Enterprises	Ethnicity		Gender		Age	
	Pare	Maasai	Male	Female	Old (> 25)	Youth (18-25)
Crop production	√√√		√√√	√√√	√	√
Agro- pastoralists	√√	√	√√√	√	√√	√
Pastoralists	√	√√√	√√√		√√√	√
Vegetable producers	√		√√	√		√√
Sand/gypsum miners	√		√			√√√

**Key:** √√√ - High dependence on enterprise  
 √√ - Medium dependence on enterprise  
 √ - Low dependence on enterprise

### 3.2 Socio-economic Groups in Maswa District

It was agreed that production enterprises and gender are the key factors used to differentiate the stakeholders into broad socio-economic groups in Maswa district (Table 2). The community is homogeneous in ethnicity; i.e they are exclusively Sukuma people, so ethnicity is not an issue. The definition of youth is very complicated in the study area and would often be misleading.

There is differential access to/and ownership of CPR between males and females. In the Sukuma community, males own cash crops (cotton and paddy) and women own what is believed to be inferior crops like sweet potatoes, which are all consumed by the household. Men are superior over women in the ownership of land and livestock. Only women with special skills like traditional healers may own land/livestock. They access land and own livestock using money earned from their special skills' activities. Single (i.e never-married, divorced or widowed) women (*washimbe*) may, through money obtained from petty businesses, access land and own livestock. *Washimbe* may also

get livestock through bride price paid when their daughters get married. Just like in the Pare community, women in Sukumaland do not inherit resources/property.

There is difficulty in classifying the Sukuma community based on age. The local definitions of youth identified by the community do not use age as a criterion. For the Sukuma, a youth is a person who still lives with his/her parents regardless of his/her age. It is mandatory that even after marriage a son should live with his parents until his younger brother gets married. In case he does not have a young brother he has to wait for his own son to get married and live with the grand parents. During the time that he lives with his parents, he is still considered a youth and does not own or make decisions on resources/assets like cattle and farms. He may be allowed to manage small farm plots (*jilaba*) for his minor private requirements. In our study therefore, a male youth is one who still stays with his parents regardless of his age or marital status.

Categorization based on CPR- based economic enterprises was as follows:

- i. **Crop production:** This is the primary economic activity in Maswa district. The common crops grown are paddy, cotton, pearl millet and sweet potatoes. The activity depends mostly on agricultural land and run-off CPRs.
- ii. **Agro- pastoralism:** This is a dual-purpose enterprise depending on both crop and livestock production. The enterprise provides food and cash to households. The enterprise group depends on agricultural land, rangeland and run-off CPRs.
- iii. **Pastoralism:** This is another enterprise depended upon by many villagers. It depends on agricultural land, rangeland and run-off CPRs.

**Table 2: Broad socio-economic groups of stakeholders in Maswa District**

Enterprises	Sex		Age group	
	Male	Female	Old	Youth
Agro- pastoralists	√√√	√√	√√√	√
Pastoralists	√√√	√	√√√	√
Crop production	√√√	√√√	√√√	√√√

**Key:** √√√ - High dependence on enterprise  
 √√ - Medium dependence on enterprise  
 √ - Low dependence on enterprise

### Description of the groups

Using production enterprise, age and gender, the socio-economic groups were classified as:

- (i) Crop producers and agro-pastoralists, and (ii) Pastoralists
  - i. **Crop producers and Agro-pastoralists:** These groups were found to be homogenous in terms of ethnicity but were stratified according to gender and “age” as follows;
    - ◆ Elder male
    - ◆ Female household heads (e.g widowed, divorced).
    - ◆ Young male (who still lives with parents)
    - ◆ Young female (who still lives with parents)



- ii. **Pastoralists:** This group depends mostly on livestock keeping and relies on rangeland and run off. It was further spilt into:
  - ◆ Elder male livestock keepers
  - ◆ Female household heads (e.g widowed, divorced)
  - ◆ Young male livestock keepers (must be household heads)
  - ◆ Young female livestock keepers (must be having special skills-eg pottery, herbalists)

### 3.3 Criteria for Wealth Ranking and Identifying Groups of the Poor

The criteria for identifying the poor were divided into material and non- material assets. The findings are summarised in Appendixes 4- 21.

#### 3.3.1 Material criteria for wealth determination

Material criteria for wealth determination included the following physical and quantifiable assets: housing, livestock, land, food security, business enterprises, clothes, remittances and farm implements.

- i. **Housing:** The quality of a house where one lives was an important factor for determining wealth status. However, in pastoralist groups, living in a standard house was not perceived as important. Most pastoralists live in very poor houses, but they might own modern rental houses in nearby townships. Quality of houses varied from being poor i.e. those made up of mud and poles and thatched with grass commonly found in WPLL and those made of poles and mud common only in Maswa. There were moderately good houses made of poles and mud, or unburned bricks and roofed with iron sheets. These were common in both WPLL and Maswa. Modern houses mentioned were those made of bricks or blocks and roofed with iron sheets and well plastered, sometimes with glass windows and furnished with modern furniture.
- ii. **Livestock:** Livestock were found to be an important factor for determining wealth status of an individual in both target areas. Livestock is easily converted into other forms of assets like cash, food and farm implements. The common livestock were cattle. Cattle are a traditional symbol for wealth in the Sukuma, Maasai and Pare communities. In all cases, livestock play important social functions such as paying bride price and providing households with secondary products (eg milk, meat), which are sources of nutrients and income to households. However, the number of cattle heads that one should own in order to be recognised as well-off varied with specific groups and geographical areas. Pastoralists in Mwembe village in WPLL considered an individual with more than 10 heads of cattle as rich while poor people possessed none. In Makanya (WPLL) and Bukangilija (Maswa) villages, rich pastoralists owned more than 100 heads of cattle and poor possessed none. For agropastoralists in Makanya, a person was considered rich when he/she possessed not less than 10 heads of cattle. Youth in Mwembe reported that for them, a rich person should own at least 2 heads of dairy cattle or 7 heads of indigenous cattle. Female household heads in Isulilo (in Maswa district) regarded an individual with more than 10 heads of cattle as a rich man.
- iii. **Land:** Ownership of land for different enterprises was an important factor in wealth ranking. Land could be used for crop production and grazing. Both quantity and quality of land are important indicators of wealth status. Quantity and quality of land for crop enterprises varied with proximity to water sources. For example in Mwembe village in the WPLL, having a farm plot near the stream qualified one to be wealthy. The amount of land

needed by different socio-economic groups to classify one as rich or poor man varied substantially. Pastoralists in both WPLL and Maswa classified a person with a minimum of 20 hectares of grazing land as rich. On the other hand, farmers regarded a person with 2 hectares of cropland as rich in WPLL compared to 4 hectares for Maswa District.

- iv. **Food security:** Food self-sufficiency emerged to be an important factor for wealth ranking in all socio-economic groups consulted. Those who were considered well-off had plenty of food (stock lasting for one year or more) while the poor had stocks that could last for 1 - 4 months after harvest. The amount of food was found to be positively related to the land/farm holdings that an individual owned or managed.
- v. **Business enterprises:** Engagement in business enterprises plays a substantial role in improving economic well being. It supplements income from agricultural and livestock production activities. Businesses mentioned varied from mining and trading of gypsum and small-scale food processing like foods vending locally known as *mama nitilie* in WPLL. In Maswa district, the major business enterprises were grain milling and grain trading and *mama nitilie* as well.
- vi. **Clothes:** Ability to afford the cost of clothes appeared to be important in determining wealth status. Poor people wear poor quality clothes and sometimes their children go naked while the well-off people can afford expensive clothes.
- vii. **Remittances:** In some cases, for example women agropastoralists in Mwembe village, it was pointed out that remittance was an important factor to determine economic well being of women. This could be sought from sons and daughters who have good jobs.
- viii. **Farm implements:** In Maswa district implements like ox carts, ox ploughs and ox weeders are important in classifying one as wealthy. Holders of these implements could manage relatively large farms and do farm operations in a timely manner thus realising higher yields compared to their counterparts. Sometimes these implements could be leased/ rented out for money directly.

