A RAPID SURVEY REPORT ON THE STATUS OF AGROFORESTRY BAHATI SUBCOUNTY

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Summary

Background: Bahati Sub-county has five wards; Lanet, Kiamaina, Bahati, Kabatini, and Dundori. It is among the most agriculturally productive sub-counties in Nakuru County. One of the key water towers in the Nakuru County, Dundori forest, is located in the sub-county and neighbouring it are three of wards, Dundori, Kabatini, and Bahati. Wezesha has three (3) ongoing landscape restoration projects on different sites in Dundori forest, and together with the community, we have planted indigenous trees on about 228 hectares (481500 trees) and are also providing aftercare. The projects have seen hundreds of hectares of the highly degraded forest landscape restored. The rapid survey was necessary to help us gather information on the real status of agroforestry in the proposed project site and develop a good full proposal for the AFR 100 grant. **Objectives:** The specific objectives of the survey were to: assess the level of participation by women and youth in farming/agroforestry to inform strategies to improve their participation and gains realized from agroforestry in the proposed project, to establish the level of interest in agroforestry and farmers' preferred agroforestry tree species, and to gather information on potential challenges of agroforestry in Bahati Sub-county, hence inform the design, timelines for key project stages, and community engagement strategy of the proposed project. **Methods:** Survey of a cross-section of leaders of 17 randomly selected farmers' groups in Dundori, Kabatini, and Bahati Wards. Data was collected using a semi-structured questionnaire and 2 qualitative discussion sessions were held. The data were analyzed in Excel and quantitative data presented as frequencies and proportions. **Results:** Seven (38.9%, n=17) of the farmers' leaders who participated in the survey were women and 11(61.1%) were men. Only 3 of the leaders were youth (aged ≤ 35 years). In all farmers the groups represented, (n=17), the proportion of women in leadership positions was lower (46.4%) compared to that of men (53.6%). The farmers' groups have more male members, 216(44.8%), than female, 153(31.7%), and youth members, 113(23.4%). However when it comes to participation in agriculture and agroforestry, women are more involved (52.9%), compared to men, 47.1%, while youth are not very active. Most of the farmers own the land they are cultivating, a few practice agroforestry, and all are very interested in learning and participating in an agroforestry project. Men control the high value agricultural and agroforestry products like fruits sold in bulk and timber while women control products of low value like firewood and fodder. The preferred agroforestry trees were; Avocado, Citrus (Lemon and Orange trees), Cypress, *Gravilea robusta, Juniperus procera*, Apple trees, *Olea*, and *Prunus africana*. Some of the potential challenges of agroforestry identified were; low access to information on agroforestry and good land management practices due to personnel constraints, availability quality of agroforestry tree seedlings particularly those of high-value avocados, exploitation by middlemen when it comes to selling farm produce and fruits, financial constraints which render farmers, especially women unable to afford agroforestry tree seedlings, and inadequate water during the dry season (January-mid March). **Conclusion:** Bahati Sub-county farmers were very interested in participating in an agroforestry project for various reasons; food security, improved income hence livelihoods, to meet their wood fuel needs, and reduce reliance on Dundori forest thus allowing it to recover. They expressed a preference for agroforestry trees that have high-value returns like Avocados among others.

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1.0 BACKGROUND

Bahati Sub-county is one of the 11 sub-counties in Nakuru County. The sub-county has five wards; Lanet, Kiamaina, Bahati, Kabatini, and Dundori. It is among the most agriculturally productive sub-counties in the county owing to adequate rainfall and good soils. Dundori forest is located in Bahati Sub-county and is adjacent to three of the wards in the sub-county; Dundori, Kabatini, and Bahati. Mirangine ward to the East of the forest is in Nyandarua Sub-county and we have a complementary project of agroforestry set to start later this year, Figure 1.

Figure 1: Dundori Forest and Adjacent Wards

Wezesha has three (3) ongoing landscape restoration projects on different sites in Dundori forest, and together with the community, we have planted indigenous trees on about 228 hectares (481500 trees) and are also providing aftercare. The projects have seen hundreds of hectares of the highly degraded forest landscape restored, Figures 2-4 show Wezesha's forest sites.

