BioRe Foundation Tanzania

Baseline Survey report on the New Empowerment Programme

December, 2024

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i. Executive summary

This report presents an in-depth analysis of the organic agriculture practices, participation, entrepreneurship, healthcare access, educational opportunities, and innovation within a rural community during the baseline study of the six pillars of empowerment. The study reveals that the community has made notable progress in adopting organic farming, which has improved soil fertility and income levels. However, challenges such as inconsistent rainfall, inadequate pest control, and logistical issues persist, necessitating targeted interventions and additional training.

Healthcare access is generally satisfactory, yet long distances to facilities and insufficient services remain significant concerns. Financial constraints occasionally impact individuals' ability to afford healthcare, with many relying on the sale of livestock or borrowing funds to cover expenses. In education, while agricultural training is valued, gaps in pest control knowledge and a need for more entrepreneurial education are apparent. Barriers such as distance, financial constraints, and social factors hinder educational access, particularly for women. Innovation within the community is limited, but there are instances of local ingenuity. Technologies like tractors, seed machines, and sewing machines are identified as key areas for improvement.

Overall, the report emphasizes the need for a holistic approach to community development, integrating support across the six pillars to foster sustainable growth and improve quality of life. Meaning a new empowerment programme is recommended to enable the community members to own and manage the projects themselves.

ii. List of abbreviations

CRDB-	Cooperative Rural Development Bank (CRDB)
NMB-	National Micro Finance Bank (NMB)
PRB-	Farmers' Representative Board (PRB)
SAUT-	St. Augustine University of Tanzania
TASAF-	Tanzania Social Action Fund

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1. Introduction

1.1 Background

Meatu District, in Tanzania's Simiyu Region, encompasses 8,835 square kilometers and is centered on Mwanhunzi. The 2022 National Population Census projected the area's population at 366,941. A majority of the population is Sukuma, with Taturu, Nyiramba, Nyisanzu, and Hadzabe also present. The semi-arid climate of Meatu has major rainfall fluctuation which falls mostly in November-December and March-April, posing challenges for agriculture. Meatu's economy relies on agriculture and livestock rearing. Cotton is the main cash crop and maize, sorghum, rice, and sweet potatoes are the primary food crops. Mostly small-scale farmers use conventional techniques including animal-pulled ploughs. Cattle are vital, with an average of 12 to 13 cows per home (the figure can vary greatly). For fuel, construction, and charcoal, Meatu's forestry is vital. Deforestation and land degradation increase soil erosion and flooding risks. Many highways connect the town to other villages; however, the wet season often makes these roads impassable, affecting agricultural and other goods transportation. National Micro Finance Bank (NMB) and Cooperative Rural Development Bank (CRDB) operate in Mwanhuzi, along with emerging women and youth microfinance institutions. The town's population lacks safe, clean, potable water, making water scarcity a major issue. The restricted water-supply pipe network, financial constraints, and lack of reliable high-capacity water sources worsen this problem, causing water-borne infections and lower worker productivity. Employment and income generation are crucial, as many residents depend on agriculture.

Biore understands the need of conducting these surveys throughout 32 villages to have a comprehensive understanding of the farmers' current situation focusing on Organic Agriculture; Participation; Entrepreneurship; Health; Education; and Innovation. The surveys are expected to uncover critical data on various aspects of farming and socio-economic conditions. Biore believes that the absence of specific and localized knowledge may result in interventions or support that are not in line with the actual requirements and priorities of the farmers. By gathering and analyzing this data, Biore aims to identify specific challenges and opportunities, such as issues related to water scarcity, soil degradation, market access, and financial constraints. This detailed understanding will help Biore design targeted, effective,

and sustainable support programs. With these insights, Biore may engage in dialogue with local stakeholders to collaborate on addressing the highlighted challenges. The surveys will guarantee that Biore's actions are data-driven, context-specific, and effective in increasing Meatu District farmers' agricultural productivity, economic resilience, and quality of life.

1.2 Objectives of the Baseline survey

The main objectives of this baseline survey/study were the following:

i. To understand current agricultural practices, socioeconomic status, community participation and environmental impact while identifying challenges and opportunities for sustainable management.

ii. To assess health, nutrition, and food security status, as well as knowledge and training needs.

2. Methodology

2.1 Survey design

The baseline survey approach utilized a combination of quantitative and qualitative methods to describe the current conditions related to Organic Agriculture, Participation, Entrepreneurship, Health, Education, and Innovation. The baseline survey process commenced with a desk review to design the study, focusing on the six key topics, involving brainstorming sessions with Nicola Roten, Justina Samson, Jeremias Pellaton, Albert Tibaijuka and Bonam Bhargavi. Following this, one focus group discussion involving 25 farmers from Mwamishali village was conducted to gather initial insights and feedback. Subsequently, we crafted tailored questionnaires for each empowerment pillar based on the received feedback. BioRe Tanzania team then conducted surveys consisting of qualitative and quantitative questions and household interviews with the help of university professionals specializing in communications and sociology. The responses, conducted in Swahili but transcribed into English, were analysed for report writing which also incorporated insights from the collaborative team effort.

2.2 Sampling techniques and choosing farmers

Every one randomly chosen potential participant in each 32 villages underwent a household-level in-person quantitative and qualitative survey. The survey is included in Annex 1 for reference. For all target groups, BioRe implemented the following minimal targeting parameters, which align with BioRe's existing programs: An equal distribution of individuals, consisting of 50% women and 50% men, including both older and younger individuals.

In order to select farmers in an efficient manner, we took into account a variety of characteristics that accurately represent the diversity and requirements of the farming community. Below is a list of criteria:

- Gender diversity: Including women farmers to get to know their perspective
- Transitioning farmers: Those in the process of transitioning their farming practices from conventional to organic
- Short-term/ Medium-term/ Long-term organic practitioners
- Entrepreneurial ventures: Farmers engaged in various income-generating activities beyond traditional agriculture.

- Minimal income diversification: Small-scale farmers who rely primarily on agriculture for their livelihood and may need specific support.
- Farm size variation: large, medium and small land size.
- Family producers/individual farmers: Farmers operating as family units or sole operators managing their farms.
- Family size: Accounting for family size and structure, including extended families or polygamous households.
- Livestock management: Farmers involved in animal husbandry, considering the integration of livestock into farming systems.
- Agroforestry practitioners
- Machinery Utilization: Farmers employing various levels of mechanization, from traditional hand tools to modern equipment like tractors.
- Age diversity: Including farmers across different age groups.
- Cropping diversity: Farmers practicing different cropping systems, including rotation, mixed cropping, or no specific system.

The farmers were selected using Remei data, village maps, observational data, and excel sheet data, focusing on key metrics such as livestock ownership, land area, and the year of registration. The list below comprises farmers who have been selected as representatives from each village, together with their year of registration as BioRe/Remei members and their land size.

Table 1: Village-wise Farmer Details: Gender, Registration Year, and Land Size

Sr. No.	Village	Farmer Name	Gender Female (F) /Male (M)	Registered member since	Land size (Acre)
1.	Bulyashi	Hollo Shuga	F	2001	198
2.	Igumangobo	Perepetua Mathias	F	2021	12
3.	Isengwa	Gindu Jisesa	F	2019	22

4.	Itaba	Samaka Lufega	F	2010	10
5.	Itangolyangamba	Anna Salum	F	2001	57
6.	Minyanda	Jenifer Petro Kanga (daughter of Winfrida Lugembe)	F	2007	51
7.	Mwabagalu	Sane Ngelela	F	2011	110
8.	Mwabaratulu	Rahel Emmanuel	F	2017	15
9.	Mwabuzo	Yunge Nsuluja	F	2021	30
10.	Mwagayi	Debora Thomas	F	2018	68
11.	Mwakipopo	Sayi Kulwa	F	2019	153
12.	Mwamanimba	Kulwa Jishegena (Son interviewed)	M	2019	350
13.	Mwamanongu	Nkwimba Charles	F	2006	10
14.	Mwamatiga	Elizabeth Masele	F	2021	7
15.	Mwambegwa	Leah Dogani	F	2007	59
16.	Mwambiti	Kana Emmanuel (son of Nsiya Manai)	M	2001	130
17.	Kidaganda	Emmanuel Ruben Madili	M	2015	22
18.	Mwamishali	Elias Lugendenga	M	2005	182
19.	Mwandete	Joel Reuben	M	2021	32
20.	Mwangudo	Masunga Luchemba	M	2007	52
21.	Mwanjolo	Mayala Machiya	M	2020	30

22.	Mwanyahina	Robert Jayunga	M	2005	132
23.	Nata	Kwilasa Bundala	M	2010	10
24.	Ng'hoboko	Mahona Luhende	M	1994	10
25.	Paji	Gwisu Matibula	M	2007	110
26.	Sanga Mwalugesha	Kulwa Charles	M	2014	33
27.	Kabondo	Bugali Bizu	M	2003	333
28.	Sanga Mwampuya	Mgadula Zenga Malole	M	2013	300
29.	Sanga Itinje	Emmanuel Mathias	M	2021	11
30.	Shinyanga Mwenge	Jackson Ntambalazu	M	2013	500
31.	Somanda	Magembe Ntugwa	M	2014	86.5
32.	Tamanu	Musa Ntemagulwa	M	2014	61

The survey started on May 22nd, 2024, following feedback and input from the decision-makers of BioRe and Remei.

After this first survey, a second round of interviews took part involving 18 participants, purposively selected among Biore/Remei employees, lead famers and PRB members. The interviewed group included six (6) projects leaders from biore; one (1) trainer from Remei; two (2) lead farmers; two (2) extensionists from Remei; four (4) members from both administration teams-BioRe and Remei; two (2) supporting staff (the cook) from Remei; and the President of PRB.

Data collection: Organisation and procedure

During the first survey, the initial project team, consisting of two university professionals from St. Augustine University of Tanzania (SAUT), the Biore program manager, an official in-charge with agroforestry, and an intern, started conducting household surveys on May

22nd. The data collection exercise took eight days (i.e., up to May 30th) The team was divided into two groups, with each group covering two villages every day, i.e. four villages per day in total, using two cars. With the help of an extension worker from Remei or farmers' representative board (PRB) member, the team could effectively identify the houses of the chosen farmers. The interviews lasted for about 2-3 hours. Although the survey questions were in English, the local languages being Swahili and Sukuma, conversations were conducted in Swahili. The conversation was recorded using both a recording device and a mobile phone, and later on, they were forwarded to a transcriber for the purpose of translating them into English. The translated data was subsequently utilized for data analysis and writing the report.

When conducting the second round of interviews, only one university professional from SAUT was involved, helped by the bioRe office to arrange the interviews. Apart from the two (2) lead farmers and one (1) project leader, the rest of the participants were interviewed at BioRe/Remei compound in Mwamishali.

2.3 Data analysis and reporting

For the data evaluation process, we employed a data analysis tool integrated within MS Excel. This tool was instrumental in examining and analyzing the data, which was subsequently presented in various formats, including tables, graphs, charts, and figures, depending on what was most suitable for the data set. To enhance the qualitative data analysis, we were inspired by the rainbow color framework. This approach utilizes a color-coded spreadsheet document, referred to as a "rainbow sheet," where researchers can systematically record patterns in the answers provided by participants. Each question and its corresponding possible answers were assigned specific colors. When a participant's response matched a recorded behavior or observation, their cell in the spreadsheet was filled with the designated colour. To further organize the analysis, we created six different Excel sheet extensions, each focusing on one of the six pillars central to the study. This method facilitated a clearer and more accessible interpretation of the data, allowing for more effective pattern recognition.

For visual representation, pie charts and bar graphs were generated using Canva. After these tasks were completed, a preliminary baseline report was compiled. This report was then

meticulously reviewed by the BioRe and Remei teams to ensure accuracy and comprehensiveness.

2.5 Ethical consideration

Ethics were thoroughly discussed with the data collecting team before the beginning of the surveys. The process included a thorough introduction of the data collection team, a clear explanation of the objective of the baseline survey, the intended use of the information, and the guarantee of the farmer's and employee's voluntary involvement and the right to discontinue or refuse participation at any point without any consequences. The purpose of all these was to ensure that each participant provided consent before proceeding with data collection and complete transparency. Given that the study utilized in-person home and/or office questionnaires, the survey team took measures to guarantee that the household member (also staff) is being interviewed at the location chosen by them where they were at ease. In the end, the data collectors expressed gratitude to the respondents and gave them sweets as a small token of appreciation for their time, willingness, and effort in contributing data for the baseline survey.

2.6 Limitations

The baseline survey faced both expected and encountered limitations that had an impact on the process of collecting data. Initially, because there was insufficient data for all the criteria, we had to rely on inaccurate observational data for choosing the farmers. In addition, last-minute modifications were required due to the unavailability of few chosen participants for different reasons, including being out of office, unexpected demise, weddings, terminations, inaccurate registration facts (such as incorrect name, gender and land size), or having relocated from the village. One significant challenge was the language barrier; although the survey questions were in English, the predominant languages spoken in the survey regions were Swahili and Sukuma. This necessitated the use of translators, which introduced potential cross-translation errors that could compromise data quality. Some participants believed that these individuals were government professionals, which caused them to feel hesitant about expressing their thoughts and feelings. Lastly, the possibility of not answering all the survey questions owing to unavoidable elements or the lack of clear knowledge of the survey questions may have introduced inconsistencies into the collected data.

3. Findings

Starting with the first survey, a total of 32 individuals, consisting of 18 men and 14 women, took part in the activity as shown in Figure 1. The reason for the lower number of women is due to the fact that the selected women were older in age, resulting in the transfer of property ownership to their sons.