### 3.3.2 Non- material criteria for determining wealth status

The non-material criteria for determining wealth status included the following; access to socio services, access to farm inputs, marital status, self confidence, membership to local networks, wage labour and ability to pay bride price.

- i. **Access to social services:** Ability to afford the costs associated with social services like education and health signified individuals' wealth status. Wealthier people could pay for primary education and medical services for their families. Children from poor families do not attend school for some periods of the year due to a lack of either fees, or other associated costs. The poor sometimes depend on traditional healers, as they cannot afford modern medical services.
- ii. **Access to farm inputs:** The ability to afford farm inputs indicates whether one is economically poor or well-off.
- iii. **Marital Status:** Women in Mwembe village in WPLL indicated that being married was important for one's economic well being. This is especially the case when a husband comes

from a rich family and is responsible for family well being. Men, however did not concur with this conclusion.

- iv. **Self-confidence:** This was perceived as an important factor and was highly linked to leadership capability. Individuals in the middle wealth group were considered to be good in this respect and are the ones who take leadership positions more frequently. Self-confidence gives individuals the power to make their own decisions or influence the decisions of others.
- v. **Begging:** Dependence on food aid and begging were tendencies that indicated one's level of poverty. However, there are differences in things normally begged for by poor men and women. Poor women tend to beg for food and clothes while men begged for cash and drinks, especially local beer.
- vi. **Membership of local networks:** This was found to be important in both target areas and to most of the socio-economic groups. The networks are composed of neighbours, families and friends. The benefits of being a member of these networks included assistance in a form of labour, gifts and credit.
- vii. **Wage labour:** Engagement in casual works (*vibarua*) influences one's wealth status. Casual labourers do not have enough time to work in their own fields and found themselves getting little yield every season. According to farmers from Bukangilija village, some poor men do get credit in the form of food and money from rich people well in advance of the rainy season with an agreement that they would pay the money back by undertaking casual works. Sometimes poor people could lose their farms to the rich upon failure to pay back the credit.
- viii. **Ability to pay bride price:** In both target areas, ability to pay bride price indicates individual wealth status. Male youth from well-off families get married at the desirable age in comparison to those from poor families, who get married relatively late or sometimes remain unmarried. In a similar way, women in Mwembe (in WPLL) reported that daughters from poor families often get married at a younger age than usual (below 15 years).

Using these criteria the communities were stratified into three wealth groups, the rich, the middle and the poor. However, the pastoralists group in Makanya in WPLL further split the poor into two sub groups. Those who are struggling to improve their living standards and those who have despaired of ever improving their way of living. Pastoralists in Bukangilija regarded every person owning cattle as rich and thus divided themselves into three wealth groups while maintaining their original definition. The groups were very rich, rich and marginally rich. However, after having engaged in a discussion on other qualities such as farm implements and land ownership, which are also considered in determining wealth of a person, they agreed on three wealth groups i.e. rich, middle and poor (Appendix 18).

## 4. SYNTHESIS AND DISCUSSION

### 4.1 Perception of Poverty Indicators

People in the two target districts perceive poverty as an inability to meet basic needs. The basic needs, both material and non-material, that a person should have access to, in order to be categorised either as poor or well off, are based on local comparisons as determined by local people themselves. Normally, a comparison is made between individuals in the same community. However, in some cases specific groups had different opinions on the kind and quantity of materials necessary to qualify one as either being poor or well off. Pastoralists in both districts consider quality of house, a poor indicator of wealth status. For pastoralists it is common to find rich people living in a house with mud walls and a grass thatched roof, which is a factor of poverty as perceived by other socio-economic groups.

### 4.2 Level of Poverty

Poverty levels varied slightly within and between groups. With regard to the youth group, the level varied with geographical location. A large proportion of youth are poorer in Maswa than in WPLL. This is because most are denied the right of access and control of resources, under the Sukuma culture. Table 3 shows the proportion of population within various socio-economic groups.

**Table 3: Proportion of population (%) for each wealth group in WPLL and Maswa**

Village	Socio- Economic groups	Wealth status		
		Rich	Middle	Poor
Makanya (WPLL)	Elder male agropastoralist	20	70	10
	Elder female agropastoralist	20	50	30
	Youth male agropastoralist	10	60	30
	Youth female agropastoralist	20	70	10
	Vegetable producers	10	60	30
	Pastoralists	10	60	30
Mwembe (WPLL)	Elder male agropastoralist	7	60	33
	Elder female agropastoralist	5	75	30
	Youth male agropastoralist	10	60	30
	Youth female agropastoralist	20	50	30
	Pastoralists	20	50	30
Bukangilija/Isulilo (WPLL)	Elder male agropastoralist	20	50	30
	Elder female agropastoralist	10	65	25
	Youth male agropastoralist	20	30	50
	Youth female agropastoralist	10	60	30
	Pastoralists	20	30	50
Njiapanda (Maswa)	Female heads of Households ( <i>washimbe</i> )	10	50	40

### 4.3 Effects of Poverty on Access to Assets

The assets portfolio forms a ladder, which the poor can step-on to get themselves out of abject poverty. There are five types of assets, which are critical to sustainable livelihood. These are human, natural, physical, financial and social assets. Human assets include the physical capacity to

work, skills and good health. Natural assets include land, catchment, runoff and other water resources. The physical assets include access to infrastructure such as transport, machinery and energy. Financial assets include income-generating opportunities, savings and access to formal and informal credit. The social assets are such networks of contacts to resource management especially CPR institutions. Lacking these assets, which is common to all groups of the poor; prevents them from escaping from the poverty.

#### **4.4 Limitations of the Approach**

Poverty assessment using local criteria provides a picture on how community perceives itself in terms of relative poverty. It gives an indication of power relations in the community, which in turn determines differential access to CPR by different socio-economic groups within the same communities. Since livelihood options for poor individuals in the community are more CPR dependent, inaccessibility to CPR increases their degree of vulnerability compared to their well off counterparts.

However, when more generic recommendations are needed, locally defined wealth categories are of little help in identifying the poor in say at national level. Local criteria do not sufficiently provide a comparison in poverty levels between different communities and livelihood options between the poorer communities. This is because local criteria are locational specific. Inter community comparison can be made if local criteria are supplemented with universal indicators of poverty levels for example income and food poverty.

#### **5. CONCLUSION**

Livelihood options in both WPLL and Maswa District are CPR dependent. Agricultural and pasturelands and run off are key CPRs. There is a link between level of access, determined by amount of CPR and wealth status of individuals. Well off individuals get larger portions than their counterparts. It was found that communities in the study areas use material and non-material assets to distinguish individuals in different poverty groups. Those in relative poor groups possess little or no material assets. To them, access to social services like education and health is very limited. They are also voice less as their participation to dialogue forums like village meetings is low.