Figure 2: Dundori Forest Restoration site,1a, 35Ha

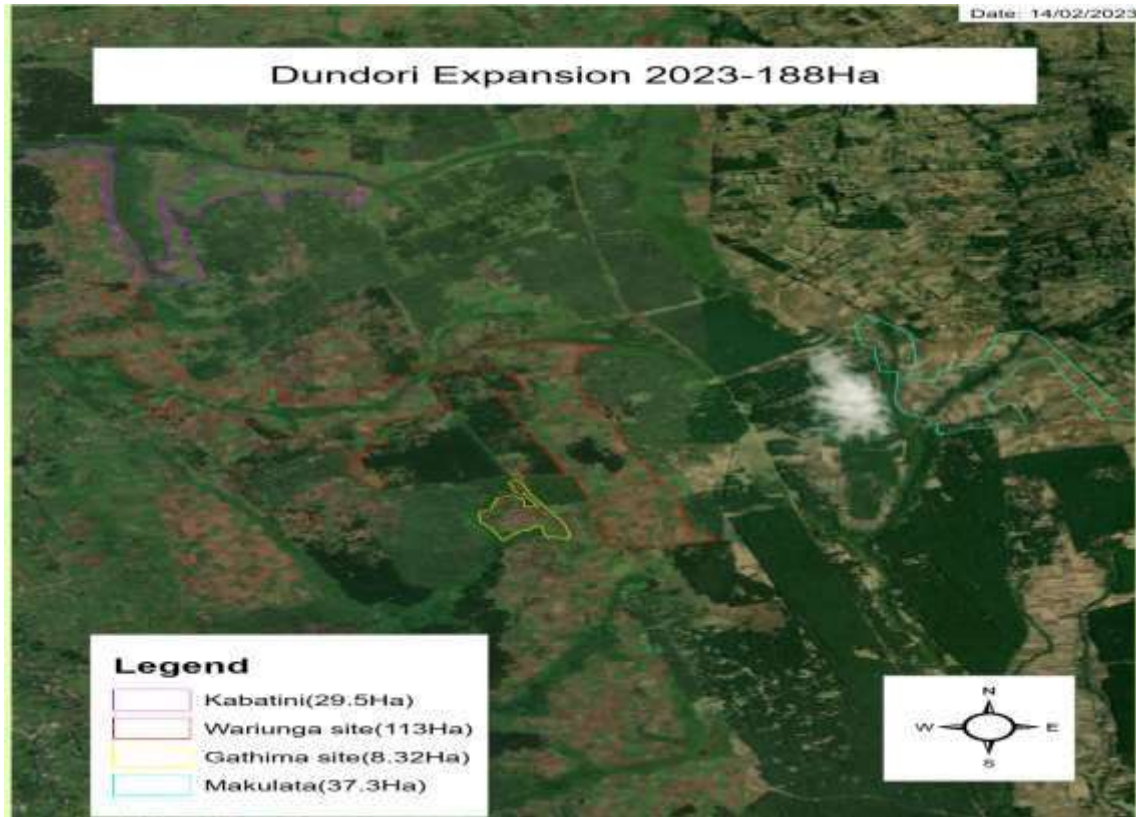**Figure 3: Dundori Forest Restoration site,1b, 40Ha**

Figure 4: Dundori Forest Restoration site, Phase 2, 188Ha

The rapid survey was necessary to help us gather information on the real status of agroforestry in the proposed project sites and develop a good full proposal for the AFR 100 grant. In all our projects Wezesha CBO uses a community-led approach in landscape restoration because we believe that communities are the custodians of these forests and working with them from the design, planning, implementation, and monitoring is critically important for the survival of planted trees and also the sustainability of the restored landscapes in the long-term. In the proposed agroforestry project, we aim to work with, and support the community in growing trees they believe will be of benefit to them.

The specific objectives of the survey were to:
1. Assess the level of participation by women and youth in farming/agroforestry to inform strategies to improve their participation and gains realized from agroforestry in the proposed project.
2. Establish the level of interest in agroforestry and farmers' preferred agroforestry tree species.

3. To gather information on potential challenges of agroforestry in Bahati Sub-county, hence inform the design, timelines for key project stages, and community engagement strategy of the proposed project.

1.2 METHODS

Study Design, Data Collection, and Analysis

A survey of a cross-section of leaders of 17 randomly selected farmers' groups in 3 wards, Dundori, Kabatini, and Bahati. The 17 leaders represented a total of about 482 smallholder farmers, Table 1.

Data was collected using a semi-structured questionnaire administered by an agriculture extension officer. The questionnaire was translated into Kiswahili and Kikuyu depending on the farmers' preference. Two (2) qualitative discussion sessions were held; one with 7 farmer group leaders from Bahati Ward and the second one with 10 farmer group leaders from Kabatini and Dundori Wards.