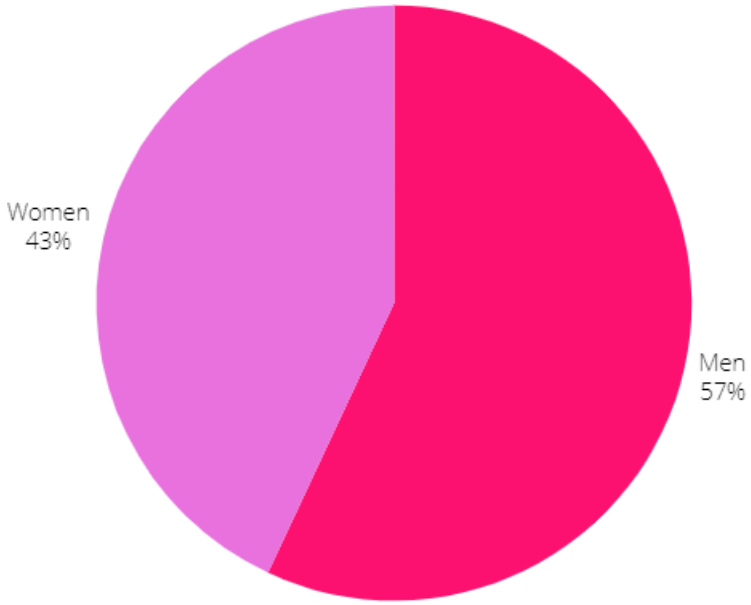

Figure 1: Percentage of male and female participants

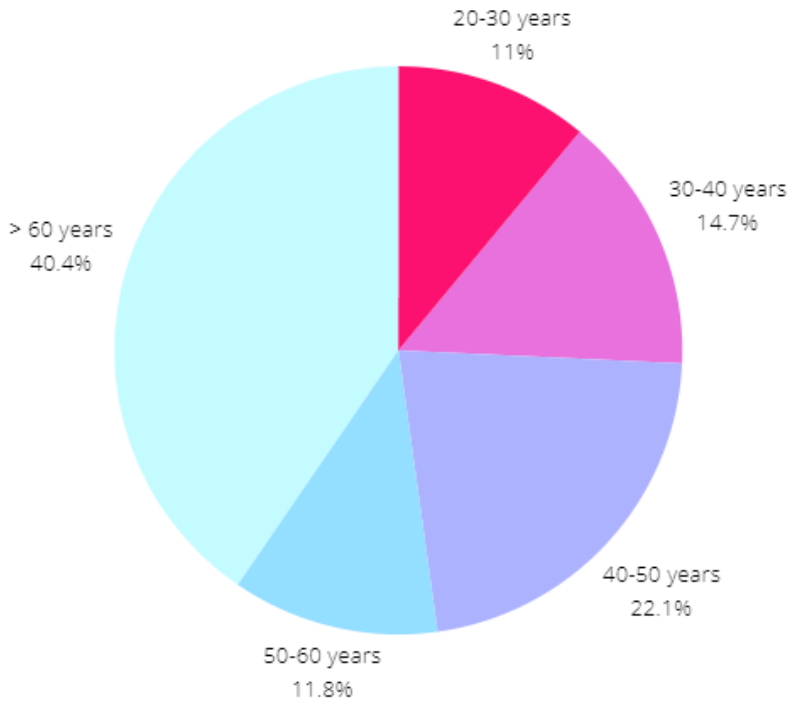

Figure 2: Age of participants

The survey consisted primarily of participants aged 60 or older, accounting for 40% of the sample population. The second most populous demographic consisted of adults in their forties and fifties, with middle-aged individuals following closely behind. Significantly, there was a notable decrease in involvement from younger persons, with only three participants in their 20s. These demographic results highlighted a possible opportunity for promoting more programs targeted towards the youth could be advantageous in increasing engagement among younger age groups.

3.1 Organic agriculture

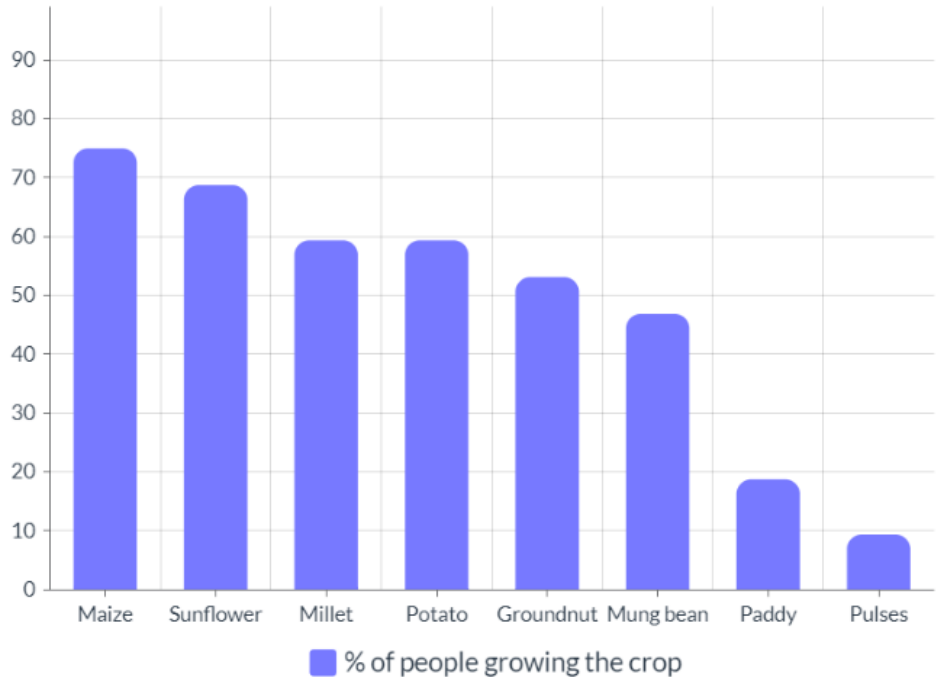

Figure 3: Crops grown other than cotton

Approximately 75% of the participants engage in maize cultivation after their cotton crops. The majority of this maize is dehydrated and transformed into flour to produce Ugali, a substantial cornmeal dish consumed as a main meal thus, mostly for self-consumption. Additionally, it is also utilised as livestock feed. The sunflower is a widely cultivated crop that is mostly processed into oil, which is utilised for both personal consumption and commercial distribution. Additional crops are often cultivated as essential food sources and are incorporated into a crop rotation system. Significantly, the participants made only a few references to the cultivation of vegetables and fruits. The primary method of livestock management revolves around the practice of pasture grazing on their owned pasture land.

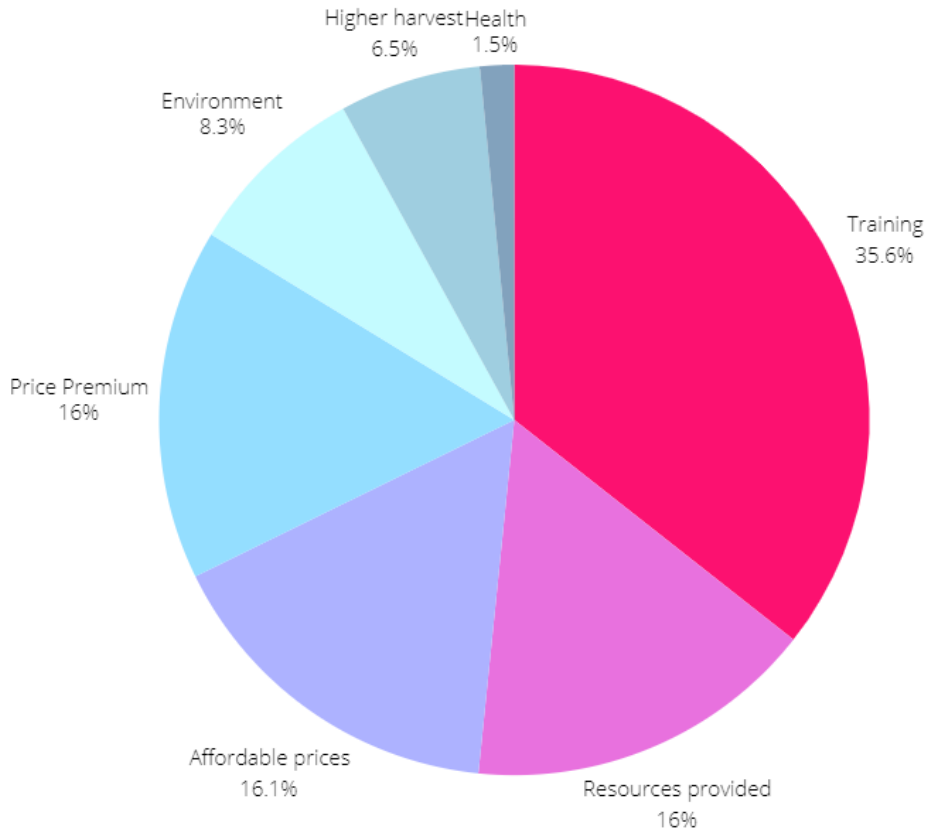

Figure 4: Key factors influencing the transition to organic farming among participants

Multiple factors have affected the transition to organic agricultural techniques among individuals who are involved with Remei/BioRe. The main driving force (35%) behind this shift is the organic training provided by Remei, which emphasised the advantages of enhanced outputs and introduced efficient cropping methods, such as mixed cropping and crop rotation. Furthermore, the quick provision of instant assistance and necessary supplies, such as seeds, water pipes, insecticides, and weed hoes (one participant reported), played a crucial role in encouraging the participants to convert to organic farming. Remei's provision of affordable insecticides and other supplies is another significant factor influencing the people and their decisions. Moreover, the prompt payment of a premium income has also incentivised this change. Ultimately, the participants acknowledged the advantages of implementing these methods, since they contribute to improved soil fertility and minimising erosion, resulting in more productive harvests.

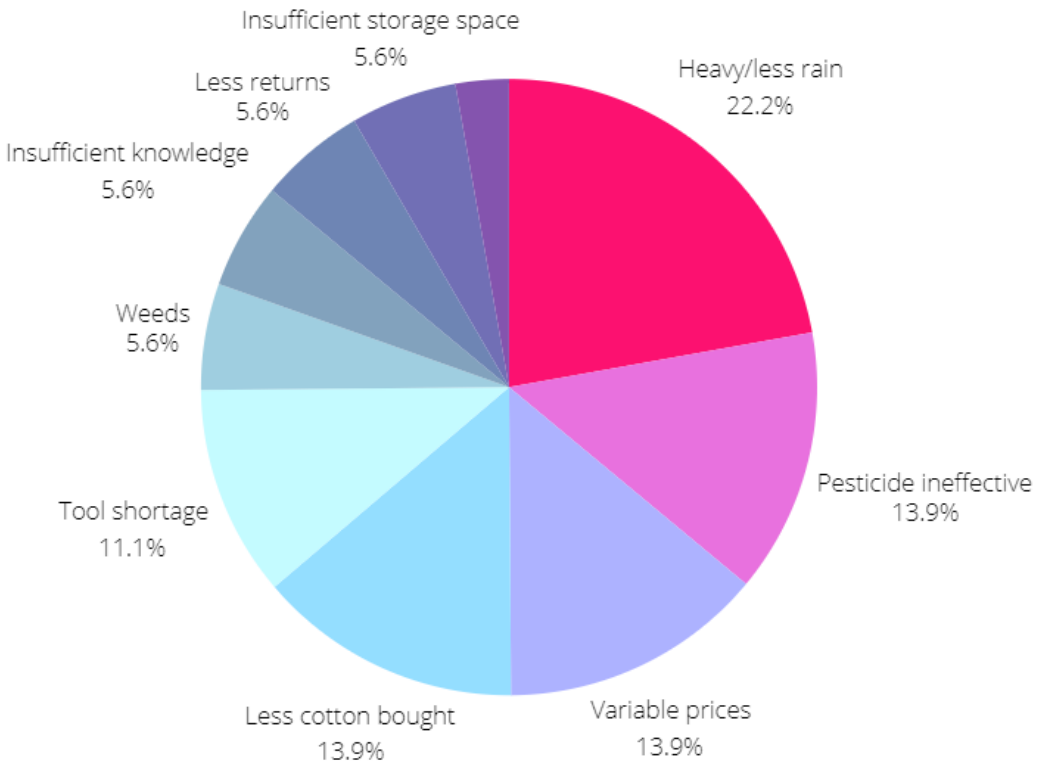

Figure 5: Challenges faced by participants in transitioning to organic farming

The most common challenge faced by the people is the fluctuation in rainfall patterns (22%), which has a destructive impact on crops as the majority of the people depend on rainfall for irrigation. During periods of inadequate rainfall, the task of irrigation becomes difficult as it necessitates the fetching of water from the river. .

Equally challenging are three added issues: Initially, the insecticide offered by Remei, specifically referred to as Vuruga, has shown to be not so effective in the management of pests. Furthermore, the cotton purchasing process is hindered by fluctuating prices determined by the government. Even though Remei has committed to purchase 80% of the cotton harvest, participants indicated that Remei's purchasing volume was below their expectations, which compelled them to sell the remaining cotton at alternative markets for reduced prices, ultimately leading to financial losses. Moreover, there is a scarcity of agricultural implements, namely tractors, that would greatly help with the process of cultivation.

In addition, the restricted storage capacity for cotton at Remei storage facilities results in participants being unable to store their complete harvest, thus requiring the arrangement of additional transportation and storage arrangements. The increasing number of weeds is an important concern that has a detrimental effect on the productivity of crops. Collectively, these challenges highlight the need for improved knowledge sharing, which could address issues such as weed management, pesticide effectiveness, and fertilizer shortages. The combined effect of these challenges has led to reduced returns for the participants.

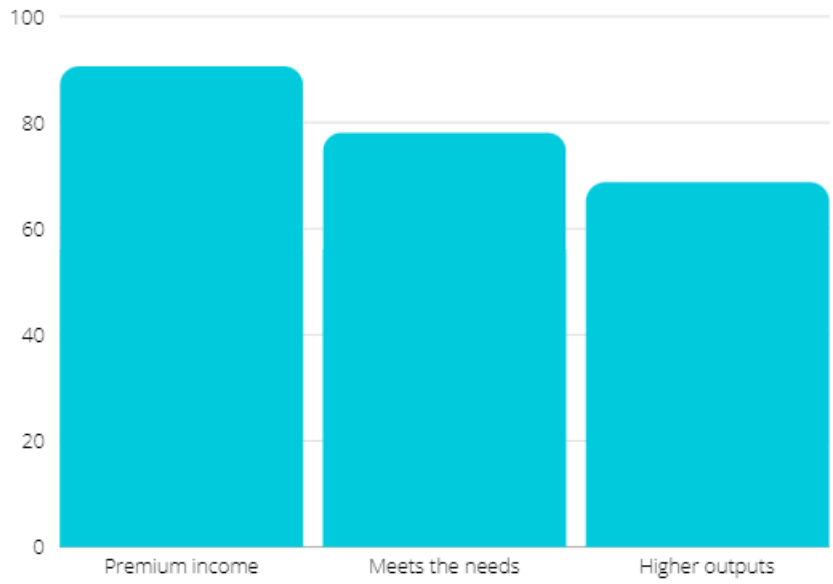

Figure 6: Major benefits of organic farming

Around 85% of participants agreed that the biggest perk of switching to organic agriculture is the premium income it provides. This extra income has been a game-changer, allowing them in fulfilling diverse requirements such as buying cattle, constructing houses, financing their children's school fees, and even purchase more land, all of which are dependent upon their productivity.

