

Perceptions of Local Community on the MLC Project Activities of Promoting Agroforestry under the Development of Community Forestry

1. Introduction

Republic of the Union of Myanmar is well-known for rich natural resources that can support all human well-being in South East Asian region. It presents a variety of habitats and valuable ecosystems including forests vary in species composition and stand structure. Natural resources have been utilized by local community for their living supports such as vegetables, bush meat, energy and shelter as well as performing economic contributions from the natural resources (Forest Department, 2022). About forest area occupy 41.19% of the country's total land area. Forest management and conservation was done by the Forest Department, Ministry of Natural Resources and Environmental Conservation (FAO FRA, 2020).

Recently in Myanmar, many drivers of deforestation and forest degradation were observed, it's critically important issue to manage by Forest Department. Forest land encroachment, agricultural land expansions, excessive logging and extraction of wood fuel in forested area are the most challenging drivers to solve and managed by Forest Department. Forest Department decided to establish Community Forestry (CF) for the purpose of supporting local community for their basic needs, income opportunities and forest conservation. Community Forestry program has been continuously enlightening and developing all over the country. Community forestry (CF) is a branch of forestry that contains rights of rural communities, supports rural development, and enhances involvement of local people in decision making process (Forest Department, 2022).

The Forest Department and Ministry of Foreign Affair implemented the FD-MLC (FD-Mekong-Lancang Cooperation) project as the title of "Promoting Agroforestry as a Potential Strategy for Enhancing Livelihood Improvement of Communities under the Development of Community Forestry" in 2022-2023. The project implementing sites were Tatkone Township, Oatarra District, Nay Pyi Taw, Kyauktakar Township, Bago District, Bago Region and Taikkyi Township, North-Yangon District, Yangon Region.

The objectives of the project activities were set as follows:

- To promote agroforestry as a potential tool for development of community improving food and income security to local communities
- To develop agroforestry designs that are suitable with local conditions and meet with community's requirement
- To establish training forest which harbor research plots with different agroforestry designs
- To promote community's understanding on benefits of agroforestry
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The project conducted several activities in the selected areas of the project sites to fulfil the objectives such as livelihood improvement training for local people, market linkage for agricultural products, demonstration of training plots for agroforestry practise, practice on different agroforestry design, assessment of livelihood of member of forest user groups, assessment of agroforestry design in current practice, assessment of community forestry in current practice, study tour for forest user group to the successful agroforestry practice, creating

and distribution of awareness raising video during the project duration starting January 2022 to December 2023 (Forest Department, 2022).

The project implementation activities were expected the outcomes as improved livelihood of local communities, improvement in conservation of forests, paper of developed agroforestry designs which can be referenced by other communities, and better understanding about benefits of agroforestry not only in Myanmar but also in the region for the long run sustainable community forestry development (Forest Department, 2022).

According to the project activities, the local community in project sites were already got the some supports, trainings and implemented project activities related to the agroforestry practises in their own farm areas organized by the project team since January 2022 onward. Regarding the expected outcomes of the project, understanding the benefit of agroforestry of local community is critically important for the sustainable development of agroforestry in the long term as the impact of the project activities.

2. Objectives of the Study

The study will be done to assess the understanding the benefit of agroforestry of local community based on the project activities in the project areas with specific objectives as follows:

- 1) To determine the participation level of respondents on overall project activities
- 2) To assess the understanding of local community on overall project activities and long term benefit of agroforestry for their environment
- 3) To explore the adoption, trust and willingness of local community on the agroforestry related to the agroforestry for long run sustainable agroforestry development
- 4) To explore the local community perceptions about strength, constraints of agroforestry project and suggestion for long run sustainable agroforestry management.

3. Methodology

3.1 Study areas

The primary data collection to fulfil the objectives covered all project areas, however, considering time and budget, survey areas for this study will be selected among project implemented villages of the specific District/Township in three project sites.

Therefore, the study areas were three project sites as

1. Tatfone Township, Oaterra District, Nay Pyi Taw
2. Kyauktakar Township, Bago District, Bago Region
3. Taikkyi Township, North-Yangon District, Yangon Region.

The target areas for data collection had representativeness of the project implementing villages in each site. The study area selection was based on the suggestion and arranging of officials of the project management team of the Department of Forestry.

3.2 Sample numbers and sampling procedure:

The random sampling procedure was used for sample selection in specific project sites. The total sample size was 36% of total participant numbers of 3 project sites. Among the specific areas, representative level was higher (63% of total participants) in Tatfone and Kyauktakar Township to cover all activities and understanding of local community, however the sample size of Taikkyi Township to be representative (24% of total participants) within the limits based on the active participant numbers and limited situation. The sample respondents included different types of community forest users. The sample size of a specific project site was shown in Table 1.

Table 1 Participant numbers, sample size and representative ratio in specific project sites

Project sites	Participant no. of local community	Sample size	Representative to total participants (%)
Tatkone TSP	24	15	63%
Kyauktakar TSP	24	15	63%
Taikkyi TSP*	105	25	24%
Total	153	55	36%

Note: * Sample size of Taikkyi Township, North-Yangon District, Yangon Region is lower representative than other project sites based on active participants no. and some limitations of project area.

3.3 Method of data collection and required data

A qualitative and quantitative research methodology with a case study research design has been chosen. The case described in this research was based on field data collected on three project areas. Both statistical data and official statements were used to support the case analysis. This research used two types of data. The first is the secondary source materials obtained from official reports and past studies of the MLC project involvement in agroforestry project management. The second is primary data obtained through a questionnaire survey of selected respondents in selected townships. The respondents have been randomly selected from these study areas. The study presents findings from primary data collected and literature reviews on community forest management and the nature of forest conservation and sustainable management.

The survey was conducted face to face with structural interviews using both open-and closed-ended questions with pretested structured questionnaire. The data collection was done by the research team organized by the consultant in September, 2023. The enumerators were trained to collect the quantitative and qualitative data via proper approaches to the participants in each project site.

The required data was relevant information about opinions, perspective, awareness, adoption, trust, participation and understanding about the benefit of agroforestry of local community these are critically important for the sustainable development of agroforestry in the

long term as the impact of the project activities the agroforestry of the participants of project activities.

- 1) The required data was included as follows:
- 2) Demographic information of selected respondents
- 3) Socio economic condition including crop cultivations
- 4) Participation in the project activities
- 5) The perceptions on overall project activities participated
- 6) The awareness of local community on the benefit of agroforestry related to their participating specific project activities
- 7) The understanding on long term benefit of agroforestry for their environment
- 8) Willingness, adoption, and trust to manage their activities related to the agroforestry for long run sustainable agroforestry development and
- 9) Perceptions on the strength and constraints of project activities and suggestions for the long run sustainable agroforestry management.

3.4 Data analysis and reporting

The data verification and consistency were done by the consultant team after collecting the data. The survey responses were coded and analysed using the Statistical Package for Social Sciences (SPSS) version 21. The collected data was analysed by Excel and SPSS programs by showing each and every variable with average, maximum, and minimum as the descriptive statistics. Descriptive analysis was carried out to highlight the socioeconomic characteristics of the samples and other variables based on the cross sectional data obtained from field survey. Data analysis was done based on the type of data such as quantitative data and qualitative data. The findings were analysed in specific townships in the study sites.