Data were analyzed in Excel and quantitative data presented as frequencies and proportions.

Table 1: The Groups Represented by the 17 Farmer Leaders

Ward	Name of Group	Number of Members in the Group
Bahati	1. Bahati Horticulture SHG	50
	2. Mwihoko Horticulture	17
	3. Bahati Farmers SHG	16
	4. Nakuru North Avocado group	55
	5. Kahuho Potato	28
	6. Wanyororo B Group	16
	7. Mwenge self-help group	25
Kabatini	8. Kenda Muiyuru	36
	9. Mwaki mugi	32
	10. Kabatini bee keeping	38
	11. Good hope	26
	12. Mawimbi	22
Dundori	13. B/D self-help group	37
	14. Kahuani organic SHG	22
	15. Githioro vision SHG	22
	16. Kiawa SHG	27
	17. Mark Down SHG	13
Total		**482**

(*Source Survey data*)

1.3 RESULTS

1.3.1 Characteristics of the Farmers' Leaders Surveyed, n=17

Seven (38.9%) of the farmers' leaders were women and eleven (61.1%) were men. Only (3) of the leaders were youth (aged ≤ 35 years).

1.3.2 Participation of Women and Youth in Farming and Agroforestry

Gender and Age of Farmers' Group Leadership, n=85

In all the farmers groups surveyed, the participation of women in the leadership as a Chairperson, Assistant Chair, Secretary, or Treasurer, was lower at 46.4%, n=85 compared to that of men, who constituted 53.6% of the group leadership, Figure 5. Youth occupied less than 10% of the group leadership.
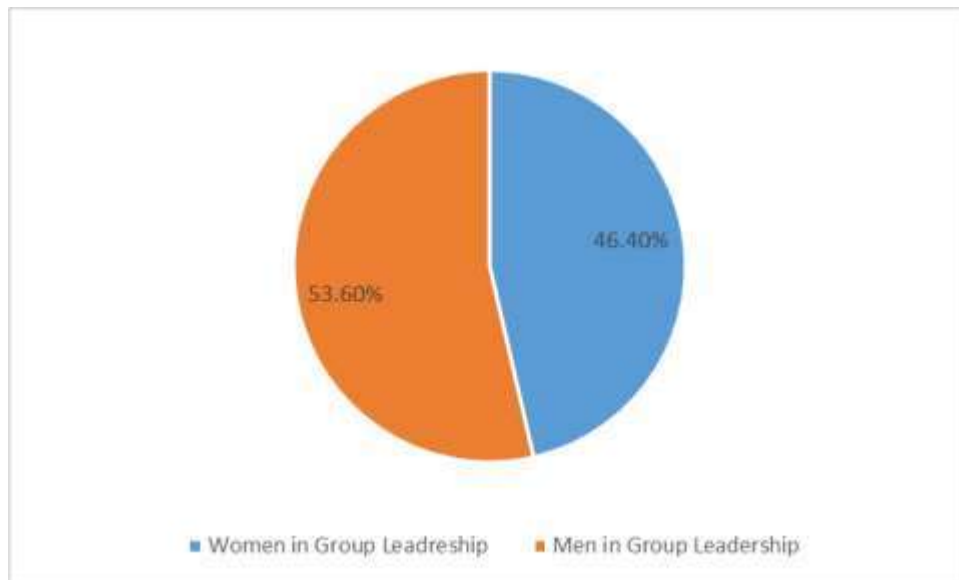

Figure 5: Group Leadership, n=85 (*Source Survey data*)