For dealing with pests and diseases, participants are utilising Vuruga or molasses, in addition to receiving traps from the corporation. Participants commonly utilise animal manure for soil fertility control.

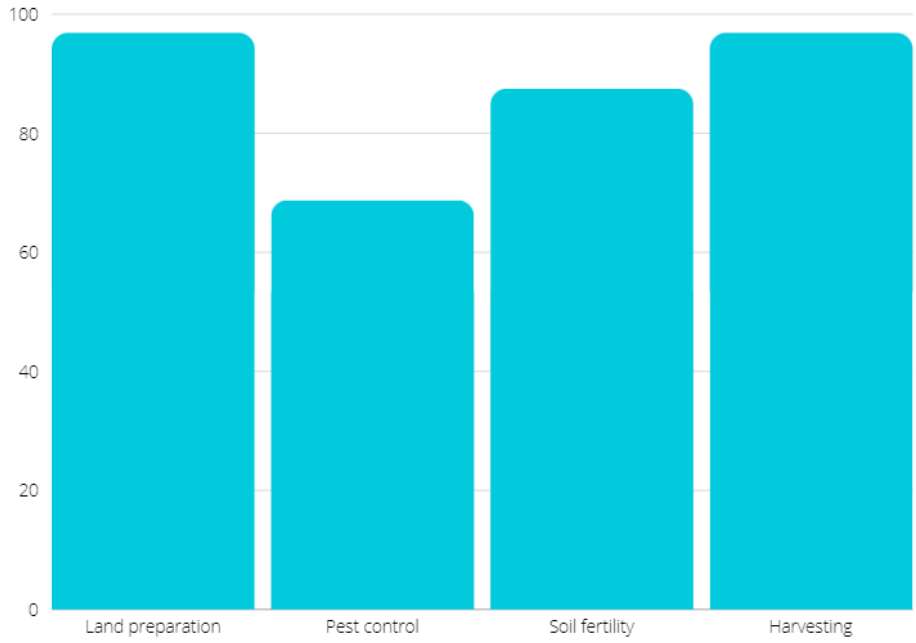

Figure 7: Trainings that helped the most for participants

Almost every participant reported that they acquired knowledge on crop rotation, the utilisation of tractors for land preparation, and techniques for mitigating soil erosion. Nevertheless, a smaller number of participants said that the training had a significant impact in enhancing their soil fertility practices. This can be due to insufficient understanding of fertiliser use, uneven patterns of rainfall, or other environmental conditions. By providing specific training and resources, these concerns can be effectively addressed, leading to improved farming practices.

The majority of participants expressed a strong comprehension of harvesting, similar to their understanding of land preparation. Nevertheless, a mere 70% of individuals perceived the pest control training as advantageous, highlighting a need for additional education or enhanced knowledge sharing in pest and disease management.

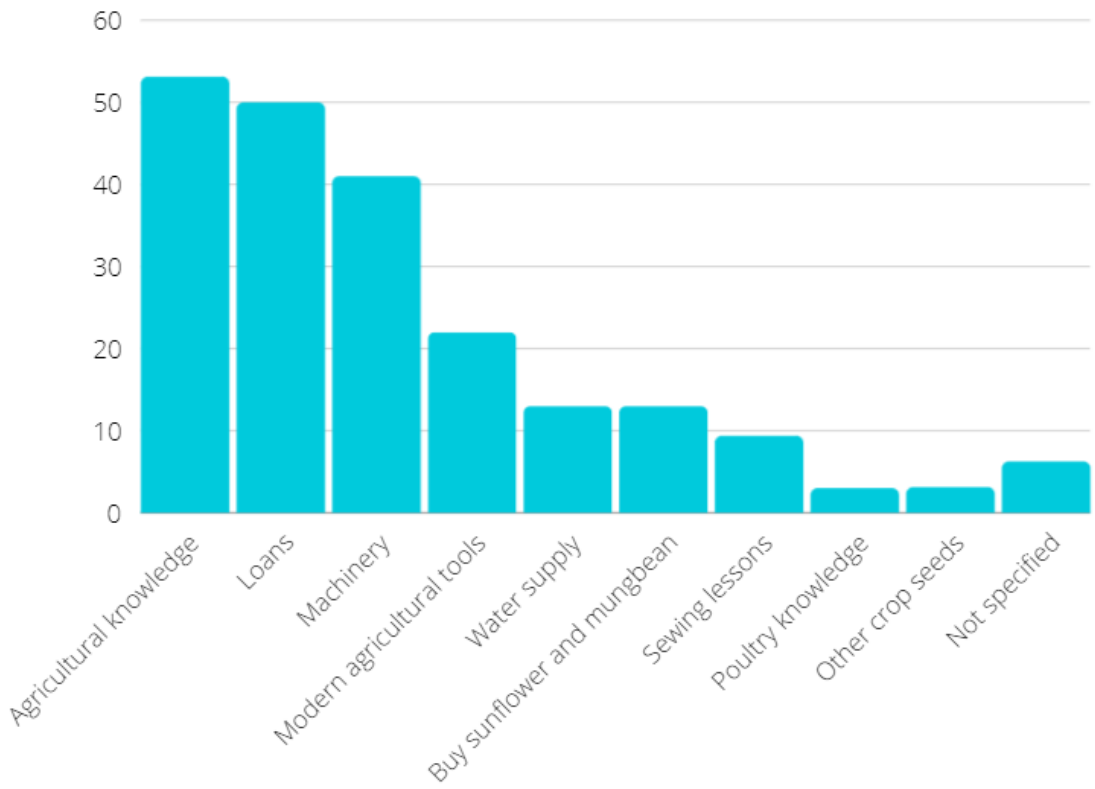

Figure 8: Further knowledge, support and skills requested by the participants

A significant portion of participants expressed a need for enhanced agricultural knowledge, with more than 50% seeking education on various topics and among these, entrepreneurship was the most frequently requested area of learning, followed by pest control, livestock care, improved seed sowing and dispersion techniques, strategies to reduce input costs, dryland management, and agroforestry.

Additionally, 50% of the participants indicated a desire for loans to start their own businesses or to acquire machinery, particularly sunflower processing machines. This reflects a broader need for agricultural machinery, with around 40% of participants specifically requesting access to tools like tractors, which they suggested could be made available through tractor loaning programs.

Modern agricultural tools, particularly weeding tools such as spades and power tillers, were also commonly requested. In terms of water supply, participants identified a need for resources such as water pipes, ponds for livestock, and wells for irrigation.

Few participants suggested that Remei could expand its purchasing beyond cotton to include crops like sunflower and choroko (Mung bean), which would provide additional income and help them become less reliant on fluctuating market conditions, potentially aiding in the development of a more stable market and income.

Moreover, sewing lessons and sewing machines were identified as valuable tools for generating extra income. There were also individual requests for improved livestock management knowledge and the idea of creating Remei-branded t-shirts to identify and unite farmers associated with the program.

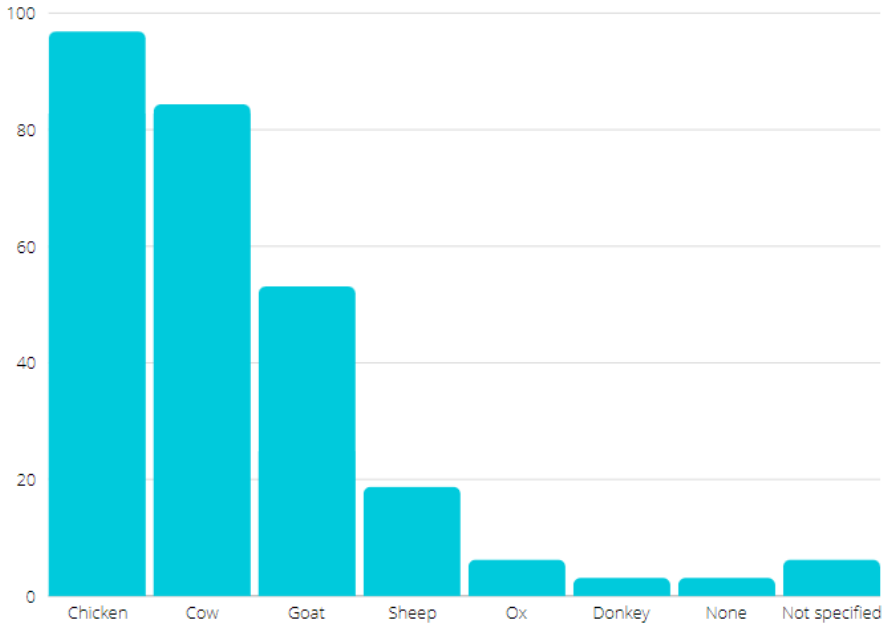

Figure 9: Number of livestock in households

Nearly all households in the study had at least some livestock, with chickens being the most common, except for one household that had sold all their livestock. Cows were the second most common, owned by over 80% of the participants, with numbers ranging from as few as two to as many as 133. In some cases, individuals had no cows left because they sold them as dowry. Goats were owned by 50% of the participants, although one participant reported losing them to hyenas. A few households had additional livestock such as sheep, donkeys, and oxen. One individual out of the 32 surveyed had no livestock remaining, having sold them to cover medical expenses.

When faced with challenges, almost all participants indicated that they would consider selling their livestock to generate necessary funds, highlighting the significant role of livestock as a financial safety net for these households.

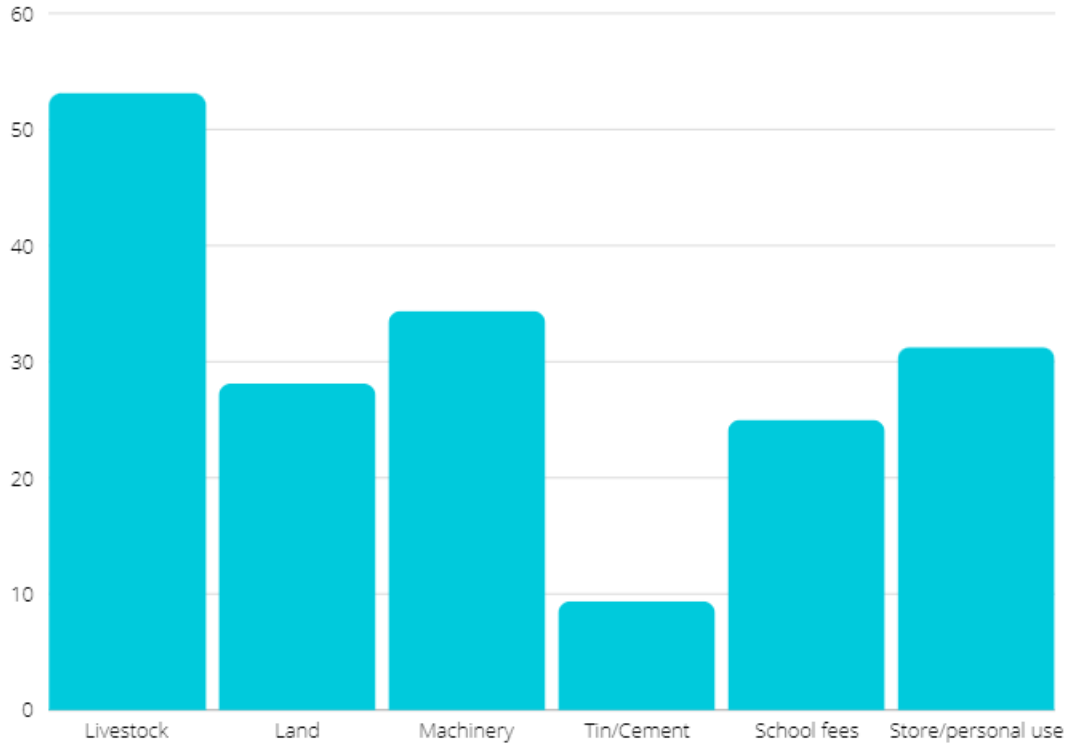

Figure 10: Prioritized Uses of Surplus Produce Among Participants

The majority of participants, over 50%, indicated that if they were to achieve a surplus in produce, their primary intention would be to sell the excess and use the proceeds to purchase livestock. Additionally, many i.e. about 35% expressed interest in investing in agricultural machinery, with tractors and sunflower processing machines being the most commonly mentioned. Notably, one participant has already utilized surplus produce to purchase a tractor and an ox-welder machine.

Approximately 30% of participants stated that they would retain the surplus produce for personal use or store it for future needs. A slightly smaller proportion, just under 30%, expressed plans to expand their land holdings by acquiring additional land.

Around 25% of participants indicated that they would allocate surplus funds towards paying school fees for their children and investing in higher education. A few participants mentioned

the intention to use the money for constructing concrete houses, with two already having built one or two such houses.

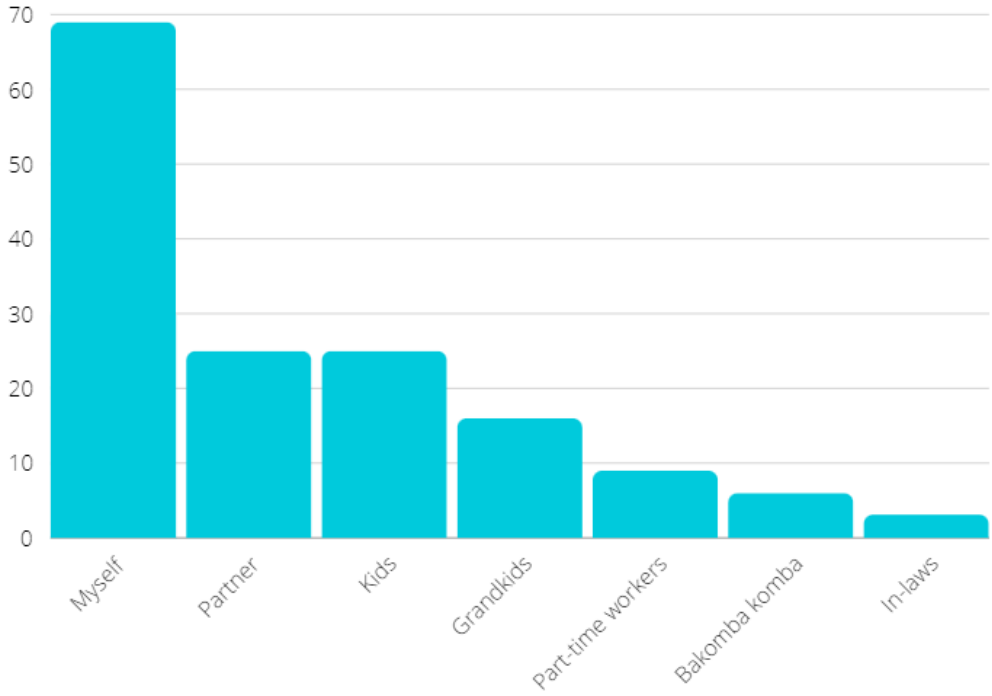

Figure 11: Division of Labor in Fieldwork Among Participants

Among all the participants interviewed, nearly 70% reported that they personally manage the majority of their field work. About 25% stated that their wives assist with fieldwork, although their primary responsibilities are household chores. In one instance, a participant noted that he married an additional wife in order to divide the burdens of household chores and fieldwork.