In particular, cross tabulation was performed to analyse the influence of demographic factors and respondents' participation in different aspects of forest management. Qualitative data were analysed using a content analysis approach to identify underlying understanding, willingness, adoption, opinions, and suggestions following Leedy and Ormrod (2005). Field notes taken during observation, interviews and personal conversations were triangulated with qualitative results.

The report outline was prepared on the objectives and data collected and submitted to the Project team of the Forest Department for getting confirmation in advance. After setting the report outlined by both parties, the report was prepared with a scientific reporting format in time.

3.5 Work plan

The study was conducted with the following steps.

- 1) Prepare questionnaire
- 2) Pilot testing the questionnaire
- 3) Questionnaire revision and finalizing
- 4) Enumerator training

- 5) Survey arrangement with Project team of Department of Forestry
- 6) Data collection in the study sites
- 7) Report formatting and outline of report preparation
- 8) Data verification and checking the consistency of data
- 9) Data analysis and interpretation
- 10) Report writing and submission the draft report
- 11) Check and giving the comments to improve report
- 12) Revision of report and submission the final report

4. Results and Discussion

4.1 Demographic Information of Respondents

The assessment on the demographic information and livelihood of local communities are very important and play a critical role for the establishment and development of CF and agroforestry development activities. Demographic information of local community that are deal with livelihood activities could assist in influential for management of forest conservation and rural development as the main target of CF. Based on the demographic information and livelihood status are considered to develop the strategic plan and programs for the sustainable forest management cooperation with local community.

According to the POINT 2019, in Myanmar, women often have distinct roles in managing forests as compared to men, and therefore the study represented some perspective of women samples to explore their knowledge about forests and different priorities for how forests are managed, participation in CF project activities, understanding and willingness based on the objectives. Primary data collection for the study, 47% of total respondents were female in Tatkon Township; it was highest ratio of female participation for the primary data collection among three areas (Figure 1a, 1b and 1c).

Most of the respondents were primary education level (67% in Tatkon and Kyautakar Township each). The highest educated respondents were found as graduated 6.7% in Kyauktakar and 8% Taikkyi Township respectively. Subsequently, the socio-economic condition of local people strongly influences sustainable forest management in Myanmar (Oo Citation 2012). It can be clearly seen that social benefits to local people of forest management has become a critical aspect of sustainable development (Poschen Citation 2000). Among the socio economic factors, education level of local community is the significant one for the adoption and understanding of forest management (Figure 1a, 1b and 1c).

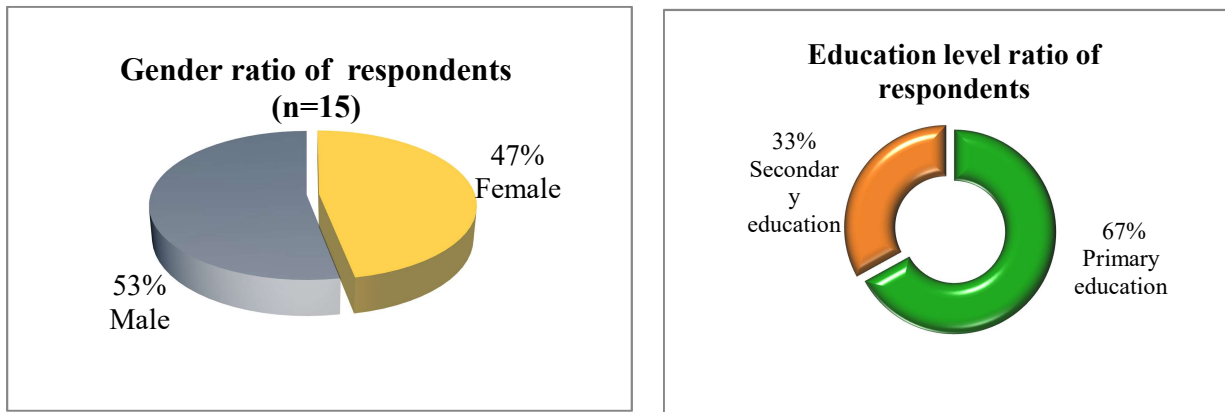


Figure 1a. Gender ratio and education level of respondents in Tatkon Township

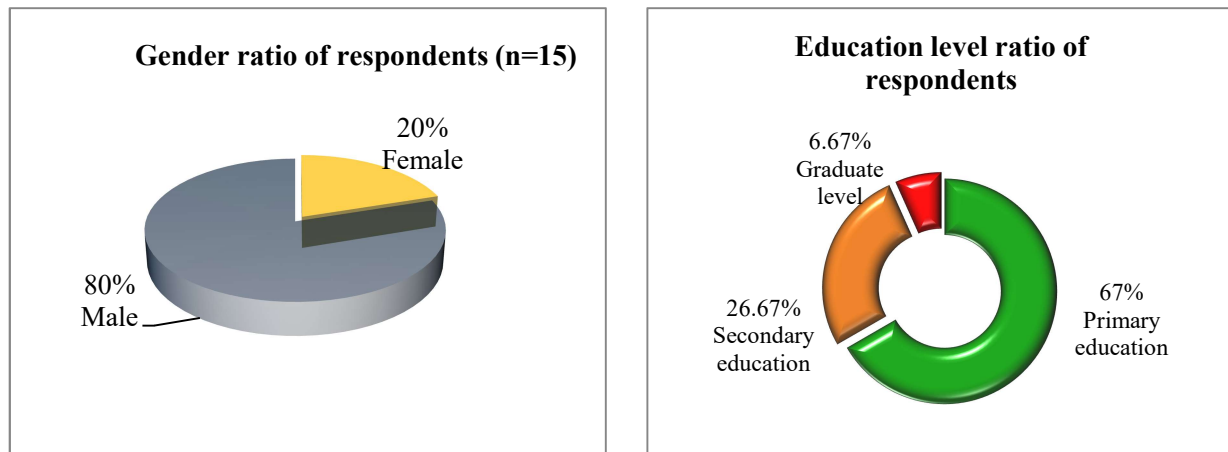


Figure 1b. Gender ratio and education level of respondents in Kyauktakar Township