Membership of Farmers Groups, n=483

The majority of the farmers in the groups are men, 216(44.8%), women constitute less than forty percent, (31.7%), and youth constitute 23.4%, Figure 6. Of these youth, females are more than double (16.5%) the proportion of male youth (6.8%).
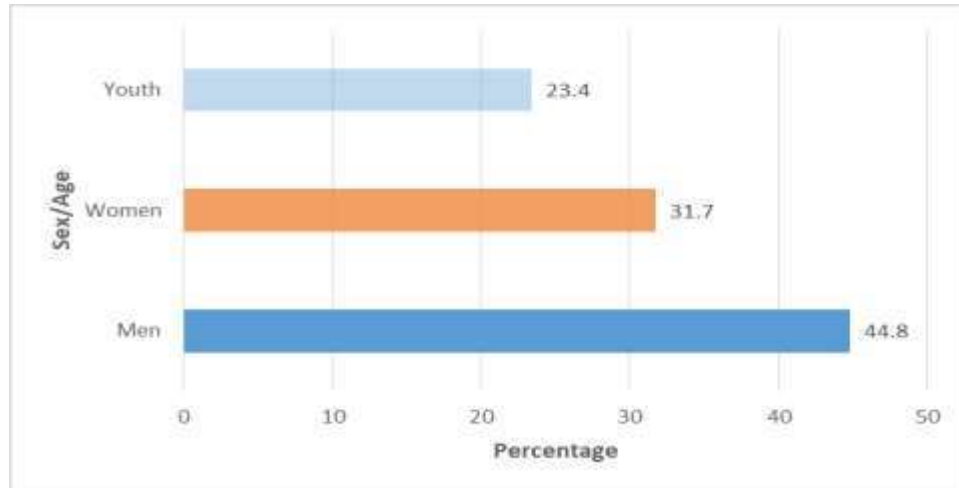
Figure 6: Farmer Group Membership, n=483 (*Source Survey data*)

Participation of Women and Youth in Agriculture and Agroforestry, n=483

In terms of participation in agriculture and agroforestry activities, the farmer group leaders reported a higher participation of women, 52.9%, (n=17), compared to men, 47.1%, Figure 7. The leaders reported that youth members in their groups were not very active.

Figure 7: Participation in Agriculture/Agroforestry by Sex (*Source Survey data*)

These findings show that women may not have access to registering to become formal members of groups due to lack of money/finances hence the lower percentage of women registered in formal groups, yet they participate and contribute more time in working on the farms.

Control of Agriculture and Agroforestry Products/Income

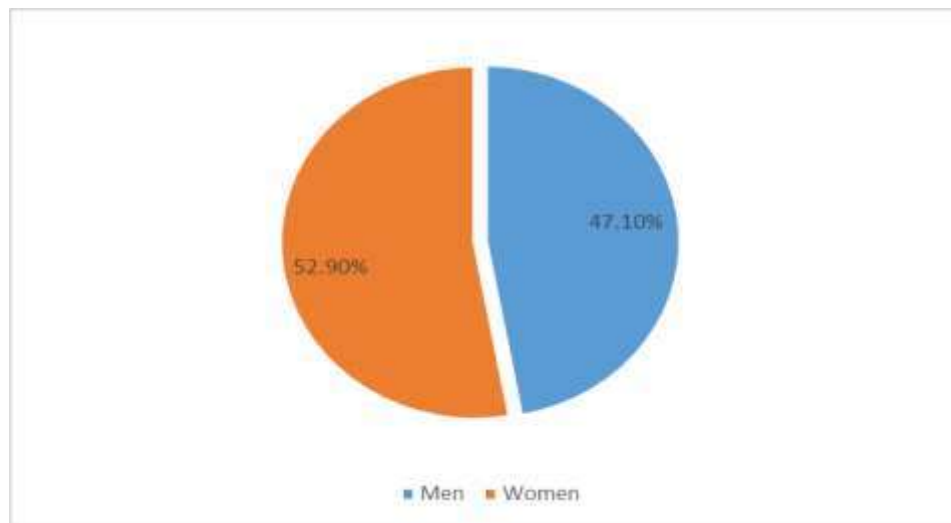We established that men control agriculture and agroforestry products that have high monetary value, while women control products with low value, Table 2.

Table 2: Control of Agroforestry Products by Gender

Resources Controlled by Men	Resources Controlled by Women
Timber, maize, beans, and fruits sold in large quantities, the big livestock like cattle, sheep, and goats.	Fruits sold in small quantities, green vegetables including indigenous varieties, eggs, chicken, and milk sold in small quantities, firewood, and fodder

(*Source Survey data*)

We found that youth would be more interested in agroforestry if supported to grow high-value fruit trees like Avocado, Tree tomato and to establish tree nurseries.

1.3.2 Level of Interest in Agroforestry and Preferred Agroforestry Tree Species

All (100%, n=17), of the farmer group leaders expressed great interest in having their groups participate in agroforestry.

The groups engage in diverse agricultural activities;

- Crop farming;
    - Cereals –maize
    - Legumes –beans, snow peas
- Horticulture-French beans, Cabbages, Irish potatoes
- Feed formulation
- Dairy farming
- Fruits-Avocado, Tree tomato, Citrus (Lemons and Oranges, Apples)
- Beekeeping

The most preferred agroforestry trees in order of priority are; 1)Avocado, 2)Citrus (Lemon and orange trees), 3)Cypress, 4)*Gravilea robusta,* 5)Mango trees, 6)Cider, 7)Apple trees, 8)Olea, 9)*Prunus africana* and 10)Bamboo.