Some participants also mentioned that their sons and daughters contribute to fieldwork, particularly when grandparents are too elderly to work. In addition, grandchildren step in to help when their parents are no longer able to manage the workload due to age.

Furthermore, community members such as Bukomba Komba occasionally assist, and some participants hire part-time workers to handle labor-intensive tasks. This variety of support systems underscores the collaborative nature of managing agricultural and household duties within the communities.

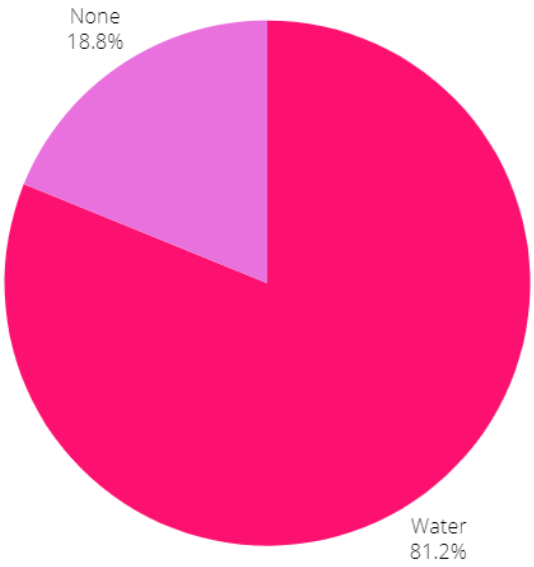

Figure 12: Prevalence of Water-Related Challenges Among Participants

Approximately 80% of participants reported facing significant water-related challenges, such as dependence on rainfall, distant river locations, or rivers that dry up during the summer months. These difficulties also extend to providing adequate water for livestock. As a consequence of these challenges, many participants are forced to rely on unclean water sources, which indicating the critical need for improved water management and access to clean water in these communities.

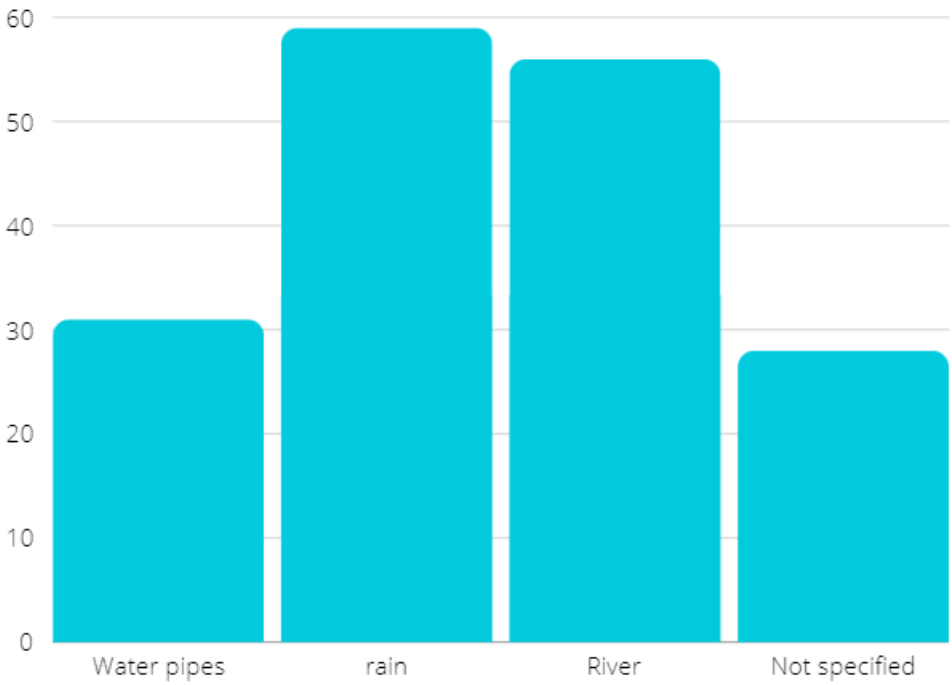

Figure 13: Primary Water Sources and Accessibility Challenges among Participants

Just under 60% of participants depend primarily on rainfall for their agricultural needs as mentioned above several times, and in one case, even for drinking and cooking water. The second most common water source, used by 50% of participants, is the river, which serves both farming and drinking purposes. However, the river is often located far from their homes, requiring up to a three-hour journey, with one individual using donkeys to transport water and another having dug a hole to store rainwater.

Around 30% of participants have access to drinking water through pipes and wells provided by bioRe/Remei, and one well is maintained by the government. Despite these resources, there remains a pressing need for more drinking water pipes and additional water supply infrastructure to alleviate the challenges associated with accessing clean and reliable water sources.

Challenges in Accessing Agricultural Inputs

Participants unanimously reported no challenges regarding seed availability. However, one individual noted difficulties with fertilizer supply, as it was insufficient to cover their entire

field. Additionally, three participants experienced challenges with pesticides, citing their ineffectiveness and persistent issues such as leaf curling. These insights highlight specific areas where improvements in agricultural input provision and effectiveness could benefit the community.

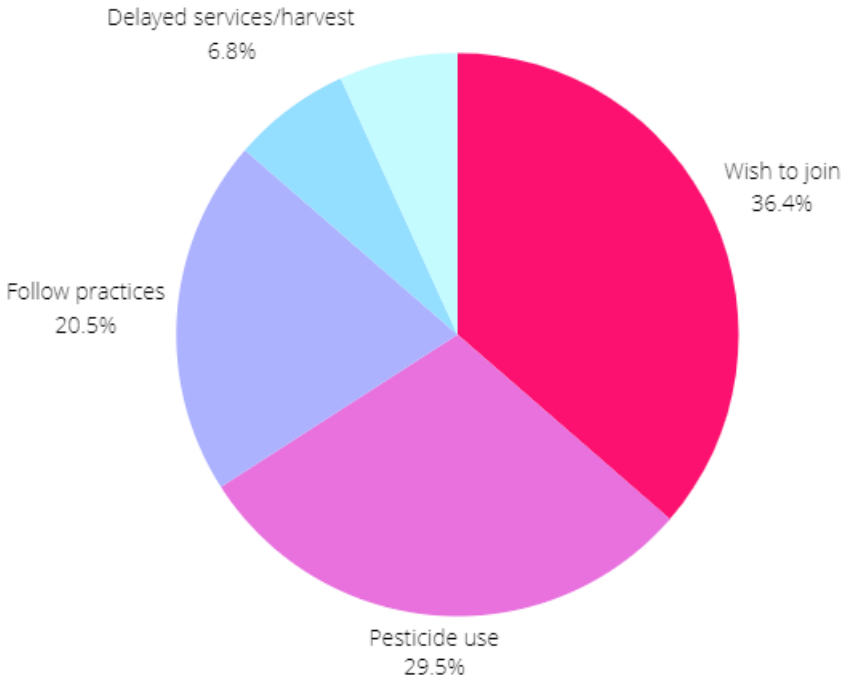

Figure 14: Perspectives of non-adopters: Barriers and motivations for transitioning to organic farming

Around 36% of the participants said others expressed a desire to convert to organic farming after witnessing the benefits of a good harvest and high-quality seeds, which they associated with a more stable and calm life. However, one participant noted that their personal circumstances did not permit such a transition.

Approximately 30% of respondents reported that the pesticide provided by Remei was ineffective. Another 20% mentioned that while they adhere to practices like crop rotation, they find it challenging to strictly follow all the rules and practices of organic farming. Additionally, one participant experienced a delayed harvest, and another expressed apprehension about joining the organic farming initiative due to concerns about auditors and compliance checks.

These varied responses highlight the complexities and challenges faced by farmers considering a transition to organic farming, as well as the need for tailored support and resources to facilitate this change.

Commitment to Remei

All participants expressed a desire to continue working with Remei, with one participant mentioning that despite persuasion from others, they remained committed to staying with the organization. This loyalty is attributed to several factors: Remei's effective training programs, higher harvest outcomes, and provision of resources such as seeds and water pipes. Participants also highlighted the organization's genuine care for farmers, emphasizing that Remei does not engage in cheating or exploitation. Compared to other organizations, Remei's training is perceived as superior, reinforcing the farmers' decision to maintain their association with them.

3.2 Participation

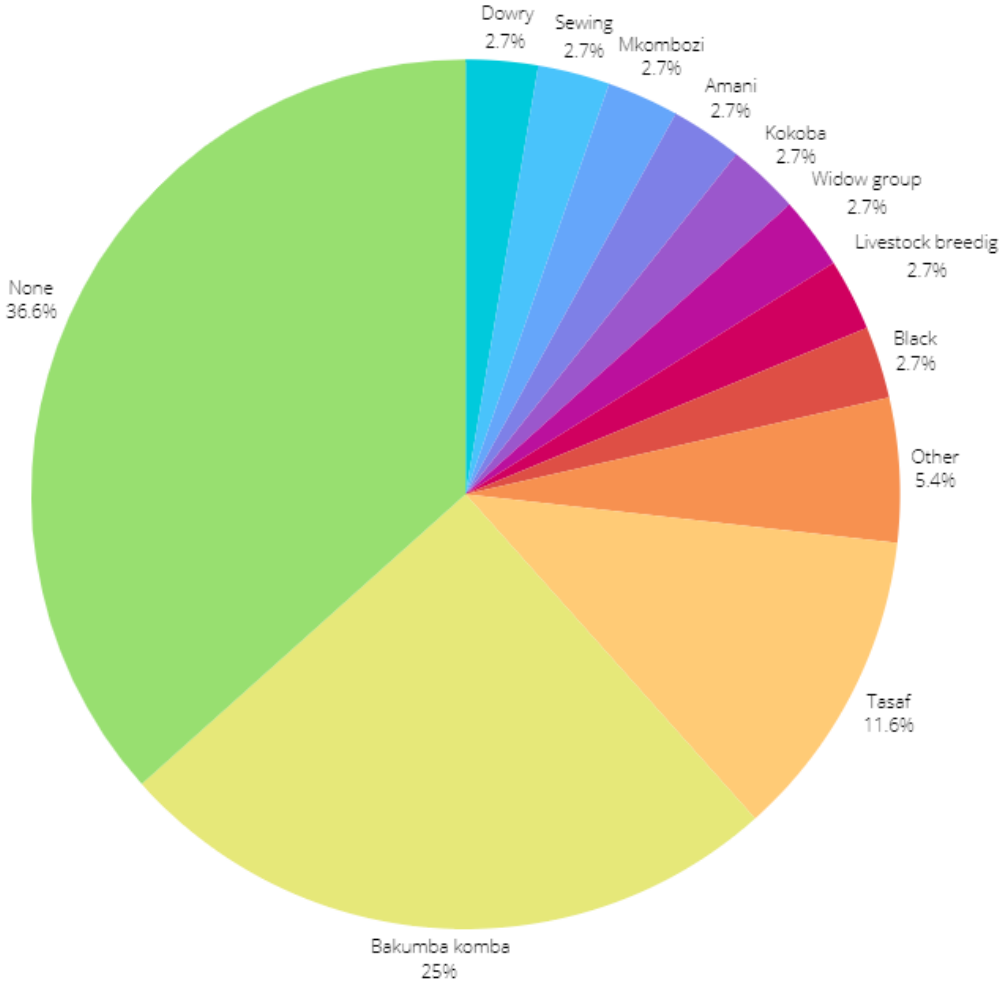

Figure 15: Participation in community and cooperative groups among farmers

Approximately 25% of participants are part of the Bukomba Komba group, a collaborative community where members help each other and also others who are not a part of the group in agricultural tasks. The mutual aid within this group fosters a sense of connection and friendship, and members often reward each other by cooking for the members and sharing meals together. A chairperson oversees their activities, ensuring that the work is conducted effectively.

Additionally, there is the TASAF women's group, where members support one another by pooling resources to provide loans. Participants also mentioned involvement in various small groups, each with a specific focus. For example, there is a dowry negotiation group that advises on the number of cows to be given as dowry to the girl's family, a sewing group that requires sewing machines, the Mkombozi group that pools money for loans, and the Amani

group that collaborates to build water wells. The Kokoba group shares resources, provides loans, and operates 19 beehives to produce and sell honey. There is also a women's livestock breeding group, the Black Group, which functions as a women's self-help collective, and a widow group where members receive goats, cement, and financial support.

Several other remote groups assist with farming activities, and a group of women collectively sent a request to Remei for a sunflower machine. However, many participants reported not being part of any groups, citing reasons such as reliance on a large family and previous negative experiences with group participation.

A majority of 64% expressed skepticism about the effectiveness of community groups, attributing their reservations to issues of trust, theft, mismanagement of funds, and misunderstandings. Other concerns included a lack of education, insufficient funds to contribute, poor leadership skills, and an absence of financial benefits. In contrast, a smaller segment of 34% viewed community groups as successful, highlighting their role in providing loans and generating profits. This dichotomy reflects the varied experiences and perceptions of community group participation among the participants.

Key Factors Influencing Community Engagement

The primary factor identified by participants as influential in community development is the provision of loans to support new business ventures or procure necessary tools. Only a few participants highlighted the potential impact of education, strong leadership skills, community development knowledge, ensuring security for low-income individuals, and improving training methods through increased exposure.

Accessibility Issues

Nearly all participants reported no significant barriers such as time or distance when accessing community meetings. However, one participant noted difficulty with time management, as her agricultural activities occupy most of her time, and her increasing age

adds to the challenge. This indicates that while accessibility is generally not an issue, individual circumstances can create obstacles for participation.