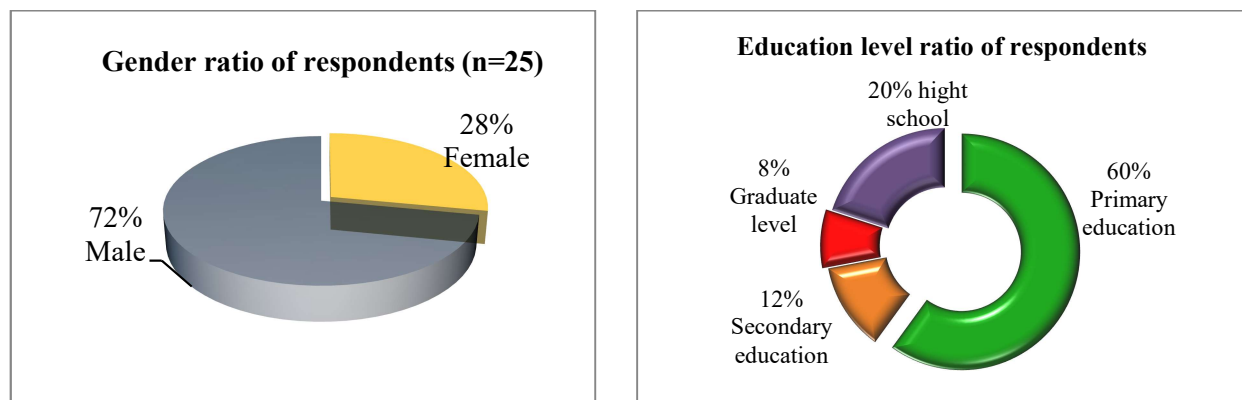


Figure 1c. Gender ratio and education level of respondents in Taikkyi Township

Regardless of women distinct knowledge and priorities, women in Myanmar are under-represented in decision-making processes about forests at all levels (POINT, 2019). Therefore, the study tried to show the role of gender in decision making in farming activities and

agroforestry project participation in Figure 2a, 2b and 2c. There were 7% of decision making processes lead by women and 40% by both of women and husband, while leading by women in agroforestry project participation was higher ratio (13%) and by both (73%) in Tatkon Township (Figure 2a). In Kyauktakar Township, 20% of decision making in farming activities and 13% in agroforestry participation were led by women (Figure 2c). However, same ratio (16%) of decision making in farming activities and agroforestry project participation were led by women in their sample household (Figure 2c). The role of women in decision-making and leadership varies between different Indigenous groups in Myanmar (POINT 2019). Decisions are often made through discussion among the household members. In some cultures, it is usual to have a mix of men and women and contribute to discussions, while in others typically only men lead most of the decision making for the household management. Therefore, some development projects aim to strengthen the role of women in decision-making.

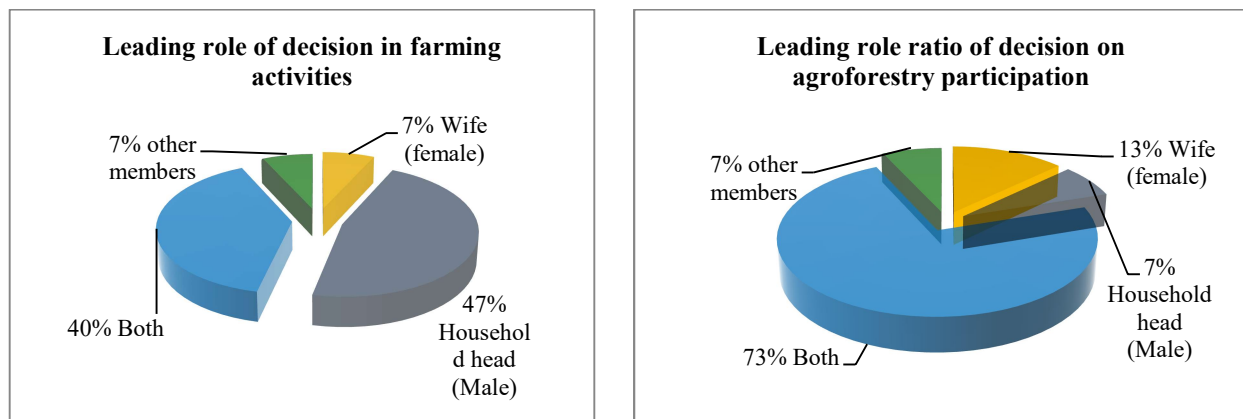


Figure 2a. Leading role of decision making in farm and agroforestry in Tatkon Township

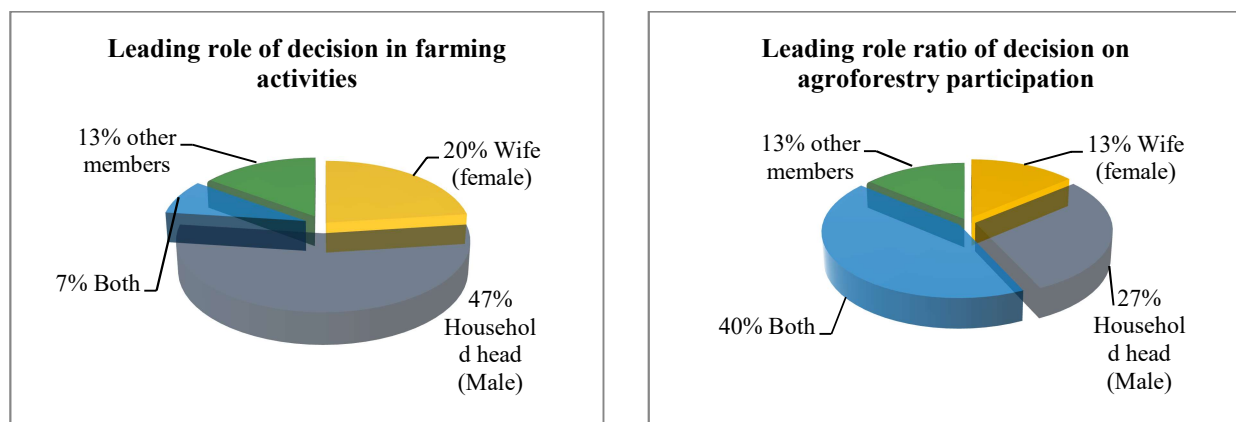


Figure 2b. Leading role of decision making in farm and agroforestry in Kyauktakar Township

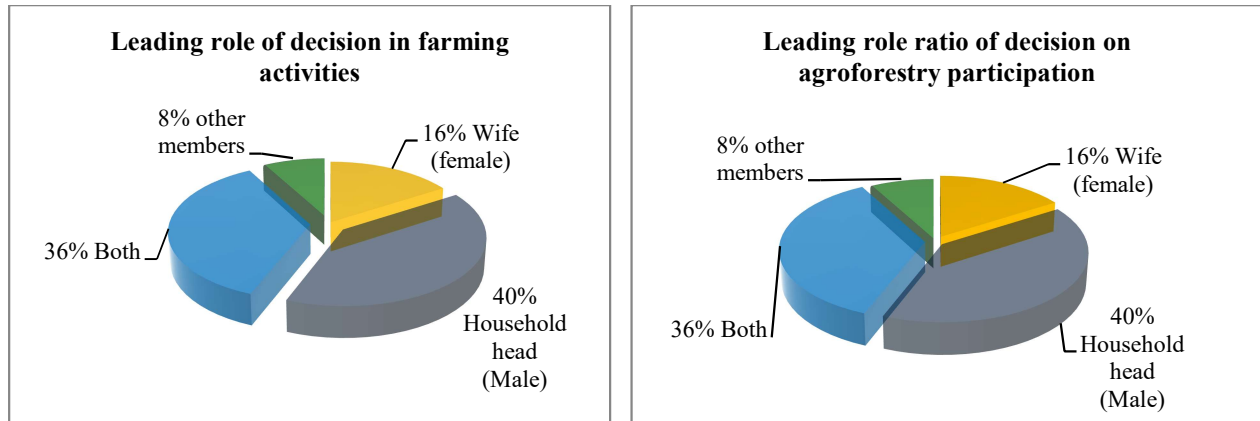


Figure 2c. Leading role of decision making in farm and agroforestry in Taikkyi Township

NGOs establishing community forests often encourage women's participation and their membership on community forestry executive committees (POINT 2019). Among the respondents, eldest was found in 56 years old in Kyauktakar, majority of the respondents were working age level around 50-60 years. Average household size were 6 in Tatkon and Kyauktakar, while 8 in Taikkyi Township (Table 1). Among the household members, 33% of total household members were farm labor among the sample households in Tatkon and Kyauktakar but 38% in Taikkyi Township. Female farm labor ratios in adult members of households were found 20% each in Tatkon and Kyauktakar and 14% in Taikkyi Township (Figure 3). Female labor participation in farming activities would significantly influence the role of the decision marking in agroforestry project participation among household members.