The main reasons the farmers would want to get involved in agroforestry are for food security, to obtain products that they can sell to get income, to produce fodder for their livestock, have trees that give them fuel wood and which make their environment beautiful. The leaders believed that an agroforestry project will improve farmers' livelihoods, and is very important for a successful and sustainable recovery of Dundori forest which is under restoration.

Most households depend on wood fuel sourced from Dundori forest directly or from people who sell it to them after obtaining it from the forest. A few prune trees on their farms to supplement the wood fuel from the forest. We hardly got reports of farmers who depend entirely on wood fuel sourced from their smallholder farms.

Information from a baseline survey done by Wezesha CBO in 2022, established the average land owned per household is 2.2 acres and because of this, 40.4% of the households depend directly on the cultivation of farms in the forest. Considering that some households also buy farm produce from those with farms in the forest, the proportion dependent on food grown in the forest is much higher.

1.3.3 Land Ownership

Most of the farmers own the land on which they farm. They may lease land to plant crops for group projects like growing Irish potatoes when the need arises.

1.3.4 The Potential Challenges in Agroforestry in Bahati Sub-county

Low access to information on agroforestry and good land management practices due to personnel constraints. This is a challenge that many counties are grappling with since agriculture was developed by the national to county governments. It can however be addressed by training in collaboration with the Nakuru county and Bahati Sub-county office of Agriculture, lead farmers and farmer group leaders so that these can provide extension services to the farmers.

Quality of agroforestry tree seedlings particularly those of high-value avocados. To overcome this challenge, Wezesha has trained three youth groups in grafting and is focused on training other tree nursery owners in this skill. Many of our tree nurseries are already growing avocado tree seedlings.

Exploitation by middlemen when it comes to selling farm produce and fruits. Wezesha shall encourage and support where possible, farmers' groups to form cooperative societies that they can use to market their product and ultimately start value addition industries for their products.

Financial constraints render farmers, especially women and youth unable to afford agroforestry tree seedlings. Wezesha will buy tree seedlings for participating farmers and build their capacity to nurture them to maturity through training, demonstrations, and bringing extension services closer to the farmers. Women and youth will be targeted in mobilization efforts to ensure that they join existing farmers' groups. Farmer groups will also have their capacity for post-harvest handling and storage strengthened through training.

Farmers will be trained on affordable water harvesting and storage to ensure that there is adequate water to sustain the trees during the dry season.

1.3.5 Conclusion

The leaders of farmers' groups were very interested in participating in an agroforestry project for food security, improved income hence livelihoods, to meet their wood fuel needs, and reduce

reliance on the forest thus allowing it to recover. They expressed a preference for agroforestry trees that have high-value returns like Avocados among others. The majority cultivate on their land.

Appendix 1: Invitation Letter from Bahati Sub-County Agriculture Officer

COUNTY GOVERNMENT OF NAKURU

MINISTRY OF AGRICULTURE, LIVESTOCK AND FISHERIES

Sub County Headquarters
Email: scaonakurunorth@gmail.com

SUB COUNTY AGRICULTURE OFFICE
Ministry of Agric, Livestock and Fisheries
Bahati Sub County
BAHATI
1st June 2023

When replying please quote;

Ref: NKU C /SCAO/REPT/BHT/EXT/09/Vol.1/32

TO

Coordinator, Wezesha CBO

RE: FARMER GROUPS FROM BAHATI SUB COUNTY

This is in respect to our previous discussion at Bahati Sub County agricultural office on the selection of farmer groups undertaking agricultural activities that improve livelihoods of members and at the same time engage in activities of environmental protection for continued sustainable agricultural production.

We have planned that you meet with two executive members from each group on the dates given on the table below.

Date	Name of ward	Venue of meeting	Number of participants	Agricultural officer	Remarks
8/6/2023	Bahati	Bahati sub county agriculture officer board room	14 – 7 groups	Elizabeth Maina- 0715006250	Please avail fare reimbursement @ ksh 500
9/6/2023	Kabatini and dundori	Kabatini –Venue at ACK church @ ksh 2,000	20- 5 groups per ward	Ruth Njoki- 0713922698 Stephen Kiragu- 0717407721	Please avail fare reimbursement @ Ksh 500

Attached please find a summarized inventory farmer groups from Bahati, dundori and Kabatini wards.