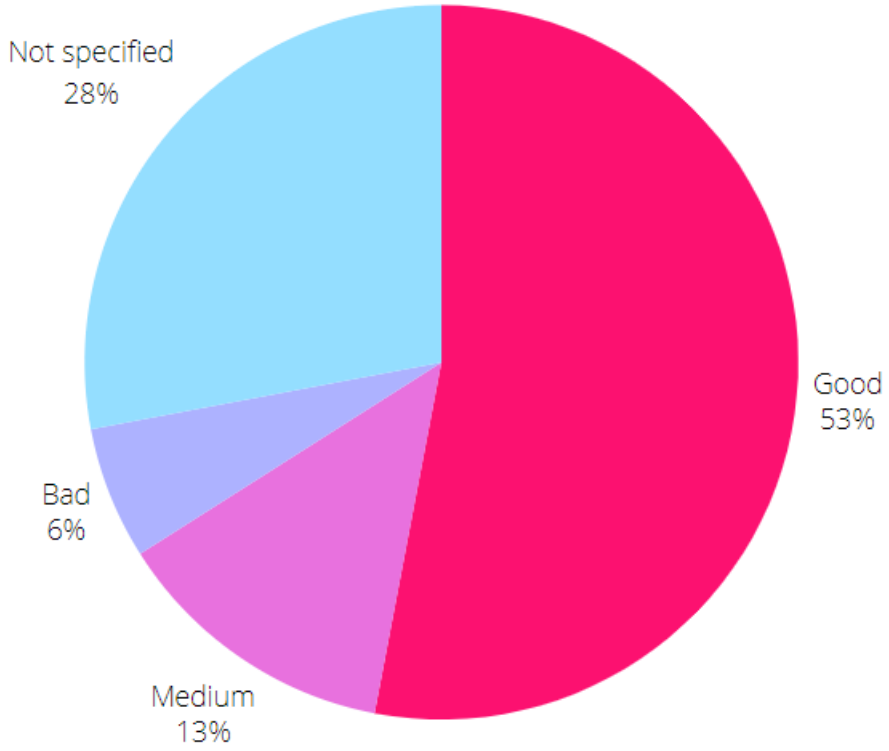

Figure 16: Perceptions of women's involvement and empowerment in community activities

Approximately 53% of participants acknowledged that women's involvement in community activities is positive and their opinions are valued. However, they also noted that the extent of this involvement can be influenced by the patriarchal nature of the family. In such cases, women's voices are heard, and they are provided with resources. Nonetheless, some participants observed that women may sometimes be reluctant to speak up and could benefit from empowerment training to better contribute their perspectives and opinions.

Company Engagement

The majority of participants rated the company engagement positively, with almost everyone expressing satisfaction. Only two individuals described their experience as average. This overall positive feedback reflects a strong appreciation for the company's involvement and support.

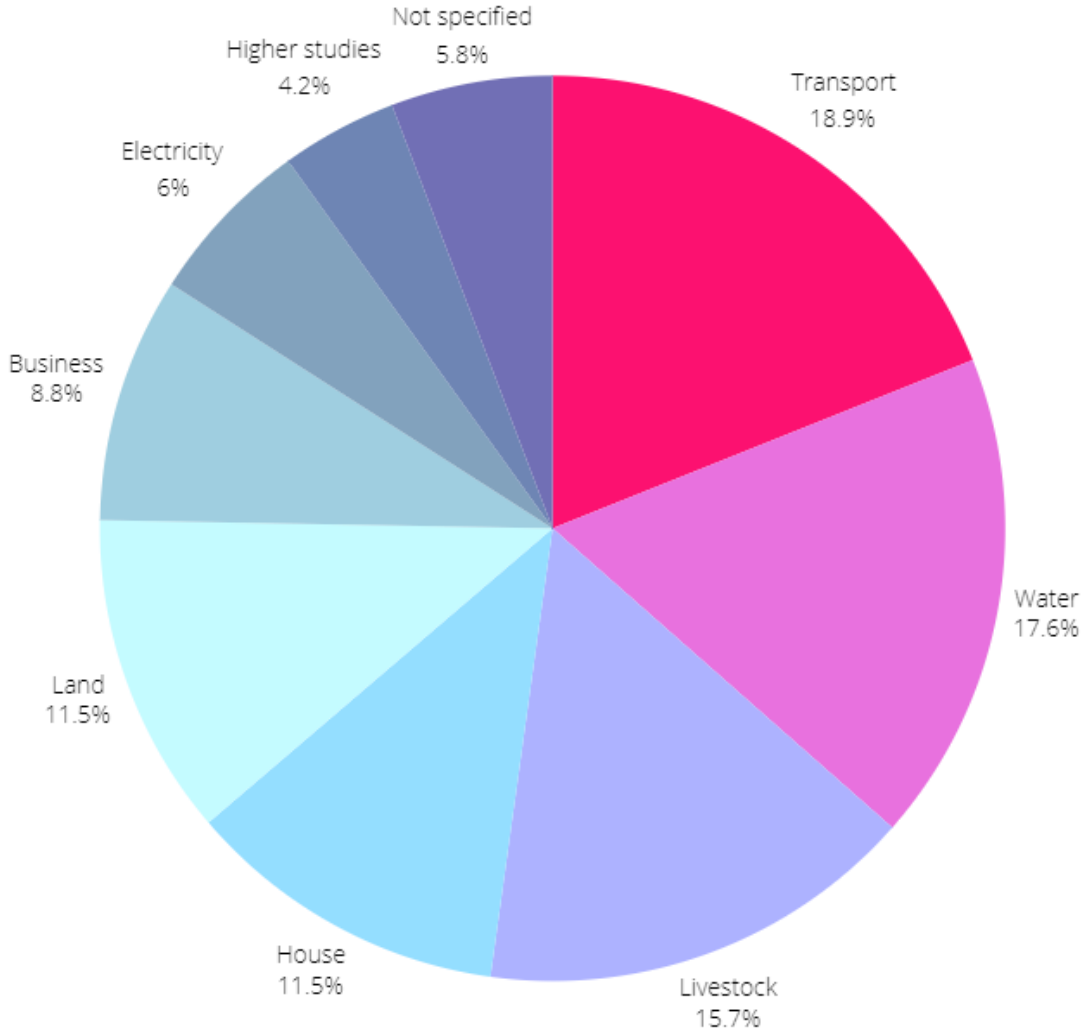

Figure 17: Future aspirations and improvement needs of participants

Approximately 19% of participants expressed a desire to acquire a tractor to facilitate farming activities and ease their workload. Additionally, one individual suggested the purchase of a vehicle for transporting cotton, while another planned to acquire a power tiller.

About 17% of participants sought improved water access, including water pipes, water tanks for domestic use, ponds for livestock, and wells for irrigation. There were also a few individuals interested in purchasing livestock. Some participants indicated plans to build or renovate houses, with one person interested in renting his house and another in rebuilding with cement.

A portion of participants expressed interest in expanding their agricultural activities by acquiring additional land. Others wished to start businesses, such as boutiques and

restaurants. There was also a desire for electricity in homes, as one participant noted its potential utility for nighttime sewing.

Moreover, some participants aimed to support their children's higher education. While only two individuals reported currently participating in empowerment programs. There was a consensus on the need for such programs, with many expressing a desire for their implementation.

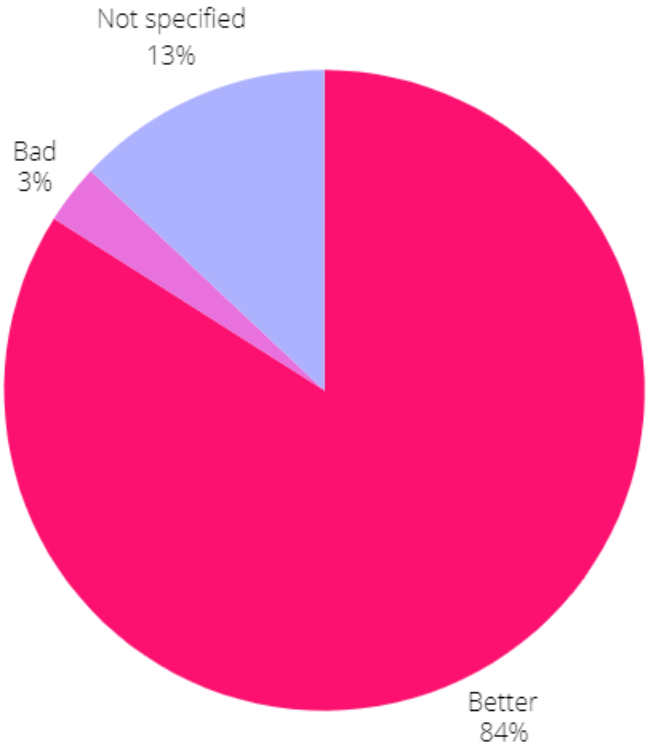

Figure 18: Impact of organic agriculture on quality of life of participants

Approximately 84% of participants reported an improvement in their quality of life after transitioning to organic agriculture, attributing this positive change to better harvests. However, one individual noted a negative experience, citing pest problems as a reason for the decline in their situation. This contrast highlights the generally favourable impact of organic practices, while also acknowledging the challenges some farmers may face.

3.3 Entrepreneurship

Training in business management

All participants unanimously agreed that they received comprehensive training in organic farming. However, only a small number reported having knowledge or training in other areas. Specifically, nine participants mentioned receiving entrepreneurship training, with one attributing this to the TASAF women's group, two having self-taught, and another receiving training from a third party, not Remei. Additionally, nine participants stated they did not receive any training in entrepreneurship.

Training in beekeeping and livestock management was even less common, with only two participants each reporting receiving training in these areas. Notably, only one individual reported having received training across all four areas: organic farming, beekeeping, entrepreneurship, and livestock management. This highlights a gap in the availability or uptake of training in diverse agricultural and business skills among the participants.

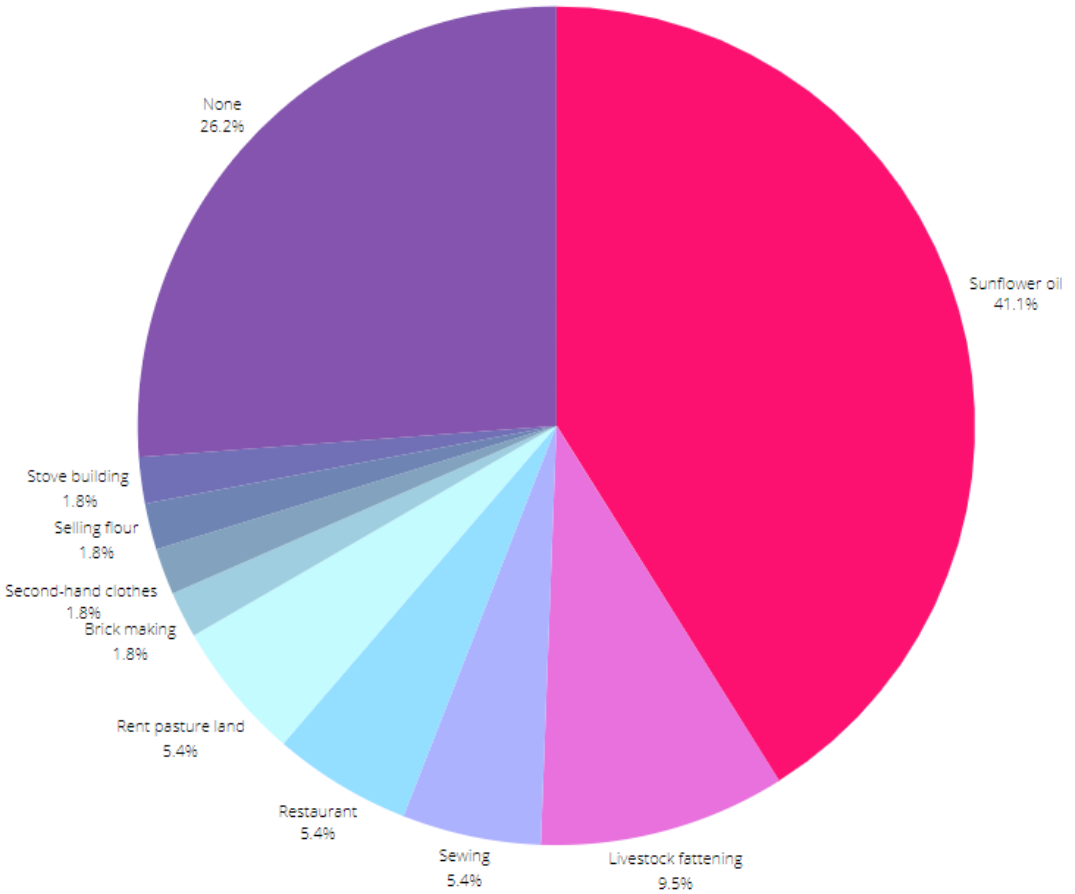

Figure 19: Diverse income-generating activities among participants

Sunflower oil production emerged as the most widespread additional income activity, with 41% of participants engaged in this practice. However, some individuals expressed the need

for machinery to optimize production. One participant mentioned using sunflower oil exclusively for personal consumption.

The second most promising income activity was cattle fattening. Participants involved in this activity purchased weak cattle, provided them with protein-rich feed, and then sold them at higher prices in the market. This practice extended to other livestock, including chickens, sheep, goats, and cows. An equal number of participants that is 5.4% were involved in sewing, running resturants, and renting out pasture land for others' livestock grazing. However, it is noteworthy that two out of three restaurant owners had to close their businesses due to financial losses.

Other income activities were more specialized, with individual participants engaged in brick making, selling second-hand clothes, building stoves, and buying and selling other crop flours, such as red lentils, sourced from different places. Approximately one-quarter (14 participants) did not engage in any additional income-generating activities. Several participants were involved in multiple income activities. For example, one individual combined sewing, brick making, and sunflower oil production, while another was involved in cattle fattening, renting pasture land, and sunflower oil selling. Additionally, one participant was engaged in sewing, cattle fattening, and expressed interest in expanding their sunflower oil business with the acquisition of a machine.

This variety of income activities highlights the resourcefulness and adaptability of the participants in diversifying their income streams, despite facing challenges such as limited access to necessary equipment and market fluctuations.