## APPENDICES

### Appendix 1: List of participants to the workshop

S/N	Name	Position	Address
1	T.A. Tarimo	Divisional Secretary- Mwembe- Mbagaga	P.O Box 1, Mwembe,
2	Willian Yohana	Village Chairperson, Tae	P.O Box 22, Suji
3	D.H. Mvungi	Division Secretary- Chome/Suji	P.O Box Makanya
4	Julius Mbwambo	Village Extension Officer	P.O Box Same
5	Richard Nisagurwe	Ward Executive Officer	P.O Box Makanya
6	Andrew R. Mbwambo	Ward Executive Officer	P.O Box Hedaru
7	Rose B. Mnyone	Community Development Officer	P.O Box Same
8	A. O. Nyongollo	Ward Executive Officer- Makanya	P.O Box 22 Suji
9	Togollani Kiondo	Ward Executive Officer- Hedaru	P.O Box Chome
10	Mwanahawa Mahanyu	Opinion leader	P.O Box Makanya
11	Hadija Selemani	Opinion leader- Mgwasi	P.O Box Mgwasi
12	Kimimino O. Mjenga	Village Chairperson, Makanya	P.O Box Makanya
13	Omari B. Mdee	Village Chairperson, Mgwasi	P.O Box Mgwasi
14	R.K.C Kivia	District Crop Officer-Same	P.O Box 22 Same
15	Crisant S. Mghamba	Ward Executive Officer Mwembe	P.O Box Mwembe
16	Rahel Mmasa	Opinion leader- Tae	P.O Box 22 Suji
17	W.P. Shirima	Ward Extension Officer	P.O Box Mwembe

### Appendix 2: Workshop program

Time	Activity	Responsible person
0800-0845	Registration and introductions	A. Msangi
0845-0900	Workshop objectives	B. Koda
0900-0930	Introduction to the projects	R8115- R. Ngatoluwa R8116- B. Koda
0930-1000	Opinions of participant on issues to be covered by the projects	Participants
1000-1030	Tea Break	ALL
1030-1200	Discussion On socio economic groups depending on CPR	
1200-1300	Group works on identifying broad socio economic groups depending on cpr for livelihoods	ALL
1300-1400	Feedback and discussions on group reports	ALL
1400	Closing the workshop	Participant representative

### Appendix 3: List of people consulted during focus group discussions

#### a) Adult male farmers/Agropastoralists in Makanya village, WPLL

S/No	Name	Sub village
1.	Amani Nzota	Makanya D
2.	Musa Hakimu	Makanya D
3.	Jumanne Mfaume	Makanya E
4.	Omari Joshua	Makanya E
5.	Ramadhani Faraji	Makanya C
6.	Msafiri O. Mbwambo	Makanya C
7.	Saidi Abdallah	Makanya B
8.	Guriadi Lazaro	Makanya B
9.	Kisaka Yerima	Makanya A
10	Mwambi Saidi	Makanya A
11	Edward Mnyuku	Suji kitivo
12	Mohamed Saidi	Suji Kitivo

#### b) Adult female farmers/Agropastoralists in Makanya village, WPLL

S/No	Name	Sub village
1.	Majabu Lusandi	Makanya A
2.	Upendo Elieza	Makanya A
3.	Mrs Shabani Ndewa	Makanya B
4.	Ms Pili Mzuri	Makanya B
5.	Asha Hamisi	Makanya C
6.	Zubeda Saidi	Makanya C
7.	Amina J. Mnkashwa	Makanya D
8.	Mrs Fahamuel Senkoro	Makanya D
9.	Marimu Mwalimu	Makanya E
10.	Habiba Mohamed	Makanya E
11.	Loveness Youze	Suji kitivo
12.	Amina Hemedi	Suji kitivo

#### c) Youth male farmers/Agropastoralists in Makanya village , WPLL

S/No	Name	Sub village
1.	Amani Rubeni	Makanya A
2.	Kari White	Makanya A
3.	Mrindoko Rajabu	Makanya B
4.	Kaniki Salimu	Makanya B
5.	Hassani Shungusha	Makanya C
6.	Askari Sungura	Makanya C
7.	Salo Saidi	Makanya D
8.	Musa Baraka	Makanya D
9.	Mnkande Fadhili	Makanya E
10.	Mabruki Waziri	Makanya E
11.	Ngoye Hemedi	Suji kitivo
12.	Kiravu Ramadhani	Suji kitivo

d) Pastoralists in Makanya village, WPLL

S/No	Name	Sub village
1.	Abdallah Sekiete	King'ore
2.	Athumani Mshitu	Kwesasu
3.	Hamisi Mkanza	Kwesasu
4.	Ramadhani Mrindakaa	Kwesasu
5.	Juma Musa Mwandeni	Kwesasu
6.	Alfredi Mnzava	Kwesasu
7.	Gaddy Alli	Chankonko
8.	Senzighe Bwanashamba	Chankonko
9.	Kanyika kirema	Chankonko
10.	Minja Mwanyika	Chankonko
11.	Mmasa Chikira	Chankonko
12.	Ali Makenya	Chankonko
13.	Charles Sekiro	Chankonko
14.	Makenya Kimati	Chankonko
15.	Zuberi Senzighe	Naivoli
16.	Eliapendavyo Juma	Naivoli
17.	James Elinazi	Makanya

e) Adult male agro pastoralists in Mwembe village, WPLL

S/No	Name	Sub village
1.	Makoko Kayuni	Kaloleni
2.	Walter Mjema	Kaloleni
3.	Ramadhani salimu	Msalaka
4.	Waziri Mmombo	Msalaka
5.	Ramadhani Semboja	Kimunyu
6.	Mzee Mambo	Kimunyu
7.	Rabiet Mkumbwa	Miringa
8.	Bakari Hassani	Miringa
9.	Musa Rashidi	Manayata
10.	Salimu Idi	Manyata
11.	Idi juma Mndeme	Kirinjiko
12.	Husseni Pesa	Daghaseta
13.	Shabani Pesa	Daghaseta
14.	Hashimu Omari	Barazani
15.	Juma shabani	Barazani

f) Adult female farmers in Mwembe village, WPLL

S/No	Name	Sub village
1.	Tabu Magomba	Kaloleni
2.	Chavise Hassani	Kaloleni
3.	Zukira Idi	Msalaka
4.	Mariam Hassani	Msalaka
5.	Mrs Semboja	Kimunyu
6.	Mrs Vita	Kimunyu



7.	Mrs Rabieti	Miringa
8.	Mrs Athumani Nawasha	Miringa
9.	Mariamuhomahedi	Manayata
10.	Nakio Senkorao	Manyata
11.	Asinati Mndeme	Kirinjiko
12.	Mrs Isado	Daghaseta
13.	Mariamuhomadhani	Daghaseta
14.	Ester Kanemuna	Barazani
15.	Bahati Rajabu	Barazani

g) Youth male farmers in Mwembe village, WPLL

S/No	Name	Sub village
1.	Abdallah Brashi	Kaloleni
2.	Haji Saidi	Kaloleni
3.	Abdu Sufiani	Msalaka
4.	Twalibu	Msalaka
5.	Abdu Ramadhani	Kimunyu
6.	Athumani Ramadhani	Kimunyu
7.	Alisoni Herieli	Miringa
8.	James Hamisi	Miringa
9.	Mwarabu Selemani	Manayata
10.	Leonard Ramadhani	Manyata
11.	Juma Idi	Kirinjiko
12.	Mwamedidi Iddi	kirinjiko
13.	Rasuli Pesa	Daghaseta
14.	Nuru Bakari	Daghaseta
15.	Nassoro Msangi	Barazani
16.	Mdoli Hamisi	Barazani