GITHIRI CHARLES K
SCAO- BAHATI SUB COUNTY

Appendix 2: Farmers Groups Whose Leaders Participated in the Survey

NO.	NAME OF GROUP	M	F	Yf	YM	TOTAL	SOURCE OF INCOME
	BAHATI WARD						
1	Bahati Horticulture SHG	25	10	7	8	50	Groups own savings Income from produce sales Monthly contributions
2	Mwihoko Horticulture	10	2	2	3	17	Monthly contribution
3	Bahati Farmers SHG	3	8	2	3	16	Monthly contribution
4	Nakuru North Avocado group	38	10	3	4	55	Sale of avocados frits Monthly contribution
5	Kahuho Potato	7	10	6	5	28	Members contribution
6	Wanyororo B Group		13	1	2	16	Group savings
7	Mwenge self-help group	10	12		3	25	Group savings
	TOTAL	**93**	**65**	**21**	**28**	**207**	
	% OF TOTAL	**44.9**	**31.4**	**10.1**	**13.5**		

Men58.4%

Wom en-41.5%

Yout h(M&F)-23.6%

NO.	NAME OF GROUP	M	F	Yf	YM	TOTAL	SOURCE OF INCOME
	KABATINI WARD						
1	Kenda Muiyuru	18	9	9		36	Members contribution
2	Mwaki mugi shg	16	4	12		32	Table banking
3	Kabatini beekeeping	18	10	8	2	38	Members contribution
4	Good hope	13		13		26	Members contribution
5	Mawimbi shg	11	6	5		22	Table banking
	TOTAL	**76**	**29**	**47**	**2**	**154**	
	% OF TOTAL	**49.3**	**18.8**	**30.5**	**2.5**		

Men-51.8%

Women-49.3%

Youth(M&F)-33.0%

		DUNDORI WARD					
1	B/D self-help group	10	27			37	Table banking
2	Kahuani orgarnic SHG	15	7			22	Sale of organic products
3	Githioro vision SHG	8	11	1	2	22	
4	Kiawa SHG	14	9	3	1	27	Table banking
5	Mark Down SHG		5	8		13	Table banking
	TOTAL	**47**	**59**	**12**	**3**	**121**	
	% OF TOTAL	**39.8**	**50.0**	**10.2**	**2.5**		

Men-42.3%

Women-60.2%

Youth(M&F)-12.7%

Appendix 3: Farmers Questionnaire

NAKURU NORTH SUB COUNTY

1. Ward
   Bahati
   Dundori
   Kabatini
2. Names of group officials
   Chairperson…………………………………..
   Vice Chair……………………………………..
   Secretary……………………………………
   Assistant secretary……………………................
   Treasurer……………………………………………………………
3. Number of officials aged 35 years and below……………………………
4. How often does the group hold their meetings? …………………………
5. Type of farming activities
   a. Cereals
      Maize
      Others (specify)…………………………………..
   b. Legumes
      Beans Peas
      Others (specify)…………………………………..
   c. Horticulture
      French beans,
      Cabbages,
      Irish potatoes
      Others (specify)…………………………………..
   d. Feed formulation
   e. Dairy
   f. Fruits
      Avocados
      Tree Tomato
      Others (specify)…………………………………..
   g. Beekeeping
   h. Fodder production
6. Ownership of the land used for farming
   Private- own land
   Private- owned by the family
   Leased
   Public
   Squatting
7. Name at least **five** agroforestry trees growing on your farm
   …………………………………………………………………………………………………
8. Which agroforestry trees would you like to plant on your farm? (List is in order from the most preferred)
   i. ii.
   iii.
   iv.
   v.
   vi.

vii.
viii
. ix.
x.
Others…………………

9. What is the source of fuel wood in the community?
………………………………………………………………………………………………

10. How interested are you in participating in an agroforestry project?
   Very interested
   Interested
   Not interested

11. Which groups show more active participation in agroforestry activities?
   Men
   Women

12. How active are youth members in your group in agroforestry activities?
   Very active
   Active
   Not Active

13. Name the agroforestry products that men control in a
   family……………………………………………………………………………………………
   ……………………………... 14.

Name the agroforestry products that women control in a
family……………………………………
   ……………………………………………………………………………………

15. Name the agroforestry products preferred by youth…………………………………
   ……………………………………………………………………………………

FOR THE FOCUSED QUALITATIVE DISCUSSION
16. What are the main challenges you face as farmers?
17. What challenges prevent farmers from engaging in agroforestry practices?
18. What are the possible solutions to the challenges?