Table 1 Average age and household size information of respondents in study Townships

Item		Unit	Tatkon	Kyauktakar	Taikkyi
Age of respondent		Year	49	56	54
Household size	Male	Number	2	2	4
	Female	Number	3	3	5
	Total	Number	6	6	8
Adult household member	Male	Number	2	2	4
	Female	Number	3	3	5
	Total	Number	5	5	7
Household farm labor	Male	Number	1	1	2
	Female	Number	1	1	1
	Total	Number	2	2	3

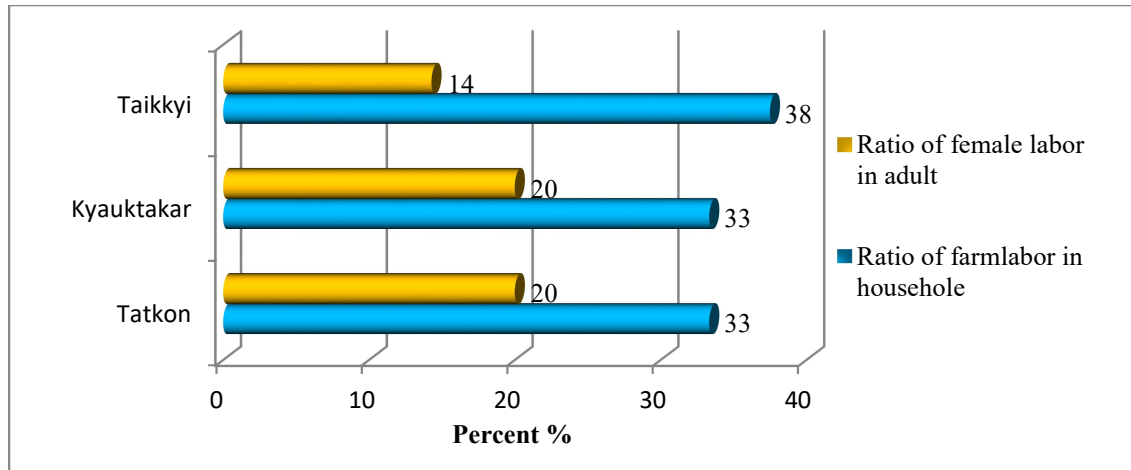


Figure 3 Farm labor in household members and female farm labor ratios in adult members of households in study areas

4.2 Cultivated trees in agroforestry by ratio of respondents in study areas

The study revealed that cultivated forest trees and cash earning orchard trees by sample respondents in study townships. Figure 4 illustrates the type of trees by grown respondent's ratio in specific townships. Teak was planted by 100% of sample respondents in Kyauktakar, 60% and 12% of sample respondents in Tatkon and Taikkyi Township respectively. Mangium was widely grown by 88% and 80% of respondents in Taikkyi and Kyauktakar while 60% of respondents in Tatkon Township. Pyinkado was only found in Kyauktakar and Taikkyi Townships, and Yinmar, Tamanind and Shaw phyu were grown only in Tatkon Township. Most orchard trees for cash were found in Taikkyi Township (Figure 4).

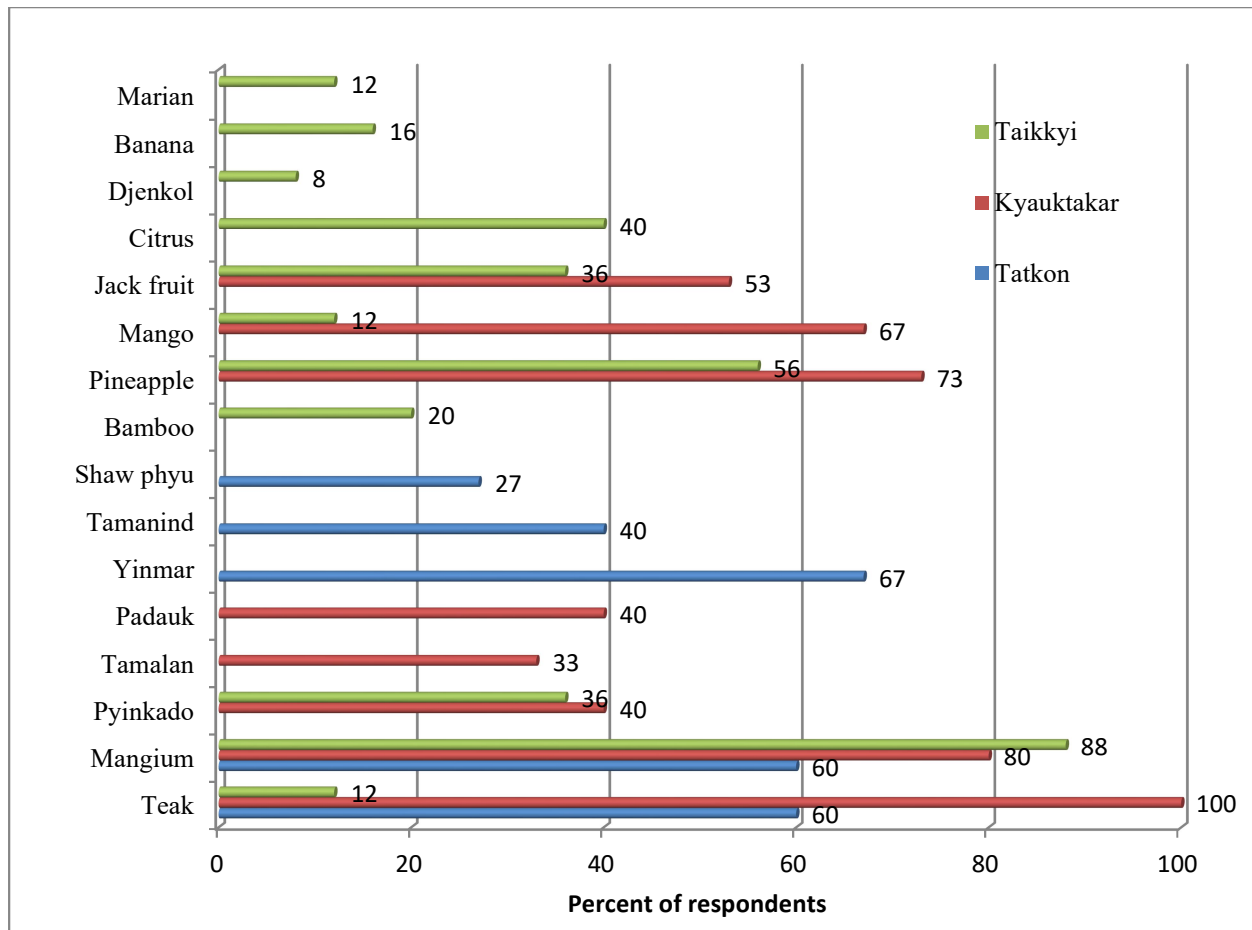


Figure 4 Cultivated trees in agroforestry by ratio of respondents in study areas

4.3 Participation and understanding of local community on overall project activities and long term benefit of agroforestry for their environment of respondents