h) Youth female farmers in Mwembe village, WPLL

S/No	Name	Sub village
1.	Zainabu Ramadhani	Kaloleni
2.	Mzighwa Daudi	Kaloleni
3.	Zuhura Abdala	Msalaka
4.	Amina Mariamu	Msalaka
5.	Halima Haruni	Miringa
6.	Nekundiwe Nakaniwa	Miringa
7.	Halima Senkoro	Manayata
8.	Mwanaidi Alfani	Manyata
9.	Mwanamina Idi	Kirinjiko
10.	Fatuma Ngalito	kirinjiko
11.	Saida Ramadhani	Daghaseta
12.	Zaina Pesa	Daghaseta
13.	Frida Maleko	Barazani
14.	Merina Nathanaeli	Barazani

i) Elder male pastoralists in Mwembe village, WPLL

S/No	Name	Sub village
1.	Ramadhani Mkongi	Manayata
2.	Swalimu Nkima	Manyata
3.	Arufani Mruthu	Manyata
4.	Hosseni Abdalla	Manyata
5.	Omari Mlekea	Manyata
6.	Hassani Saidi	Kimunyu
7.	Ramadhani Lubwaza	Kimunyu
8.	Ramadhani Boyi	Kimunyu
9.	Elibariki Mrindiko	Msalaka
10.	Idi Juma	Kirinjiko
11.	Athumani Salumu	Barazani
12.	Filemoni Ali	Barazani

j) Adult male farmers in Bukangilija village, Maswa District

Name	Sub Village
Nkuba Mjika	Not recorded
Shushu Basu	- do -
Joseph Nkono	- do -
John Nzingula	- do -
Jilunga Konda	- do -
Nkinda Nzingula	- do -
Yumbu Lifa	- do -
Shimbi Mabula	- do -
Maduka Jidayi	- do -
Wilson Mabelele	- do -

k) Young male Agropastoralists in Bukangilija village, Maswa District

Name	Sub village
Julius Bunyanya	Gabu
Mikuyu Shija	Nhelela
Ngeni Lutaja	Gabu
Boniface Magida	Gabu
Elias Zengo	Nhelela
Kabogo Magida	Gabu
Maduka Jidayi	Gabu
Mathias Ndauli	Gabu
Salu Lukanya	Ikungu
Makubi dalali	Ikungu

l) Elder male pastoralists in Bukangilija village, Maswa District

Name	Sub village
Shushu Ikuku	Gemba
S. S. Lungulu	Ikungu

Samson Masanja	Ikungu
Kayeji Gengili	Gemba
Nkuba Mjika	Nhelela
Mihulu Jilala	Nhelela
Kilson Kahedela	Kashishi
Paul Lubigili	Kashishi

m) Female agropastoralists who head of households (*washimbe*) in Isulilo village

Name	Sub-village
1. Anna Joseph	Not recorded
2. Helena Musa	-do-
3. Maria Kwilasa	-do-
4. Ester Petro	-do-
5. Magreth Nhumbili	-do-
6. Ester Malulu	-do-
7. Neema Duttu	-do-

n) Young female agropastoralists ( still staying with their parents ) in Isulilo village

1. Magreth Obure	-do-
2. Paulina Renatus	-do-
3. Elicia Seni	-do-

o) Male youth agropastoralists in Isulilo village

1. Zacharia Charles	Not recorded
2. Emmanuel William	-do-
3. Elias Mathias	-do-
4. Sini Ngisa	-do-
5. Joseph Masanja	-do-
6. Faustine Masasila	-do-
7. Emmanuel Ngalango	-do-

**Appendix 4: Characteristics of wealth groups as perceived by elder men agro-pastoralist in Makanya village**

Criteria	Groups		
	Rich	Middle	Poor
<b>Housing</b>	Built with bricks/block, roofed with iron sheets with glass windows Well furnished -couch, dinning table	Built with bricks and roofed with iron sheets Poorly finished Not well furnished	Built with poles, mud and thatched with grass
<b>Land</b>	Not applicable	Not applicable	Not applicable
<b>Livestock</b>	Own more than 10 heads of cattle More than 15 goat	Less than 15 goat Less than 9 heads of cattle	Only local chicken
<b>Food security</b>	Never experience hunger	Sufficient	food insecure – can take single meal a day
<b>Business enterprises</b>	Run large shops and guest houses Own gypsum mine and engaged in gypsum trading	Engaged in petty business	Not engaged in business
<b>Clothes:</b>	Wear expensive clothes	Self sufficient	Poor clothing
<b>Remittances</b>	Not applicable	Not applicable	Not applicable
<b>Farm implements</b>	Either owns or Afford paying for tractor services in farm operations	Own/ use none	Own none
<b>Access to social services</b>	Afford costs of primary education and health service	Afford costs of primary education and health services	Do not afford costs of primary education and health services
<b>Access to farm inputs</b>	Use farm inputs	Do not use modern farm inputs	Do not afford farm inputs
<b>Self-confidence</b>	Self confident	Self confident Attend social gathering/ meetings	Not self confident Do not attend social gatherings
<b>Begging</b>	Do not beg	Do not beg	Always begging
<b>Membership to local networks</b>	Member to networks Can lend small credit (up toTshs 10 000)	Member to networks Can borrow and lend small credit	Do not belong to any formal local network
<b>Wage labour</b>	Hire labour for farm operations	Occasionally hire labour for farm operations	Live on casual works/usually sell labour to others
<b>Proportion</b>	<b>20%</b>	<b>70%</b>	<b>10%</b>

**Appendix 5: Characteristics of wealth groups as perceived by elder women agro-pastoralist in Makanya village**

	Groups		
Criteria	Rich	Middle	Poor
<b>Housing</b>	Built with bricks/block, roofed with iron sheets with glass windows Well furnished -couch, dining table, video	Built with bricks and roofed with iron sheets Poorly finished Not well furnished	Poorly -made of poles, mud and thatched with grass
<b>Land</b>	Own more than 5 acres	Own 3-5 acres	Own 1-2 acres
<b>Livestock</b>	Own more than 5-30 heads of cattle More than 20 goats	Less than 6 goats Less than 4 heads of cattle	Own 1-5 goats 1-3 heads of cattle
<b>Food security</b>	Never experience hunger	Self-sufficient	food insecure
<b>Business enterprises</b>	Run large shops, hotels and guest houses; Own gypsum mines and engaged in gypsum trading	Engaged in petty business	Not engaged in petty business
<b>Clothes:</b>	Wear expensive clothes	Self sufficient	Poor clothing
<b>Farm implements</b>	Hire tractors for farm operations	Use none	Use none
<b>Access to social services</b>	Afford costs of secondary education and health services	Afford costs of primary education and health services	Do not afford cost of education and health services
<b>Access to farm inputs</b>	Use modern farm inputs	Do not use modern farm inputs	Do not afford costs of farm inputs
<b>Self-confidence</b>	Self confident	Self confident Attend social gathering/ meetings	Not self confident Do not attend social gatherings
<b>Begging</b>	Do not beg	Do not beg	Always begging
<b>Membership to local networks</b>	Member to networks Can lend small credit (up to Tshs 10 000)	Member to networks Can borrow and lend small credit (1000-10000)	Not member in social networks
<b>Wage labour</b>	Hire labour for farm operations	Occasionally hire labour for farm operations	Live on casual works/sell labour to others
<b>Proportion</b>	<b>20%</b>	<b>50%</b>	<b>30%</b>