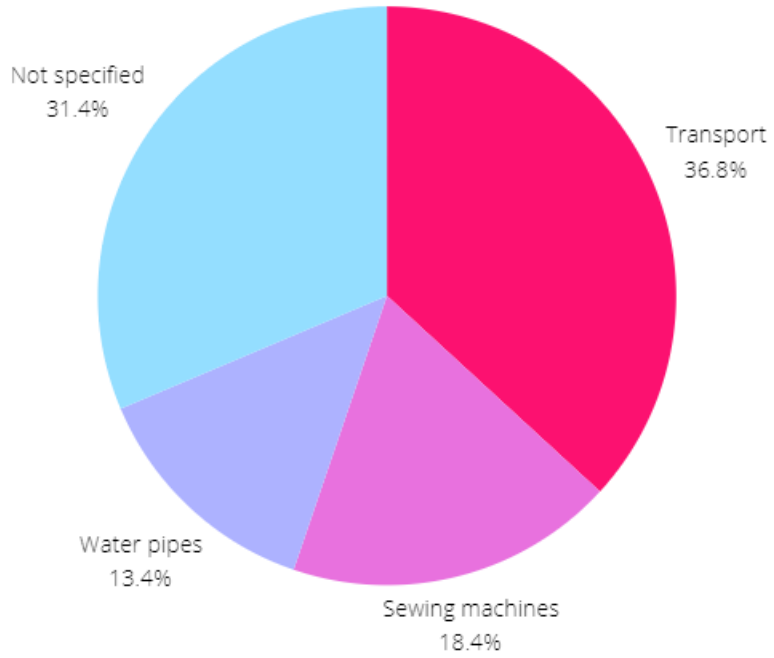

Figure 20: Technical support needs

Approximately 37% of participants expressed a need for support with transport, which they identified as essential for various purposes, including accessing markets and resources. Additionally, around 18% of participants, mainly women requested assistance with obtaining sewing machines, reflecting an interest in expanding or improving their income-generating activities. Some participants also highlighted the need for water pipes, as they currently have to travel long distances to access water. This challenge is closely linked to the need for transport; if water pipes or tractors were provided, it could significantly reduce the frequency and difficulty of these trips. By addressing the water access issue, the need for transport might be alleviated, leading to a more efficient use of time and resources.

This interconnectedness of challenges underscores the importance of holistic support strategies that can address multiple needs simultaneously, improving the overall efficiency and well-being of the participants.

Primary sources of income among participants:

Nearly all participants reported that farming is their main source of income. However, there were two exceptions. One participant, who is older, relies on her sons' business ventures as

her primary source of income. Similarly, another participant mentioned that her sons work in Dar es Salaam and they regularly send money home, making it her main source of income.

This highlights the central role that farming plays in the livelihoods of most participants, with a few relying on external family support.

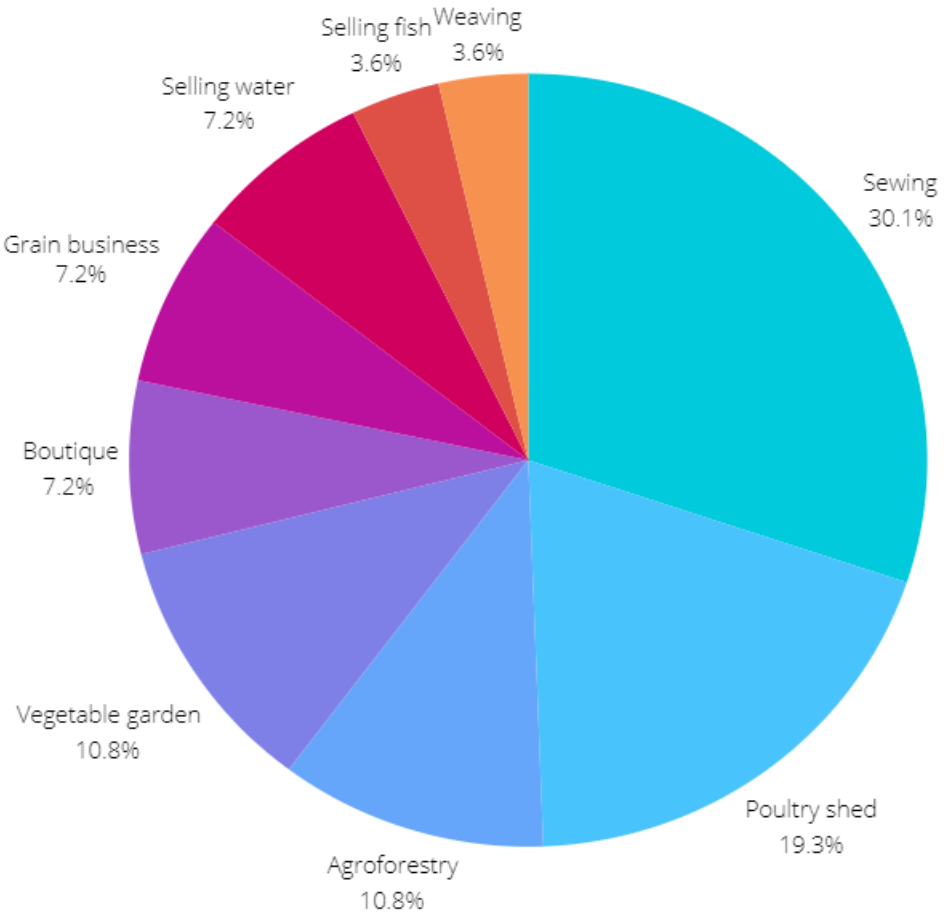

Figure 21: Entrepreneurial opportunities identified by participants

When asked about potential business opportunities in their local areas, approximately 30% of participants identified sewing as a promising avenue for generating additional income. This was followed by interest in establishing poultry operations for fattening and selling cattle, particularly during weekly markets where villagers from surrounding areas gather to trade livestock.

Additionally, 10% of participants saw agroforestry as a viable means to diversify their income streams, while another 10% suggested that cultivating and selling vegetables, such as

tomatoes, could be profitable. Other entrepreneurial ideas included opening boutiques to sell clothing, trading grains like rice, millet, and maize, or providing water for sale.

A smaller number of participants considered more niche options, such as weaving baskets or hemp ropes, and selling fish. These varied responses highlight a range of potential income-generating activities that participants believe could thrive in their communities.

Financial challenge

All participants agreed that receiving loans from the company would be highly beneficial. They believe that the company would offer loans with lower interest rates, making repayment more manageable. In contrast, loans from external banks often come with higher interest rates, which many find challenging to repay. This sentiment underscores the participants' preference for financial support from the company over traditional banking institutions.

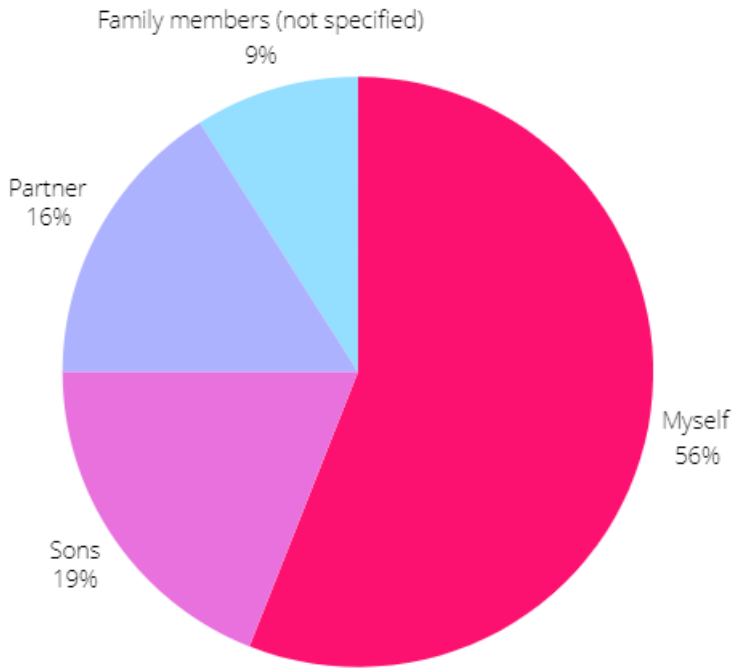

Figure 22: Distribution of field work responsibilities among participants

A majority of participants, 56%, reported that they work independently in their fields. The remaining participants rely on assistance from family members, with sons or partners contributing through agricultural work, jobs, or sewing. This distribution highlights the

significant role of self-labor in the community, while also acknowledging the importance of family support in managing agricultural tasks.

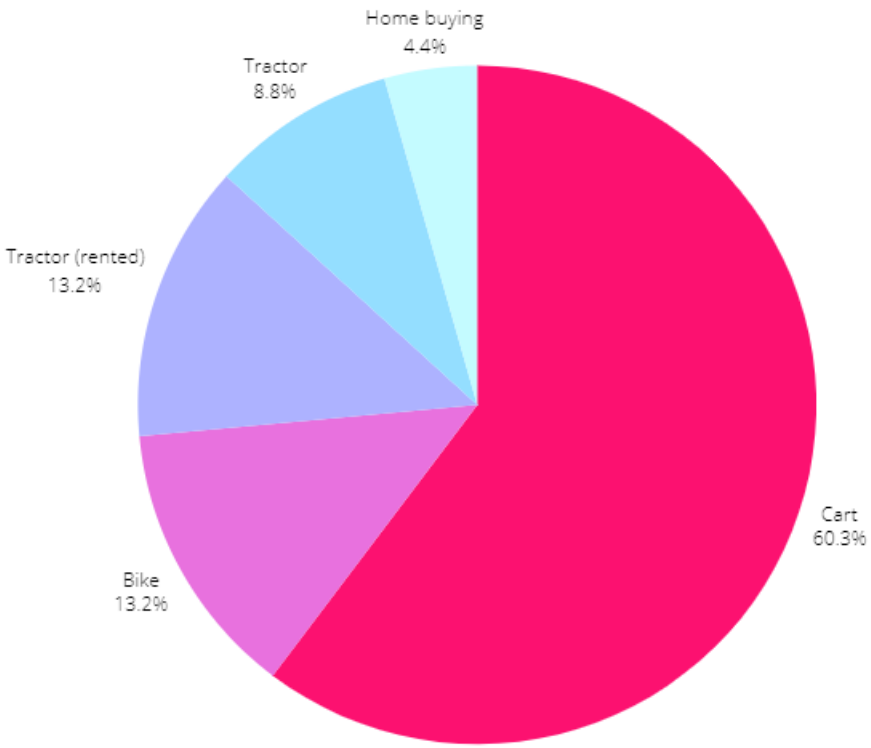

Figure 23: Current and preferred transport modes for agricultural and daily needs

The primary mode of transport for fetching water and other purposes in the community is hand-pulled carts, used by about 60% of the population. A smaller number of people use bikes or bicycles for travel, and some rent tractors for their agricultural work. Notably, only two individuals own tractors. One person mentioned that they do not require transport, as customers purchase directly from their home.

The majority of participants suggested that leasing cars and providing loans for tractors would significantly benefit their daily and agricultural needs. This reflects a community interest in improving access to more efficient transport solutions to enhance their livelihoods.

Infrastructural Gaps

The majority of participants reported no significant infrastructural gaps in their communities. However, a few individuals identified specific challenges: three respondents mentioned

difficulties related to roads, particularly the absence of bridges over rivers, leading to dangerous crossings and occasional drownings during the rainy season. Additionally, three people pointed out gaps in access to electricity, indicating areas where infrastructure could be improved to enhance community safety and development.

Success Stories on Entrepreneurship

Several individuals shared their success stories, showcasing the diverse ways in which they have leveraged local opportunities:

1. Agricultural Entrepreneurship: One individual established his own company, printing bags for rice and wheat sales, demonstrating entrepreneurial initiative within the agricultural sector.

2. Sunflower Milling: Another person owns a sunflower milling machine, which has not only supported his own business but has also encouraged local farmers to grow and sell sunflowers, contributing to community economic growth.

3. Livestock Business: Two individuals are engaged in the livestock business by purchasing weak cows, fattening them, and selling them at higher prices. Additionally, they store food and sell it later, ensuring a steady income stream.

4. Retail and Real Estate: A self-made entrepreneur has successfully built and operates retail shops, as well as constructed houses, highlighting the impact of small business ownership and real estate investments.

5. Textile Enterprise: A group of women has found success in selling clothes they have stitched, turning their sewing skills into a profitable venture that supports their families and contributes to the local economy.

3.4 Health

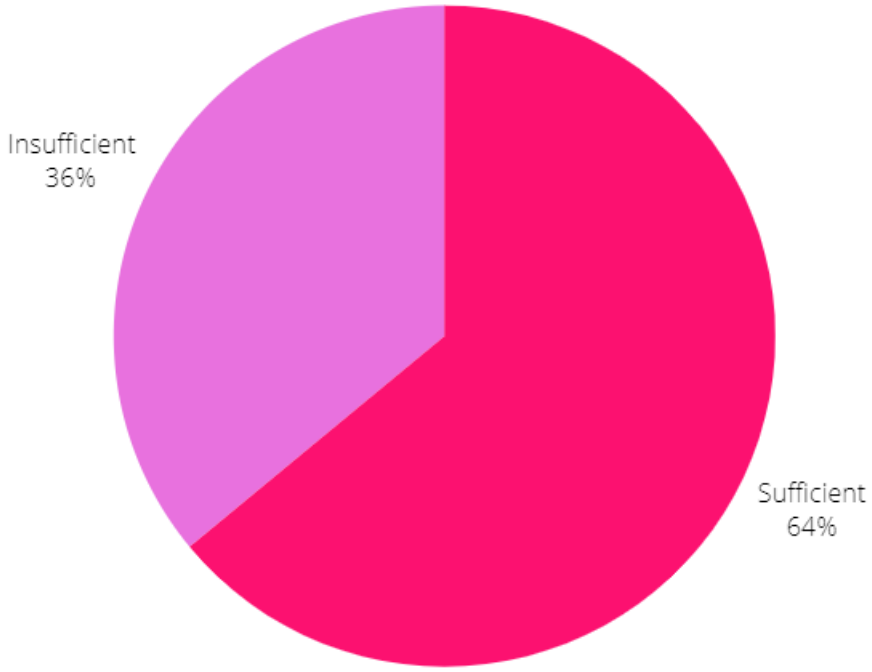

Figure 24: Satisfaction with healthcare facilities and access challenges

Healthcare access varies among the population, with about 64% of people expressing satisfaction with the available facilities. They highlighted advantages such as free maternity services and noted that four individuals have access to health insurance.

However, 36% of the respondents found healthcare insufficient. Their concerns primarily stemmed from the long distances they must travel to reach healthcare units, which are often located in other villages. Additionally, some pointed out that the existing healthcare units are too small and inadequate to meet their needs. One respondent mentioned the lack of health insurance as a significant issue.