4.3.1 Participation of respondent ratio on overall project activities

Participation of stakeholders, particularly local communities, in forest management is widely viewed as a means to achieve sustainable forest management in many countries. Sustainable management of forest depends on effective participation of primary stakeholders-the local people. Adams et al., (2017) pointed out the association between local people and their response to certain aspects of forest management is weak, indicating that such findings could be used to identify community members to improve and enhance their participation in collaborative forest management. The study revealed the local community participation level of agroforestry project activities in three Townships. The participation levels were enquired with 25%, 50% and 100% participation level. In this chapter, only full participation (100%) by respondent's ratio (%) of total respondents in specific Townships is shown in Figure 3.

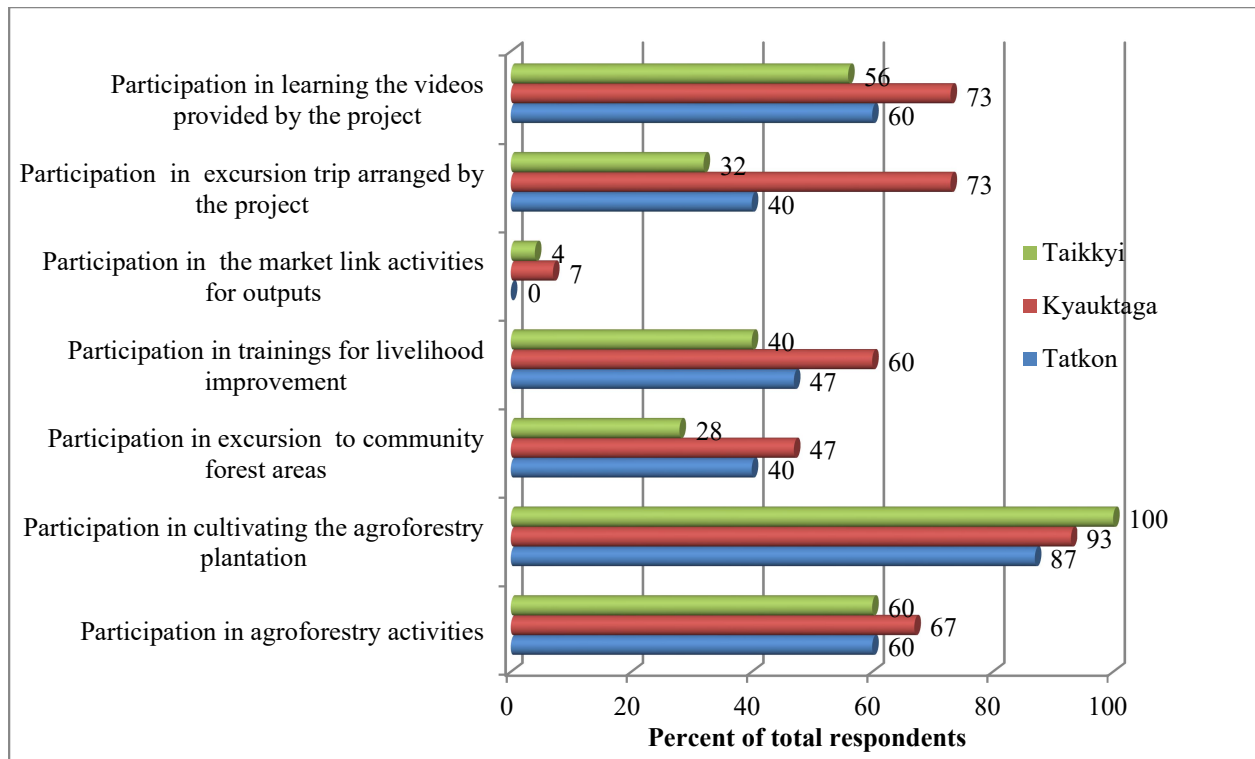


Figure 3 Participation of respondent ratio on overall project activities in the study Townships

Full participation in agroforestry project were around 60% of respondents in Tatkon and Taikkyi while 67% in Kyauktakar Township. All respondents of Taikkyi Township participated and 93% and 87% of respondents participated in the cultivating the agroforestry plantation in Tatkon and Kyauktakar Township. Participations in excursion to community forest areas were 40% and 47% of respondents in Tatkon and Kyauktakar Township while only 28% of respondents in Taikkyi Township. Other excursion trips were participated by 735 of respondents in Kyauktakar Township, while 40% and 32% of respondents participated in Taikkyi Township. No one fully participated in Tatkon and only 7% and 4% participated market link activities in Kyauktakar and Taikkyi Township. Notable less participation were found in the market link activities for outputs arranged by the project even though such a important activity related to the market link and income earning for them (Figure 3). The limited but emerging literature from Sub-Saharan Africa (Mustalahti and Lund, 2009; Coulibaly-Lingani et al., 2011; Tadesse et al., 2017; Degnet et al., 2020) shows low levels of local community participation in Participatory Forest Management (PFM).

4.3.2 Understanding of respondent ratio on overall project activities

Various studies have demonstrated a significant increase in forest condition under community forestry showing that it is a proven model for controlling deforestation and forest degradation. CF helps in supporting livelihood in hilly area by providing necessary forest products, such as fodder, firewood, timber, leaf litter and agricultural tools. CFM also helps in conservation of flora and fauna. There is a growing concern that CF is prioritizing only towards

sustainable management of forest resources and less towards biodiversity conservation. Effective management of CF leads to sustainable production and sustainable harvest of forest resource. Sustainable harvest of forest resource helps to fulfill forest product needs and also helps in livelihood enhancement of local people (Adhikari et al., 2004).

Friends of the Earth International (FEI) defined the Community Forest Management (CFM) that CFM allows people and communities to benefit from forests and land without depleting natural resources or damaging the climate. The term Community Forest Management encompasses many different communal resource management practices used by forest-dependent Indigenous Peoples and local communities around the world. In this regards, the study examine the understanding level of respondents who were involved in the community forestry related project activities in the study areas.

The understanding level were examined as 25%, 50% and 100% understanding the concept of the project activities what they participated by the respondents in three Townships. However, Figure 4 shows the full understanding (100% level) of local community for the concept of project activities. Full understanding level the agroforestry activities of the project were found 80% and 64% respondents in Kyauktakar and Taikkyi Township while only 27% of respondents understood fully in Tatkon Township. Understanding about income generation opportunity, suitability, livelihood improvement, cultivation practices and benefit of agroforestry activities of the project of respondents were higher ratio in Kyauktakar and Taikkyi Township but understanding about all concepts were less in Tatkon Township in general (Figure 4).