**Appendix 6: Characteristics of wealth groups as perceived by young male agropastoralists in Makanya village**

	Groups		
Criteria	Rich	Middle	Poor
<b>Housing</b>	Built with bricks/block, roofed with iron sheets with glass windows Well furnished -coach, dining table, video	Roofed with iron sheets Built with bricks or poles Poorly finished Not well furnished	Do not own house, live in their parents houses or other people's houses
<b>Land</b>	Own 5 acres of farm, but can manage more than 5 acres through hiring land	Own 2-3 acres of farm	Own no farm/use borrowed farm
<b>Livestock</b>	Own more than 20 heads of cattle More than 15 goats	Less than 20 heads of cattle	Own no goats Own no cattle
<b>Food</b>	Never experience hunger	Sufficient	Food insecure
<b>Business enterprises</b>	Run large shops Own gypsum mines and engage in gypsum trading	Engage in petty business operated around market centres	Run no enterprise
<b>Clothes:</b>	Wear expensive houses	Self sufficient	Poor clothing
<b>Remittances</b>	Not applicable	Not applicable	Not applicable
<b>Farm implements</b>	Hire tractors for farm operations	Use no tractors	Can not afford

<b>Access to social services</b>	Attained primary school and above	They are primary school leavers	They are primary school drop outs Do not afford costs of health services
<b>Access to farm inputs</b>	Use modern farm inputs	Do not use modern farm inputs	Do not afford costs of farm inputs
<b>Spouse</b>			
<b>Self-confidence</b>	Self confident	Self confident Attend social gathering/ meetings	Not self confident Do not effectively participate in social gatherings
<b>Begging</b>	Do not beg	Do not beg	Always begging
<b>Membership to local networks</b>	Member to networks Access to financial institution eg bank	Member to networks	Not member in social networks
<b>Wage labour</b>	Hire labour for farm operations	Occasionally hire labour for farm operations	Live on casual works/sell labour to others
<b>Proportion</b>	<b>10%</b>	<b>60%</b>	<b>30%</b>

### Appendix 7: Characteristics of wealth groups as perceived by young female agropastoralists in Makanya village

	Groups		
Criteria	Rich	Middle	Poor
<b>Housing</b>	Own house built with bricks/block, roofed with iron sheets though may still be living in parents houses	Do not own houses, live in their parents houses	Do not own house, live in their parents houses or other people's houses
<b>Furniture</b>	Have modern furniture	Have modern furniture in their rooms	Do not possess furniture
<b>Land</b>	Own 3-5 acres of farm, but can manage more than 5 acres through hiring land	Own no farm/ use borrowed 2-3 acre farm on seasonal basis	Own no farm/ use borrowed 1 acre farm on seasonal basis
<b>Livestock</b>	Own no goats Own no cattle	Own no goats Own no cattle	Own no goats Own 0 cattle
<b>Food</b>	Never experience hunger	Sufficient	food insecure
<b>Business enterprises</b>	Run large shops, hotels, gypsum mine and engage in gypsum trading	Run small businesses around market centres	Not engaged in any business
<b>Clothes:</b>	Wear very expensive clothes	Self sufficient	Poor clothing
<b>Farm implements</b>	Hire tractors for farm operations	Use no tractors	can not afford
<b>Access to social services</b>	Attained primary school	They are primary school leavers	Do not afford costs of health services Their children are always malnourished
<b>Access to farm inputs</b>	Use modern farm inputs	Do not use modern farm inputs	Do not afford costs of farm inputs
<b>Spouse/marriage</b>	Do not consider marriage / spouse important for well being	Consider marriage / spouse important for well being	Consider marriage / spouse important for well being
<b>Self-confidence</b>	Self confident	Self confident Attend social gathering/ meetings	Not self confident Do not effectively participate in social gatherings
<b>Begging</b>	Do not beg	Do not beg	Always begging (food and clothes)
<b>Membership to local networks</b>	Member to networks; Access financial institutions eg bank	Member to networks	Not belong to any networks/sell labour to others

<b>Wage labour</b>	Hire labour for farm operations	Occasionally hire labour for farm operations	Live on casual works
<b>Proportion</b>	<b>20%</b>	<b>70%</b>	<b>10%</b>

### Appendix 8: Characteristics of wealth groups as perceived by vegetable producers in Makanya village

Criteria	Groups		
	Rich	Middle	Poor
<b>Housing</b>	Built with bricks/blocks and roofed with iron sheets	Iron roofed, built up of trees and mud or unburned bricks	Made up of poles, mud and thatched with grass
<b>Furniture</b>	Have modern furniture	Have moderately good furniture	Posses poor furniture
<b>Land</b>	Own more than 5 acres of farm	Own 2-3 acres farm on plots	Own 1 acre farm or use borrowed farm on seasonal basis
<b>Livestock</b>	Own more than 10 heads of cattle	Own 1-9 cattle	Own no goats or cattle
<b>Food</b>	Never experience hunger	Sufficient	food insecure
<b>Business enterprises</b>	Shops, hotels	Run small businesses	Not engaged in business
<b>Clothes:</b>	Wear very expensive clothes	Self sufficient	Poor clothing
<b>Remittances</b>			
<b>Farm implements</b>	Hire tractors for farm operations	Own use none	can not afford
<b>Access to social services</b>	Afford cost of primary education and health services	Afford cost of primary education and health services	Do not afford costs of primary education or health services
<b>Access to farm inputs</b>	Use modern farm inputs	Use modern farm inputs	Do not afford costs of farm inputs
<b>Self-confidence</b>	Self confident	Self confident; Attend social gathering/ meetings; Hold leadership positions	Not self confident; Don't hold leadership positions; Do not effectively participate in social gatherings
<b>Begging</b>	doesn't beg	doesn't beg	doesn't beg
<b>Membership to local networks</b>	Member to networks Access financial institution eg bank	Member to networks	Not members in social networks
<b>Wage labour</b>	Hire labour for farm operations	Occasionally hire labour for farm operations	Live on casual works/sell labour to others
<b>Proportion</b>	<b>10%</b>	<b>60%</b>	<b>30%</b>

## Appendix 9: Characteristics of wealth groups as perceived by pastoralists in Makanya village

Criteria	Groups		
	Rich	Middle	Poor
<b>Housing</b>	Iron roofed, built up of poles and mud or unburned bricks Sometime live in temporary houses Have modern houses in nearby town	Iron roofed, built up of poles and mud or unburned bricks	Made up of poles, mud and thatched with grass
<b>Furniture</b>	Have moderately good furniture	Have moderately good furniture	Posses poor furniture
<b>Land</b>	Own more than 50 acres of land	Own large land holdings over 50 acres	Own 1 acre farm or use borrowed farm on seasonal basis
<b>Livestock</b>	Own more than 100 heads of cattle	Own 1-100 heads of cattle	Own no goats or cattle
<b>Food</b>	Have excess	Sufficient	food insecure
<b>Business enterprises</b>	Do not have any	Do not have any	Not engaged in business
<b>Clothes:</b>	Self sufficient	Self sufficient	Poor clothing
<b>Farm implements</b>	Hire tractors for farm operations	Hire none	Can't afford
<b>Access to social services</b>	Afford cost of primary education and health services	Afford cost of primary education and health services	Do not afford costs of primary education or health services
<b>Access to farm inputs</b>	Use modern farm inputs	Do not use	Do not afford costs of farm inputs
<b>Self-confidence</b>	Self confident;  Hold leadership positions	Self confident; Attend social gathering/ meetings; Hold leadership positions	Not self confident; Don't hold leadership positions; Do not effectively participate in social gatherings
<b>Begging</b>	Do not	Do not	Beg food and cash; Commit theft as strategy for survival
<b>Membership to local networks</b>	Member to networks Access financial institutions e.g. bank	Member to networks	Not member in social networks
<b>Wage labour</b>	Hire labour for farm operations	Occasionally hire labour for farm operations	Live on casual works/sell labour to others
<b>Ability to pay bride price</b>	Afford bride price and their sons get married on time	Afford bride price and their sons get married on time	Do not afford paying for pride price for their sons
<b>Proportion</b>	<b>10%</b>	<b>60%</b>	<b>30%</b>