Despite these challenges, all respondents confirmed the presence of pharmacies in their villages, which provide essential medical supplies and medicines.

Affordability of Healthcare

The majority of respondents indicated that they could afford their healthcare needs. Specifically, all but two people mentioned that healthcare was within their financial reach. One person noted that a clinic established by a foreign entity in the area provides services at

very low costs, making healthcare more accessible. Another respondent stated that while they can generally afford healthcare, it becomes more challenging during the rainy season. Only two individuals expressed difficulty in affording healthcare, highlighting the occasional financial strain some face.

Figure 25: Responses to inability to afford medical bills

Then we asked when they face the challenge of not being able to afford the medical bills, what do they do in these scenarios and around 67% of the people said they would sell their livestock in the market to get instant cash for the necessary treatments. About 4 people that is 13% of the people said they would borrow from other people like mother or neighbours. Ten percent of the people said that case never happened that they weren't in that scenario ever. Very few people said they would follow traditional remedies and only one person said she would go to traditional healers. One said they believe in traditional things like rings. And there seemed to be very less traditional and cultural influence in this aspect.

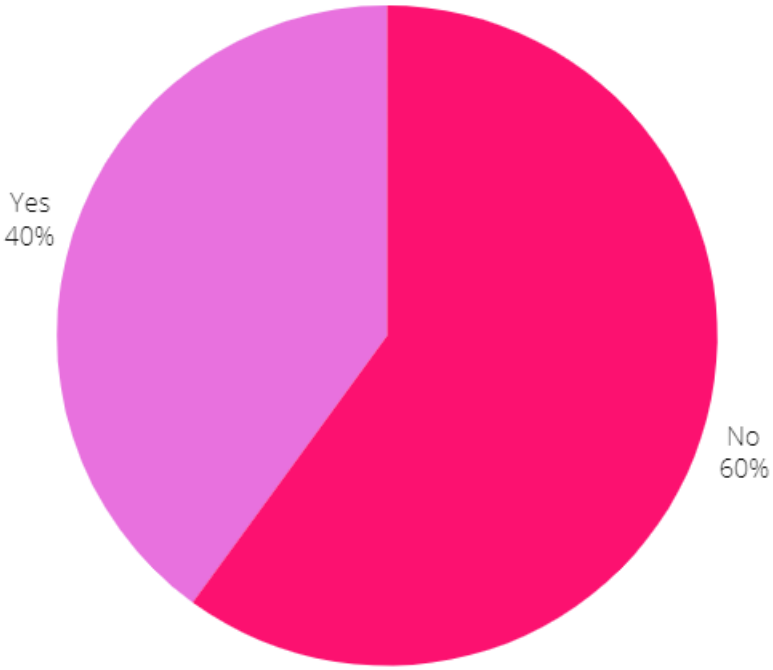

Figure 26: Strategies for managing medical bills when unable to afford

When faced with the challenge of being unable to afford medical bills, approximately 67% of respondents reported that they would sell their livestock to quickly generate the necessary funds for treatment. About 13% of the people mentioned borrowing from others, such as family members or neighbours, to cover medical expenses. A small portion, around 10%, noted that they had never encountered a situation where they couldn't afford healthcare. Only a few individuals mentioned resorting to traditional remedies, with one person specifically stating that they would consult a traditional healer. Another individual mentioned relying on traditional beliefs, such as wearing rings for protection. Overall, the influence of traditional and cultural practices appeared to be minimal in addressing healthcare affordability challenges.

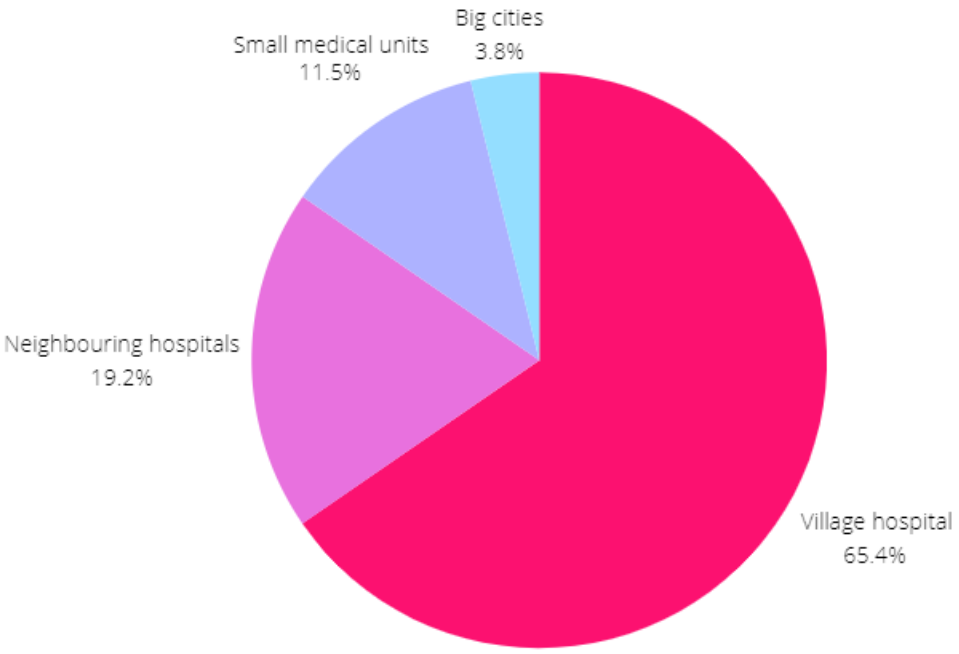

Figure 27: Preferred sources of medical emergency care

In cases of medical emergencies, about 65% of respondents reported seeking help from hospitals within their own villages, with one individual noting the availability of ambulance services. However, two respondents highlighted challenges related to the cost of health insurance, and one shared a tragic account of losing four family members despite hospital treatment. Additionally, 19% of respondents mentioned traveling to hospitals in neighbouring villages, bearing the cost of transportation themselves. A few others stated that they rely on smaller medical facilities like dispensaries. One person shared that they had to travel to a major city, Dar es Salaam, which is 15 hours away by bus, for their daughter's breast cancer treatment.

Women's Health Needs

A significant concern highlighted by respondents is the need for hospitals to better cater for women's health requirements, particularly during pregnancy-related emergencies. Eight individuals expressed that improved facilities are crucial for addressing such emergencies, citing instances where women have given birth en route to hospitals due to inadequate

services. Additionally, there is a need for essential resources, such as glucose, to be more readily available to support maternal health during critical situations.

3.5 Education

Agricultural Training Impact on Farming:

All participants expressed a positive outlook regarding the knowledge they gained from agricultural training, particularly in organic farming, soil fertility, soil erosion prevention, and harvesting techniques. However, when it came to pest control, only a few (11 individuals) reported having received training. Additionally, some of those who had received pest control training mentioned that the methods were not effective in practice. This highlights a gap in the effectiveness or applicability of pest control knowledge among the farmers.

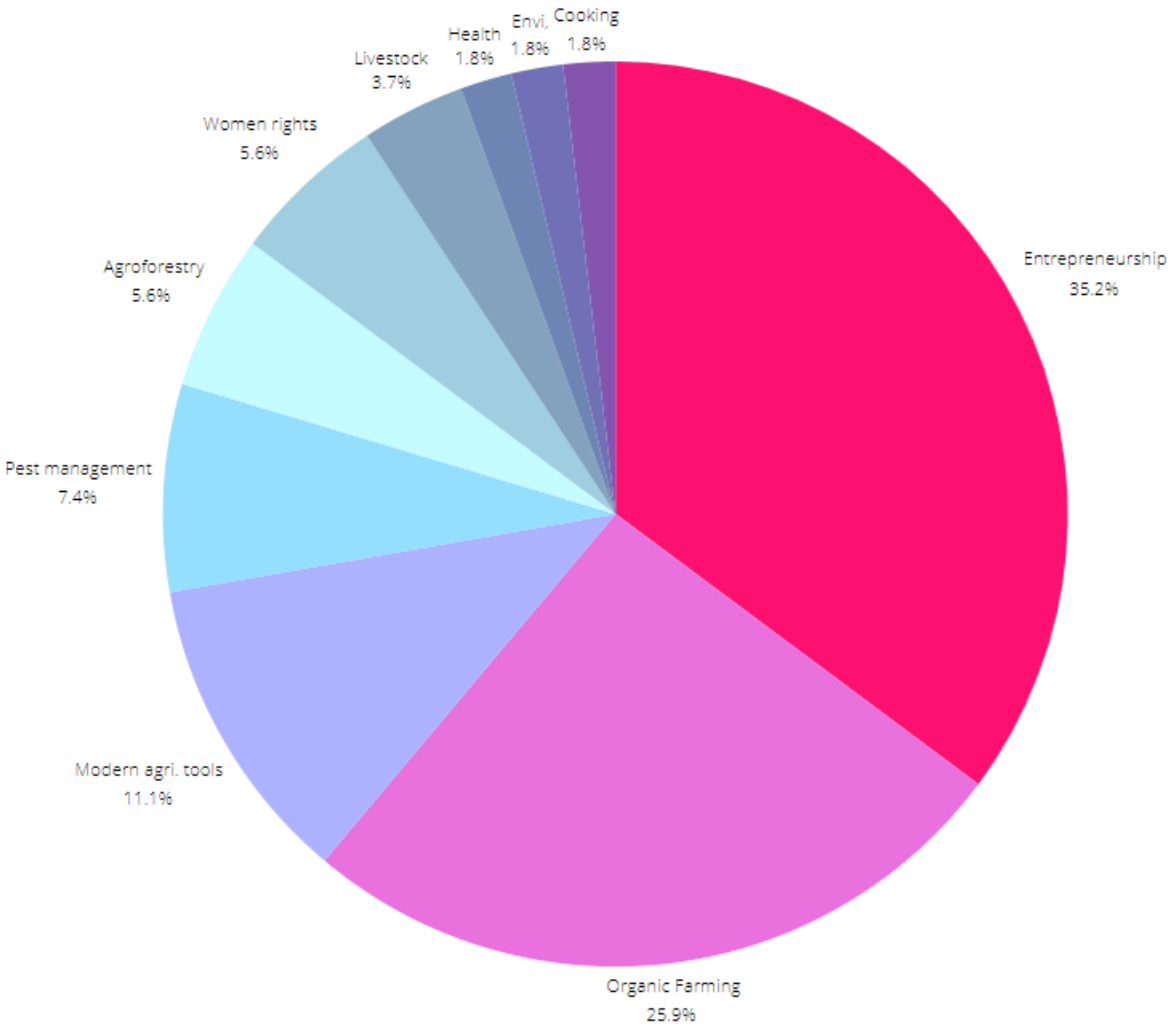

Figure 28: Additional educational topics desired by the participants

When asked about other educational topics that could benefit them, around 35% of the participants expressed a desire for entrepreneurship training, believing it would significantly aid their business ventures. Additionally, about 25% of the respondents indicated that gaining more in-depth knowledge of organic farming practices would help them improve their agricultural methods and harvests. This suggests a strong interest in both enhancing business acumen and refining agricultural techniques among the community members.

ICTs

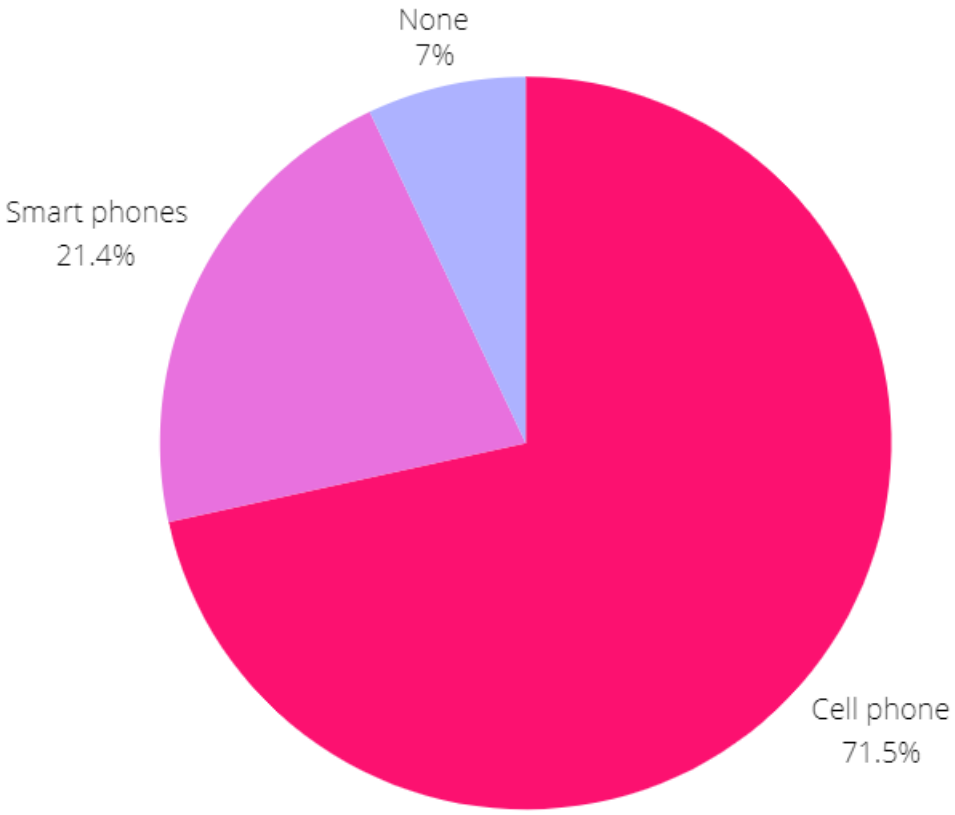

Figure 29: Mobile phone usage and accessibility

The majority of the respondents, over 70%, owned cell phones, primarily using them for calling. However, these were mostly basic keypad phones without internet access. Only 21% of the participants had smartphones, highlighting a significant digital divide. One individual pointed out that smartphones are challenging to obtain and suggested that both women and men need training on how to use them effectively. Additionally, one person mentioned having no access to any type of mobile phone, relying on borrowed phones when necessary.