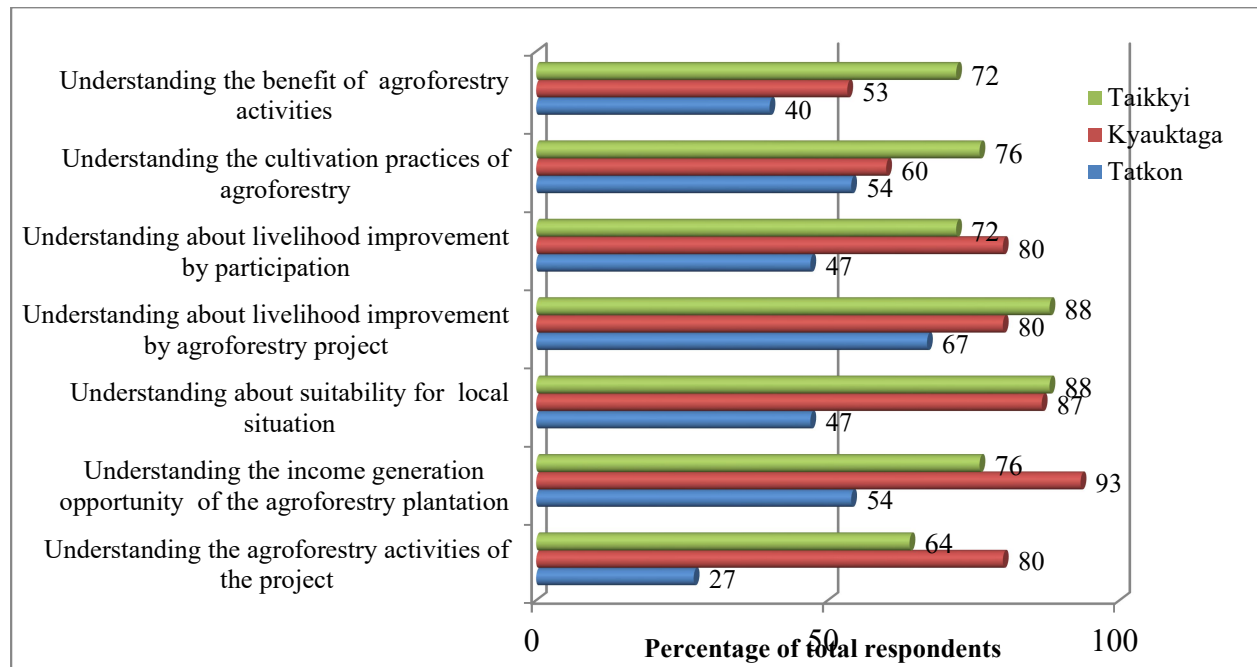


Figure 4 Understanding of respondent ratio on overall project activities in the study Townships

4.4 Adoption, trust and willingness of respondents on overall project activities

4.4.1 Adoption and willingness of respondents on overall project activities

Yang et al., (2021) pointed out the participation willingness of farmers varies between different genders and ages. Li. Et al. (2023) explored the willingness of farmers to operate in Yunnan's ethnic minority areas in the context of reform. Standard of living and woodland area have a significant positive influence on the willingness to engage in forest management. According to the above findings, it can be seen that the higher the education level, the lower the willingness of the farmers to manage the forests, and the lower the education level, the more likely it is that they display business behavior. It was also found that the lower the standard of living, the more willing foresters were to manage their forest land.

In this study, willingness and adoption the project activities of the respondents were revealed in Figure 5. In all study areas, full participation of respondents in community forestry organization was found. About 100% adoption level was noticed higher ratio of participants in Tatkon and Kyauktakar Township while 72% of respondents adopted the suggestions of agroforestry project experts. However, willingness of respondents to do the demonstration the agroforestry plantation were more or less half of total respondents in Tatkon and Taikkyi Townships, 80% of respondents in Kyaukyaga Township had more willingness to demonstrate. willingness of respondents to do coordinate other interest participations were higher ratio (87%) in Tatkon while about half of respondents in Taikkyi (Figure 5).

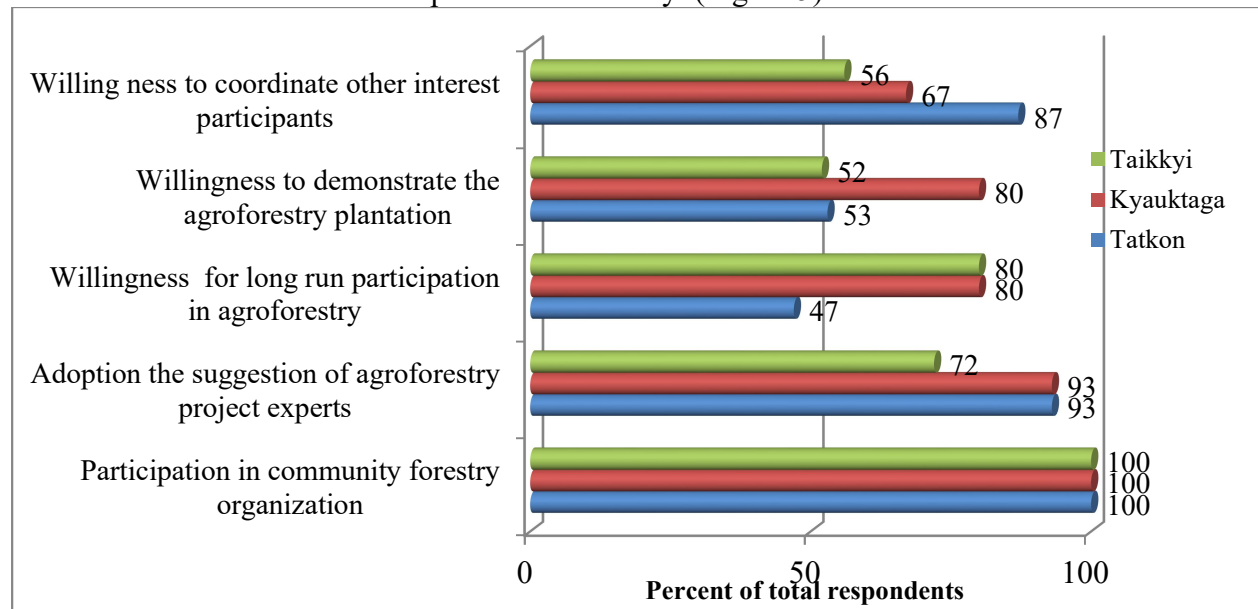


Figure 5 Adoption and willingness of respondent ratio on overall project activities in the study Townships

4.4.2 Trust of respondents on overall project activities

While the definition of community-based forest management (CFM) is very broad and covers a variety of land tenure systems, governance models, and institutional arrangements, it is generally categorized by links between environment and development, engagement of local communities, and devolved control over natural resources (Brooks et al., 2012). Interactions between different stakeholders have important implications for addressing the inevitably complex social and ecological issues associated with forest conservation (Bell et al., 2015).