**Appendix 10: Characteristics of wealth groups as perceived by elder male agropastoralists in Mwembe Village**

Criteria	Groups		
	Rich	Middle	Poor
<b>Housing</b>	Iron roofed, built up of poles and mud or unburned bricks; Sometimes live in temporary houses; Have modern houses in nearby town	Iron roofed, built up of poles and mud or unburned bricks	Made up of poles, mud and thatched with grass
<b>Furniture</b>	Have moderately good furniture	Have moderately good furniture	Poses poor furniture
<b>Land</b>	Own more than an acre of farm plot near the stream and more than 6 acres else where	Own less than an acre of farm plot near stream and more than 6 acres else-where	Own 6 acres farm plot or manage borrowed farm located at the periphery of the stream
<b>Livestock</b>	Own more than 10 heads of cattle	Own 1-9 heads of cattle	Own no goats or cattle
<b>Food</b>	Have excess	Sufficient	food insecure
<b>Business enterprises</b>	Hardware, milling machines, rented houses	Kiosks, food vending	Not engaged in business
<b>Clothes:</b>	Self sufficient	Self sufficient	Poor clothing
<b>Farm implements</b>	Hire tractors for farm operations	Do not use tractors	Use Hand hoes
<b>Access to social services</b>	Afford social services eg education, health, water and power	Afford cost of primary education and health services	Do not afford costs of primary education and health services
<b>Access to farm inputs</b>	Use modern farm inputs	Do not use	Do not use
<b>Self-confidence</b>	Self confident;  Hold leadership positions	Self confident; Attend social gathering/ meetings; Hold leadership positions	Not self confident; Don't hold leadership positions; Do not effectively participate in social gatherings
<b>Begging</b>	Do not beg	Do not beg	Beg for cash and brew
<b>Membership to local networks</b>	Member to networks; Access financial institutions eg bank	Member to networks; Access informal credit services	Not member in social networks
<b>Wage labour</b>	Hire labour for farm operations	Occasionally hire labour for farm operations	Live on casual works/sell labour to others
<b>Proportion</b>	<b>7%</b>	<b>60%</b>	<b>33%</b>

**Appendix 11: Characteristics of wealth groups as perceived by elder female agropastoralists in Mwembe Village**

Criteria	Groups		
	Rich	Middle	Poor
<b>Housing</b>	Iron roofed, built up of poles and mud or unburned bricks; Sometimes live in temporary house Have modern houses in nearby town	Iron roofed, built up of poles and mud or unburned bricks	Made up of poles, mud and thatched with grass Sometimes do not own a house, live in other people s' houses
<b>Furniture</b>	Have moderately good furniture	Have moderately good furniture	Posses very poor furniture
<b>Land</b>	Own at least an acre of farm plot near the stream and more 3 acres else where	Own less than an acre of farm plot near stream and more than 1-2 acres else where	Own an acre of farm plot located at the periphery of the stream
<b>Livestock</b>	Own more than 7 heads of cattle	Own 1-6 heads of cattle	Own no goats or cattle
<b>Food</b>	Have excess	Sufficient for 6-9 months	Food insecure
<b>Business enterprises</b>	Shops, milling machines	Food vending, kiosk	Not engaged in business
<b>Clothes:</b>	Expensive wears	Self sufficient	Poor clothing
<b>Remittances</b>	Get from sons and daughters	Do not get	Do not get
<b>Farm implements</b>	Hire tractors for farm operations	Use Hand hoes, panga, axe	Use Hand hoes
<b>Access to social services</b>	Afford social services e.g. education, health, water and power for family	Afford cost of primary education and health services	Do not afford costs of primary education and health services
<b>Access to farm inputs</b>	Do not use	Do not use	Do not use
<b>Spouse/marriage</b>	Rich husband	Have none	Have none
<b>Self-confidence</b>	Self confident; Hold leadership positions	Self confident; Attend social gathering/ meetings; Hold leadership positions	Not self confident; Do not hold leadership positions; Do not effectively participate in social gatherings
<b>Begging</b>	Do not	Do not	Beg food and clothes; Commit theft as strategy of survival
<b>Membership to local networks</b>	Member to networks; Access financial institutions eg bank	Member to networks; Access informal credit services	Not member in social networks
<b>Wage labour</b>	Hire labour for farm operations	Occasionally hire labour for farm operations; Do casual works during hunger or to increase capital	Live on casual works/ sell labour Daughters become housemaids
<b>Ability to pay bride price</b>	No problems	Afford with less difficulties	Sons marry late or remain single due to lack of bride price Daughters get married at teenage (< 15 year)
<b>Proportion</b>	<b>5%</b>	<b>75%</b>	<b>20%</b>

## Appendix 12: Characteristics of wealth groups as perceived by young male agropastoralists in Mwembe Village

Criteria	Groups		
	Rich	Middle	Poor
<b>Housing</b>	Iron roofed, built up of poles and mud or unburned bricks	Iron roofed, built up of poles and mud or unburned bricks	Made up of poles, mud and thatched with grass
<b>Furniture</b>	Have moderately good furniture	Have moderately good furniture	Possess very poor furniture
<b>Land</b>	Own 1.5 acres of vegetable gardens	Own 0.25 acres of vegetable gardens	Own an acre of farm plot
<b>Livestock</b>	Own more than 7 heads of indigenous cattle Own 1-2 dairy cattle	Own 1-7 heads of indigenous cattle	Own no goats or cattle
<b>Food</b>	Have excess	Sufficient	Food insecure
<b>Business enterprises</b>	Shops, kiosks	Not engaged in business	Produce only food crops Not engaged in business
<b>Clothes:</b>	Expensive wears	Self sufficient	Poor clothing
<b>Farm implements/assets</b>	Hand hoes, panga, axe; Possess assets like radio, video and camera	Hand hoes, panga, axe; Possess assets like radio and camera	Hand hoes, panga, axe
<b>Access to social services</b>	Afford social services eg education, health, water and power for family use	Afford cost of primary education and health services	They are primary school dropouts; Do not afford cost of health services, tend to go for traditional healers/ herbs
<b>Access to farm inputs</b>	Use for vegetable production only	Use for vegetable production only	Do not use
<b>Self-confidence</b>	Self confident; Hold leadership positions	Self confident; Attend social gathering/ meetings; Hold leadership positions	Not self confident; Don't hold leadership positions; Do not effectively participate in social gatherings
<b>Membership to local networks</b>	Member to networks; Access financial institutions e.g. bank	Member to networks; Access informal credit services	Not a member to any social network
<b>Wage labour</b>	Hire labour for farm operations	Occasionally hire and sell labour	Live on casual works/sell labour to others
<b>Proportion</b>	<b>10%</b>	<b>60%</b>	<b>30%</b>