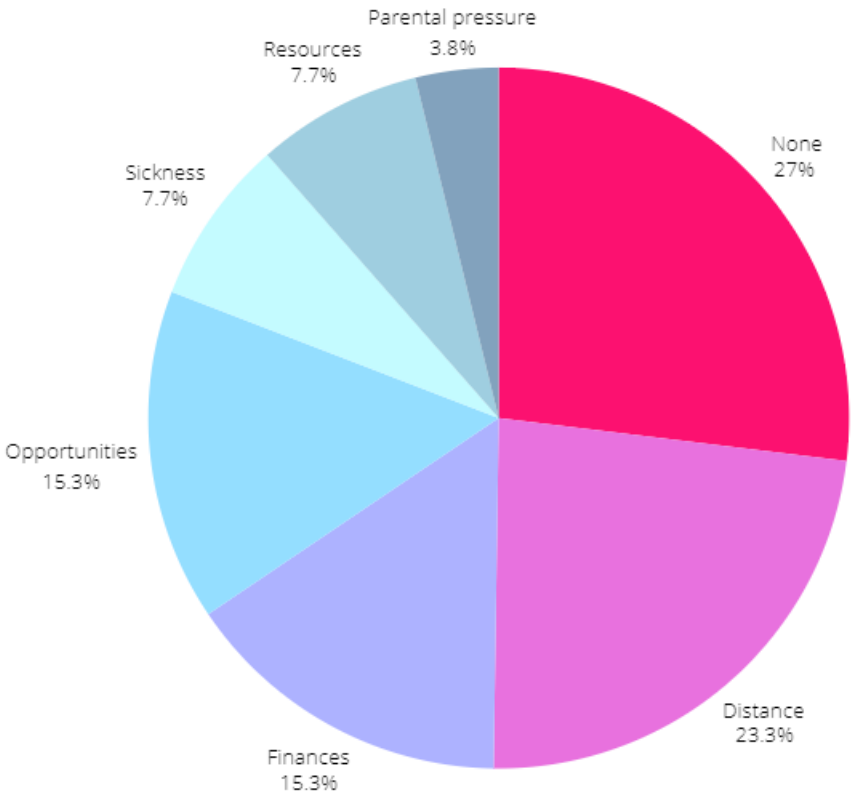

Figure 30: Challenges in pursuing education

Educational access remains a significant challenge for many in the community. About 27% of respondents reported no difficulties in accessing education. However, 23% cited distance as a major obstacle, particularly for secondary schools, which are often located far from home. Some students must walk up to three hours each way, starting their day as early as 5 a.m. and returning in the early evening. Financial barriers were noted by 15% of the respondents, who struggled to afford school fees. Another 15% mentioned the lack of opportunities, where children sometimes had to drop out to assist with fieldwork when parents were unable to manage alone. Social factors also played a role; one respondent noted that girls often forgo further education in favour of marriage, while another simply expressed a disinterest in attending school. Health issues and the lack of resources each affected 7.7% of the population, with some students missing school due to illness or the need to provide food for children in hostels, leaving little for the household. Additionally, one respondent mentioned water scarcity in schools as a reason for girls missing classes, and another highlighted the pressure from parents as a reason for dropping out.

Importance of Entrepreneurial Education for women

Out of the 32 respondents, 19 people (59%) highlighted the significance of entrepreneurial education, particularly for the empowerment of women. They emphasized that girls should be encouraged to pursue education rather than being limited to tasks like fetching water. By acquiring entrepreneurial skills, women can contribute to their households economically, fostering greater independence and stability. Respondents noted that this knowledge is essential for promoting gender equality and ensuring that women have the tools to succeed.

3.6 Innovation

Innovation Among Community Members

Approximately 94% of the respondents reported that they had not invented anything on their own to date. However, two individuals stood out for their ingenuity: one created hemp ropes and pot handles, while the other developed a seed mill machine independently. These examples highlight the potential for innovation within the community, even though it remains relatively rare.

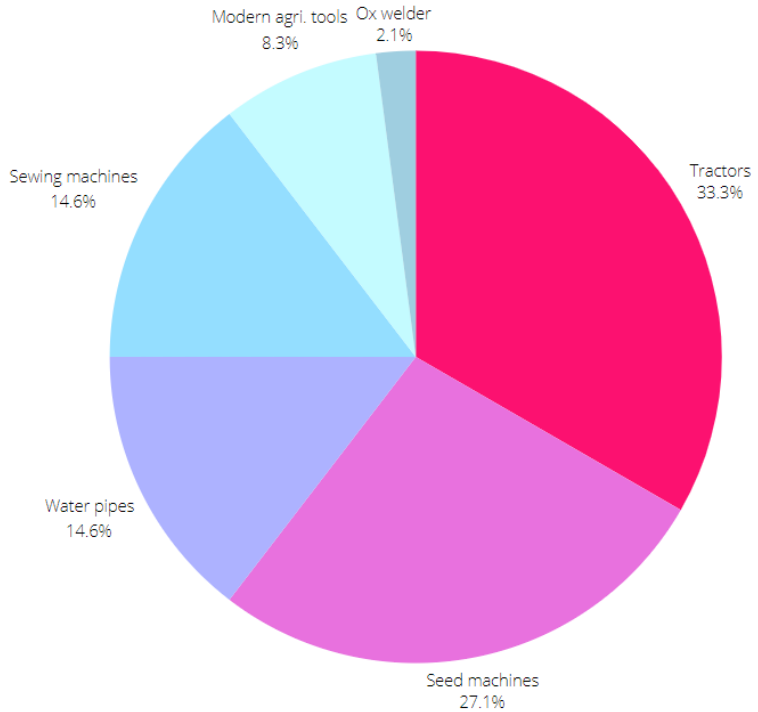

Figure 31: Preferred innovations by participants for community development

Over 33% of the respondents identified a tractor as the most beneficial innovation for their needs, emphasizing its potential to significantly improve farming efficiency. Another 27% highlighted the importance of seed machines for generating additional income. Similarly, 14% of the people mentioned that water pipes would greatly aid their agricultural activities, while another 14% expressed interest in sewing machines as a potential side hustle. Some individuals also suggested that modern agricultural tools, such as a power tiller or weeding tools, would

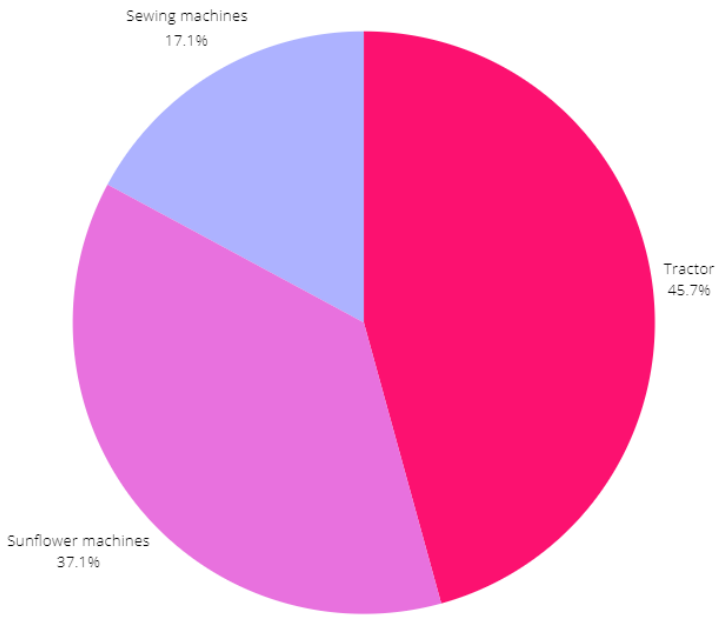

Figure 32: Most helpful technology according to the participants

The majority of respondents believe that tractors would be the most helpful technology for their needs. This is followed by 37% of the people who consider sunflower machines as highly beneficial, and 17% who see sewing machines as a valuable tool for generating additional income.

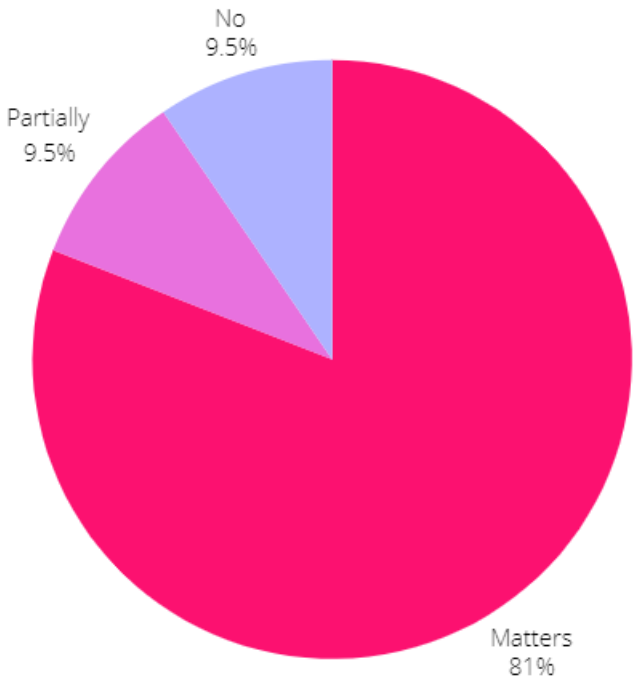

Figure 33: Perceptions of women's creativity

A significant majority, 81% of respondents, believe that women's creativity is crucial and highly important. Meanwhile, 9.5% said it partially matters, with one of them emphasizing that even though it's partial, it is still very important. Another 9.5% felt that women's creativity doesn't matter in their context.

3.7 Second Round of Interviews

During the second round of interviews, several important issues came to the open, and they largely point to three pillars of empowerment, namely agriculture; participation; and education.

On the side of agriculture, it was noted that the contracts signed between Remei and the farmers, guarantee the former maximum loyalty of the latter and henceforth most of the decisions are being made by Remei. The employees dealing directly with the farmers also observed that all agricultural activities from the side of the company depend on external funding and this sometimes affects the implementation of their plans due to issues like insufficient pesticides; sprays and other working tools.

Similarly, the employees noted the limitation of farmers' representation in the PRB, contending that it is somewhat discouraging effective communication. Likewise, they expressed concerns on the monotonous trading of organic cotton, reckoning that by contracting farmers to cultivate other organic crops will attract more people into farming thus leading to more production of multiple crops include organic cotton itself. Apparently, this will also save them from routine work, and address their disappointments in doing a less rewarding job. Issues of unsatisfactory renumeration and other employees benefits also took substantial amount of time during the interviews.

Coming to participation as another pillar of empowerment, the employees admitted that institutional involvement in mobilizing the farmers' participation in various community projects/activities is seen positive and accepted. However, they find it leaving much to be desired, in terms of lacking training to raise awareness and a missing strong sense of service from bioRe/Remei side, needed to boost the farmers' enthusiasm. One big example cited here is the tendency of the farmers deregistered by Remei to reject projects such as smokeless stoves. They contend that this kind of negligence signals a communication gap or a shortfall in offering proper services to clients. Otherwise, they think that such farmers would have been in a position to make a distinction between organic farming activities and the domestic ones.

According to the some of the interviewees, the enthusiasm can be attained by encouraging famers to participate in various communal initiatives (as well as entrepreneurial initiatives), including setting up competitions and the winners being rewarded. Also to enact by-laws as a way of communicating the necessity of the same, and at the same time dealing with people's patience by making them aware that positive impact of such initiatives takes time.

Education is another empowerment pillar emerging from the analysis of the data collected during the second round of interviews. The interview participants spoke of the necessity for employees' capacity building programmes. They noted that quite a good number of bioRe/Remei staff lack exposure and required expertise to execute their daily duties properly. Thus, programmes like in house training; study tours; benchmarking visits; conferences and exhibitions are necessary for them. The two notable skills to be uplifted by such proposed programmes are said to be customer/client services and employees relations which apparently affects institutional collegiality.

4 Conclusion and Recommendation

This report provides a detailed examination of the agricultural practices, socio-economic conditions, and community dynamics observed during the baseline study period. The findings offer both a snapshot of progress and a roadmap for addressing ongoing challenges. The community's commitment to organic farming has brought noticeable benefits, including enhanced soil fertility and increased income from premium products. However, persistent challenges such as erratic rainfall, ineffective pest control, and logistical difficulties highlight the need for further support. The gaps in pest management training and the logistical hurdles related to cotton storage and transportation emphasize the necessity for targeted interventions. Addressing these issues through improved training and infrastructure development can help sustain and build upon the progress made in organic agriculture.

The mixed picture of healthcare access reveals a significant disparity between satisfaction with available facilities and the challenges of accessing adequate care. While most respondents manage their healthcare expenses, the occasional financial strain underscores the need for better support systems. The reliance on selling livestock and borrowing from others to cover medical costs points to the potential benefit of introducing more robust financial safety nets and health insurance options. Enhancing healthcare infrastructure, especially in remote areas, could alleviate the distance-related challenges and improve overall care quality.

The findings on educational access and needs reflect both progress and areas for improvement. While agricultural training is highly valued, the gaps in pest control knowledge and the need for additional training in entrepreneurship highlight areas where further development is necessary. The barriers to education, including distance, financial constraints, and social factors, suggest a need for targeted initiatives to improve educational access and support. Entrepreneurial education, especially for women, emerges as a crucial area for enhancing economic stability and promoting gender equality.

Despite a general lack of personal invention, the presence of local innovations and the community’s interest in technological advancements highlight significant potential for growth. The preference for tractors, seed machines, and sewing machines reflects a clear

demand for technologies that can enhance agricultural productivity and economic opportunities. The acknowledgment of women's creativity and the success stories of local entrepreneurs demonstrate the impact of leveraging community resources and skills. Supporting innovation and providing access to modern tools can drive further development and contribute to community resilience.

The findings from this study suggest that while the community has made notable progress, there are critical areas where additional support and development are needed. The combination of agricultural success and ongoing challenges underscores the importance of a holistic approach to community development. Addressing gaps in training, improving healthcare access, and expanding educational opportunities are essential for sustaining growth and enhancing quality of life. Moreover, fostering innovation and supporting local entrepreneurs can further drive economic development and resilience.

In summary, the insights from this report will guide future efforts to support and empower the community. By addressing identified challenges and leveraging existing strengths, it is possible to foster sustainable development and improve the overall well-being of community members. The data and analysis presented here provide a valuable foundation for designing effective interventions and strategies to promote long-term growth and resilience.

It is therefore recommended that bioRe/Remei embark in developing and implementing a new empowerment programme which will include the restructuring of the organization and its operations in order to pave way for pertinent interventions. This is by integrating support across the six pillars (agriculture; participation; entrepreneurship; healthcare; education; and innovation), particularly by ensuring five important dimensions are attained. These dimensions, are essential indicators of successful empowerment initiatives. They include, independence; competence; income, decision making and self-awareness.