Regarding the local community participation, that is based on the trust about the project activities, advantages of project activities for long run and sustainable forest management system. Therefore, the study explores the trust about project activities and its benefits by respondents in three study townships in Figure 6. Figure 6 shows about the 100% trust opinion of project activities by the respondents.

Full trust of respondents found in dispute management on land use in all study areas because project areas have no dispute on land use. High ratio of respondents were found on trust about management of Forest Department, local reforestation development, soil fertility improvement of agroforestry, sustainable development for management, local organization improvement by agroforestry project. Less ratio of respondents were observed in trust about income earning, crop yield improvement, long term permission for agroforestry and opportunity of market linkage of the project activities especially Kyauktaga and Tatkon Townships. Trust about organizational improvement was mentioned by less respondents in Taikkyi Township (Figure 6). Mbeche et al. (2021) proved an improved understanding on the factors that support or constrain forest users' participation in forestry programs; the study results reflected the significance of household context, dependence on forests and institutional arrangements in influencing participation in the forest management program.

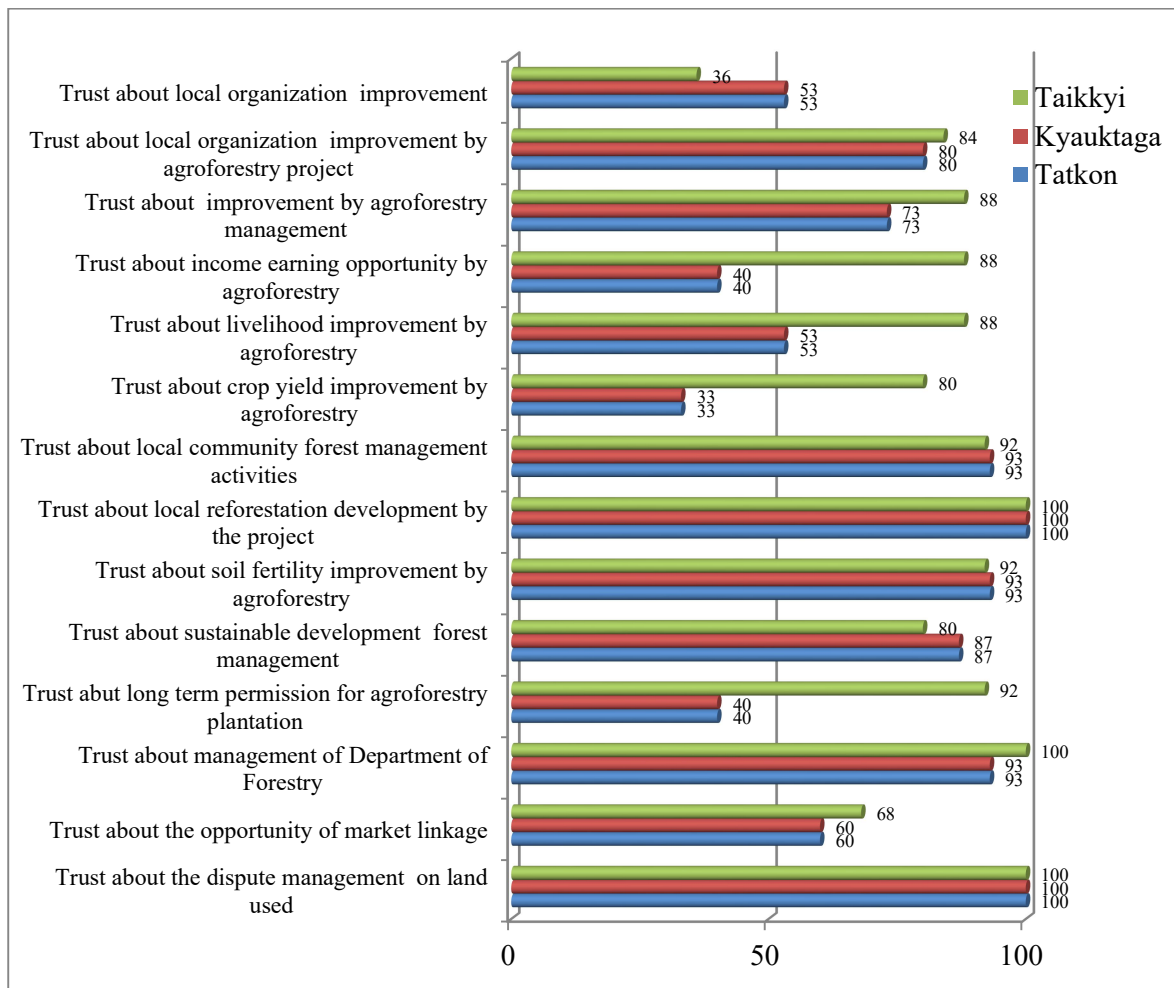


Figure 6 Trust of respondent ratio on overall project activities in the study Townships

4.5 Perceptions about strength, constraints of agroforestry project and suggestion for long run sustainable agroforestry management

Strengths of the agroforestry project in study areas were presented in Figure 7a, 7b and 7c. Among responses, better condition for environment forest plants and crops was the pronounce strength of the project in Tatkon Township, while getting technologies and knowledge was significant strength noticed by respondents in Kyauktaga and Taikkyi Township.

4.5.1 Perceptions about strength of agroforestry project

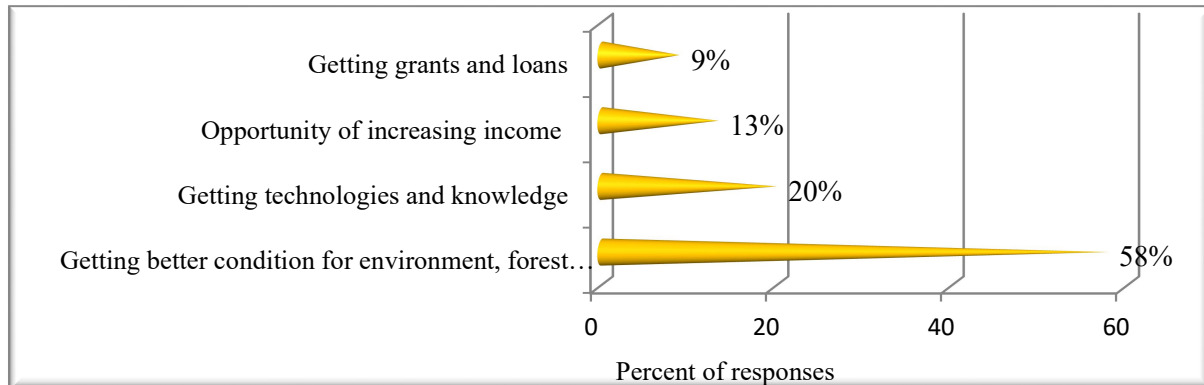


Figure 7a Strengths of agroforestry project by respondents in Tatkon Township (n=15)