**Appendix 13: Characteristics of wealth groups as perceived by young female agropastoralists in Mwembe Village**

Criteria	Groups		
	Rich	Middle	Poor
<b>Housing</b>	Iron roofed, built up of poles and mud or unburned bricks	Do not have a house, live in her parents house or other people s' houses	Do not have a house, live in her parents house or other people s' houses
<b>Furniture</b>	Have moderately good furniture	Have moderately good furniture in their rooms	Posses very poor furniture
<b>Land</b>	Do not own farm, used to borrow farm from parents or other people	Do not own farm, used to borrow farm from parents or other people	Do not own farm, used to borrow farm from parents or other people
<b>Livestock</b>	Own none	Own none	Own none
<b>Food</b>	Have excess	Self-Sufficient	Food insecure
<b>Business enterprises</b>	Shops, hotels	Food vending, and second hand clothes	Not engaged in business
<b>Clothes:</b>	Expensive wears	Self sufficient	Poor clothing
<b>Access to social services</b>	Afford social services eg health, water and power	Afford cost of primary education and health services	Do not afford costs of health services, tend to use herbs
<b>Access to farm inputs</b>	Use farm inputs	Do not use	Do not use
<b>Self-confidence</b>	Self confident ; Hold leadership positions	Self confident; Attend social gathering/ meetings; Hold leadership positions	Not self confident; Don't hold leadership positions; Do not effectively participate in social gatherings
<b>Begging</b>	Do not	Do not	Beg for clothes
<b>Membership to local networks</b>	Member to networks;	Member to networks; Access informal credit services	Not a member in social net - works
<b>Wage labour</b>	Hire labour for farm operations	Occasionally hire labour for farm operations; Do casual works to increase financial capital	Live on casual works/sell labour to others
<b>Proportion</b>	<b>20%</b>	<b>50%</b>	<b>30%</b>

**Appendix 14: Characteristics of wealth groups as perceived by elder male pastoralists in Mwembe Village**

Criteria	Groups		
	Rich	Middle	Poor
<b>Housing</b>	Iron roofed, built of bricks /blocks	Made of poles mud and roofed with iron sheets.	Made of poles, mud and thatched with grass
<b>Furniture</b>	Have moderately good furniture	Have moderately good furniture in their rooms	Posses very poor furniture
<b>Land</b>	Own more than an acre of farm plot near water source and 6 acres else where	Own an acre of farm plot near water source and 4 acres elsewhere	Do not own farm, used to borrow farm from neighbours
<b>Livestock</b>	Own more than 10 heads of indigenous cattle	Own 1-9 heads of indigenous cattle	Own none other than local chicken
<b>Food</b>	Have excess	Sufficient	food insecure
<b>Business enterprises</b>	Shops, hotels	Food vending,	Not engaged in business
<b>Clothes:</b>	Self sufficient	Self sufficient	Poor clothing
<b>Farm implements</b>	Hoe, Panga and axe	Hoe, Panga and axe	Hoe, Panga and axe
<b>Access to social services</b>	Afford social services eg education and health	Afford cost of primary education and health services for the family	Do not afford costs of education and health services
<b>Access to farm inputs</b>	Use farm inputs	Do not use	Do not use
<b>Self-confidence</b>	Self confident;  Hold leadership positions	Self confident; Attend social gathering/ meetings; Hold leadership positions	Not self confident; Don't hold leadership positions; Do not effectively participate in social gatherings
<b>Begging</b>	Do not	Do not	Beg for clothes, and food
<b>Membership to local networks</b>	Member to networks	Member to networks; Access informal credit services	Not a member in social networks
<b>Wage labour</b>	Hire labour for farm operations	Occasionally hire labour for farm operations; Do casual works during hunger or to increase financial capital	Live on casual works/ Sell labour to others
<b>Ability to pay bride price</b>	Afford bride price and their sons get married on time	Afford bride price and their sons get married on time	Do not afford paying for pride price for their sons
<b>Proportion</b>	<b>20%</b>	<b>50%</b>	<b>30%</b>

**Appendix 15: Characteristics of wealth groups as perceived by elder male agropastoralists in Bukangilija village**

Criteria	Groups		
	Rich	Middle	Poor
<b>Housing</b>	Roofed with iron sheet, built of mud/unburned bricks, spacious and may have several units eg for sleeping, guest, store, kitchen	Roofed with iron sheet, built of mud/unburned bricks.	Made up of poles and mud throughout, or thatched with grass
<b>Furniture</b>	Have good furniture	Have moderately good furniture in their rooms	Posses very poor furniture
<b>Land</b>	Own more than 30 acres of land under crop production and for grazing	Own less than 30 acres for grazing and farms collectively	Do not own farm, manage 1-2 acres of borrowed farm from neighbours
<b>Livestock</b>	Own more than 40 heads of indigenous cattle Own more than 2 pairs of draught animals	Own 1-40 heads of indigenous cattle Own 1- 2 pairs of draught animals	Own none other than local chicken
<b>Food</b>	Have excess (exceeding 12 months) Exceeding 30 bags paddy and 10 bags maize	Sufficient for 9-12 months Paddy 8-30 bagas Maize 4-10 bags	Sufficient for 1-3 months Harvest 8 bags paddy, 1-2 bags maize
<b>Business enterprises</b>	Shops, livestock, trade and milling machines	Livestock trade	Not engaged in business
<b>Clothes:</b>	Self sufficient	Self sufficient	Poor clothing , sometimes children go naked
<b>Farm implements</b>	More than 2 ox ploughs; More than 1 ox cart; 1 ox weeder	1-2 ox ploughs; 1 ox cart	Hand hoe, Panga and exe
<b>Access to social services</b>	Afford social services eg education and health	Afford cost of primary education and health services for the family	Do not afford costs of education and health services Depend on herbs for medical care
<b>Access to farm inputs</b>	Use farm inputs	Do not use	Do not use
<b>Self-confidence</b>	Self confident; Highly respected by the society; Hold leadership positions	Self confident; Respected by the community; Hold leadership positions	Not self confident; Don't hold leadership positions; Not respected
<b>Begging</b>	Do not	Do not	Beg for clothes, and food
<b>Membership to local networks</b>	Member to networks	Member to networks; Access informal credit services	Member in social net works eg water user association, sometimes lease out their irrigable plots
<b>Wage labour</b>	Hire labour for farm operations	Occasionally hire labour for farm operations; Do casual works during hunger or to increase financial capital	Live on casual works/ sell labour to others
<b>Ability to pay bride price</b>	Sons get married earlier (18 years)	Sons get married on time (20-25 years)	Sons get married late due to lack of dowry
<b>Proportion</b>	<b>20%</b>	<b>50%</b>	<b>30%</b>

**Appendix 16: Characteristics of wealth groups as perceived by young male agropastoralists in Bukangilija village**

	Groups		
Criteria	Rich	Middle	Poor
<b>Housing</b>	Roofed with iron sheet, built of bricks with cement floor	Roofed with iron sheet (pent roof), built of mud/unburned bricks and has earth floor.	Made up of poles and mud throughout, or thatched with grass
<b>Furniture</b>	Have good furniture	Have moderately good furniture in their rooms	Posses very poor furniture
<b>Land</b>	Own more than 10 acres of land under crop production and for grazing	Own less than 10 acres for grazing and farms collectively	May own more than 2 acres of farm but manage 1-2 acres. Lease out the rest to rich people
<b>Livestock</b>	Own more than 20 heads of indigenous cattle; Own more than 1 pair of draught animals	Own 1-20 heads of indigenous cattle; Own 1- 2 pairs of draught animals	Own none other than local chicken
<b>Food</b>	Have excess (exceeding 12 months) Exceeding 20 bags paddy and 10 bags maize and 1000 kg of cotton	Sufficient for 4-12 months Paddy 10-20 bags Maize 10 bags 100 –1000 kg of cotton	Sufficient for 1-4 months Harvest 2-3 bags of paddy, 1 bag of maize and 100 kg of cotton
<b>Business enterprises</b>	Large scale grain trade	Small scale grain trade	Not engaged in business
<b>Clothes:</b>	Self sufficient	Self sufficient	Poor clothing
<b>Farm implements</b>	1 ox plough, 1 ox cart, 1 ox weeder 1 bicycle, 2 radios (1 cassette and 1 ordinary radio) and a tractor	1 ox plough 1 ox cart 1 bicycle, a cheap radio	None
<b>Access to social services</b>	Afford social services eg education and health	Afford cost of primary education and health services for the family	Do not afford costs of education and health services Depend on herbs for medical care
<b>Access to farm inputs</b>	Use farm inputs	Do not use	Do not use
<b>Self-confidence</b>	Self confident; Highly respected by the society; Hold leadership positions	Self confident; Respected by the community; Hold leadership positions	Not self confident; Don't hold leadership positions; Not respected
<b>Begging</b>	Do not	Do not	Borrow clothes to attend social functions
<b>Membership to local networks</b>	Member to networks	Member to networks	Member in social net works e.g. traditional <i>ngoma</i> , "sungusungu" (traditional militia)
<b>Wage labour</b>	Hire labour for farm operations	Hire labour for farm operations Do casual works during hunger or to increase financial capital	Depend more on casual works Sell labour to others
<b>Proportion</b>	<b>20%</b>	<b>30%</b>	<b>50%</b>

**Appendix 17: Characteristics of wealth groups as perceived by young male agropastoralists in Isulilo village**

Criteria	Groups		
	Rich (Nsabi ntale)	Middle (Nsabi ndoni)	Poor (Bahabi)
<b>Housing</b>	Roofed with iron sheet, built of bricks	Roofed with iron sheet (pent roof), built of mud/unburned bricks and has earth floor.	Made up of poles and mud, or thatched with grass
<b>Land</b>	Own more than 15 acres of land under crop production Can lend out or can afford to hire land	Own less 6-15 acres Can afford to hire land	May own less than 5 acres of farm
<b>Livestock</b>	Own more than 50 heads of indigenous cattle; More than 21 goats More than 6 sheep	Own 1-49 heads of indigenous cattle; Own 1- 20 goats Own 1- 5 sheep	Own none
<b>Business enterprises</b>	Large capital trade	Small scale trade	Not engaged in selling tobacco and fire wood
<b>Farm implements/transport facilities</b>	1-4 ox plough, 1 ox cart, 1-3 Bicycles , 1 motorbike 1 car	1-2 bicycles	None
<b>Proportion</b>	<b>10%</b>	<b>50%</b>	<b>40%</b>

**Appendix 18: Characteristics of wealth groups as perceived by elder male pastoralist in Bukangilija village**

Criteria	Groups		
	Rich	Middle	Poor
Land	Own 5 - 10 acres of farmland and over 60 acres of grazing land	Own more than 10 acres of farmland and 30-60 acres of grazing land	Own more than 10 acres of farmland and less than 30 acres of grazing land
Livestock	Own more than 100 heads of indigenous cattle; Own more than 50 goats	Own 50-100 heads of indigenous cattle; Own 25- 50 goats	Own less than 50 heads of indigenous cattle; Own less than 25 goats
Ability to pay bride price	Sons get married earlier (18 years)	Sons get married on time (20-25 years)	Sons get married late due to lack of dowry
<b>Proportion</b>	<b>20%</b>	<b>30%</b>	<b>50%</b>



**Appendix 19: Characteristics of wealth groups as perceived by female heads of households (Washimbe) farmers and agro pastoralists in Isulilo village**

Criteria	Wealth groups		
	Rich	Middle	Poor
<b>1. Wage Labour</b>	Employer of wage labour	Work for wage (sometimes)	Work for wage (casual) mostly
<b>2. Livestock</b>	Own large number of livestock including cattle ranging from 10 to 200 and small ruminants (goats and sheep) ranging from 15 to 50.	Own medium number of livestock with cattle ranging from 1 to 10 and small ruminants (goats and sheep) ranging from 1 to 15	Own no livestock at all
<b>3. Business Enterprises</b>	Run a large business with large capital	Can afford small business such as small kiosk, and marketing of tomatoes	Cannot manage to have any kind of business
<b>4. Clothing</b>	Dress the way they like in a variety of dresses	Dress normally in clean and attractive clothes	Dress shabbily in primitive clothes
<b>5. Farmer tools/implements</b>	Own both ox-plough and oxen	Can own either a plough or an oxen but not both	Cannot own even an ox-plough as the only tool owned is a hand hoe
<b>6. Wage labour</b>	Employer of wage labour	Work for wage sometimes	Work for wage (casual) mostly
<b>7. Food security/availability</b>	Are food self-sufficient and secure year around	Are food self-sufficient for about 9 month a year	Are food self-sufficient up to 3 months a year
<b>8. Education</b>	The family members are well educated	Can afford medium education	The family is poorly educated
<b>9. Transport facilities</b>	Can own transport facilities such as a car, motorbike	Own a bicycle	Cannot afford to have any transport vessel

**Appendix 20: Characteristics of wealth groups as perceived by youth female farmers and agropastoralists in Isulilo village**

Criteria	Wealth groups		
	Rich	Middle	Poor
<b>Land</b>	Own many and large farms, and can afford to rent-in farm lands in case they wish to do so	Can manage to rent-in farms, or invite other assistants	Cannot manage to rent-in large farm
<b>Livestock</b>	Own cattle numbering 9 to 100, small ruminants (goats and sheep) ranging from 20 to 25	Own cattle ranging from 2 to 8, small ruminants (goats and sheep) ranging from 1 to 19	Own no livestock
<b>Business enterprise</b>	Run large business (large capital investment)	Run petty business (small capital investment)	Cannot afford to have any sort of business
<b>Hand crafts/ufundi</b>			

**Appendix 21: Characteristics of wealth groups as perceived by married female agropastoralists in Isulilo village**

Criteria	Wealth Groups		
	Rich	Middle	Poor
<b>Livestock</b>	Own cattle numbering 6 to 150 and small ruminants (goats and sheep) amounting 11 to 50	Own cattle numbering from 1 to 5, small ruminants (goats and sheep) amount from 1 to 10 and local chicken ranging from 1 to 10	Own none
<b>Business</b>	Run large shops and other businesses like buying and selling cattle at auctions in the district or to distant livestock market in Dar es salaam, crop marketing (buying and selling)	Can run businesses like local brewing, pottery, small tea rooms, vending of utensils, marketing of livestock and crops at the local market level not to distant markets	Can run very petty businesses such as charcoal business, fetching water, cultivating horticultural crops such as tomatoes, onions
<b>Land</b>	Own more than 8 acres	Own 4 to 8 acres	Own zero to 3 acres
<b>Food security/availability</b>	Are food self-sufficient and have marketable surpluses	Are food self-sufficient and can have a marketable surplus	Own produced food lasts two months after harvest and sometimes rely on remittances
<b>Farm tools</b>	Have enough farm tools including hand hoe, ox-plough, ox-cart and can	Have hand hoes, have one of either ox-plough or ox-cart always not	Have hand hoe only

	have more than one of these items	both of these items	
Wage labour	Are employer of wage seekers	Seek middle category jobs like shop keeping, and selling items of rich traders in the local market places	Engage in casual labour
Transport facilities (bicycle, motorbike, ox-cart)	Own up to two bicycles, motorbike	Own a bicycle, ox-cart	Cannot own a bicycle are always pedestrians
Proportion	10%	65%	25%