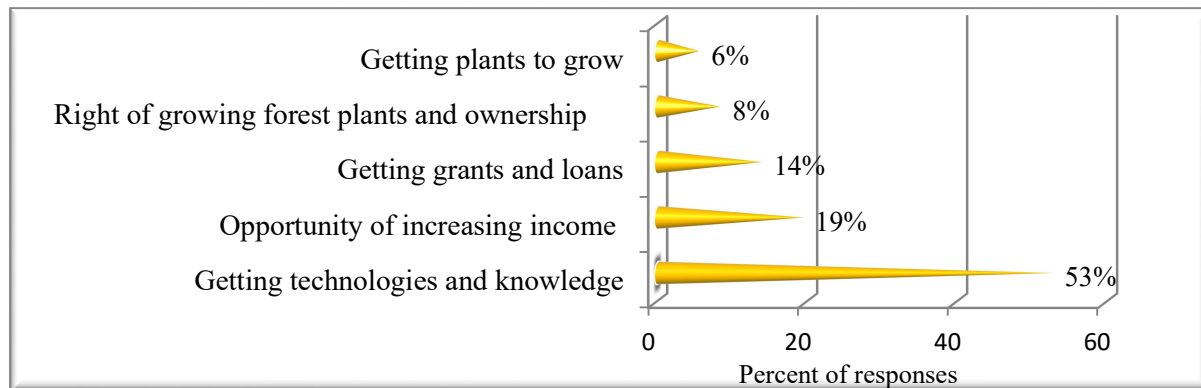


Figure 7b Strengths of agroforestry project by respondents in Kyauktakar Township

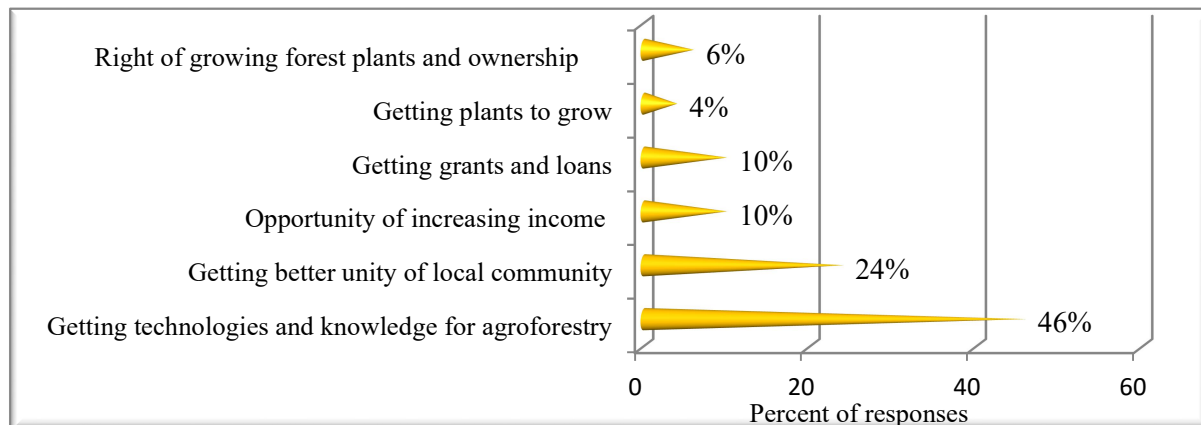


Figure 7c Strengths of agroforestry project by respondents in Taikkyi Township (n=25)

4.5.2 Perceptions about constraints of agroforestry project

The serious constraint faced by the respondents in Tatkon Township was limited situation for seasonal crops based on climate and soil types, other constraints were scarcity of irrigation water and labor, weak coordination, limited seedlings and working capital (Figure 8a). Poor infrastructure was the seriously said by respondents in Kyauktakar and Taikkyi Townships (Figure 8b and 8c). Constraints faced in Kyauktakar Township were scarcity of irrigation water, working capital, weak trust about ownership and weak coordination (Figure 8b).

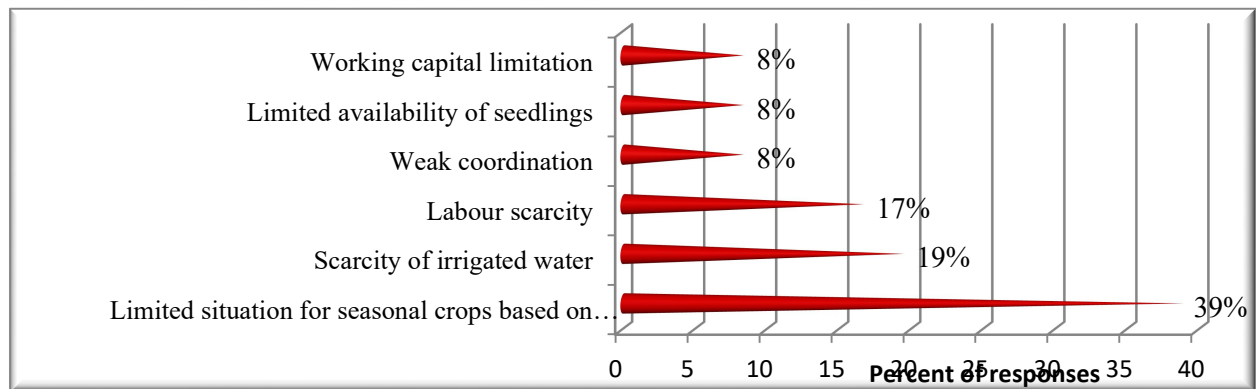


Figure 8a Constraints of agroforestry project by respondents in Tatkon Township (n=15)

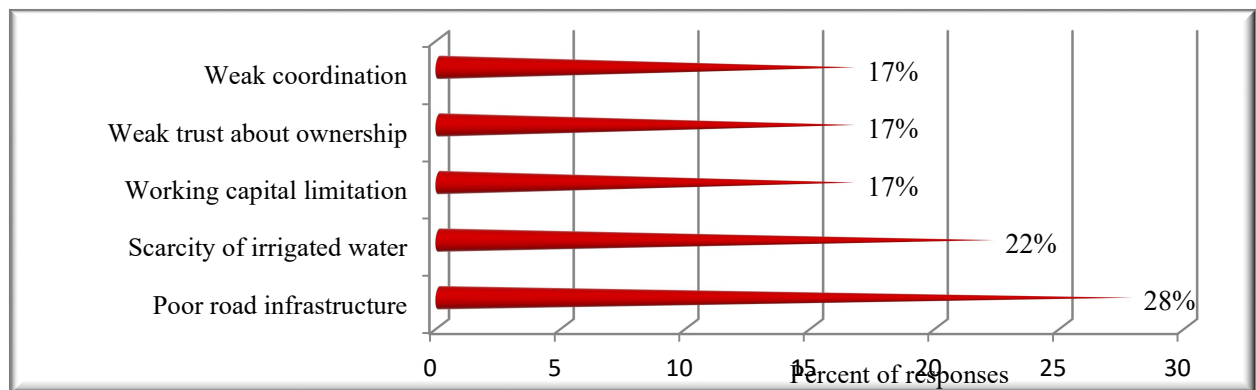


Figure 8b Constraints of agroforestry project by respondents in Kyauktakar Township

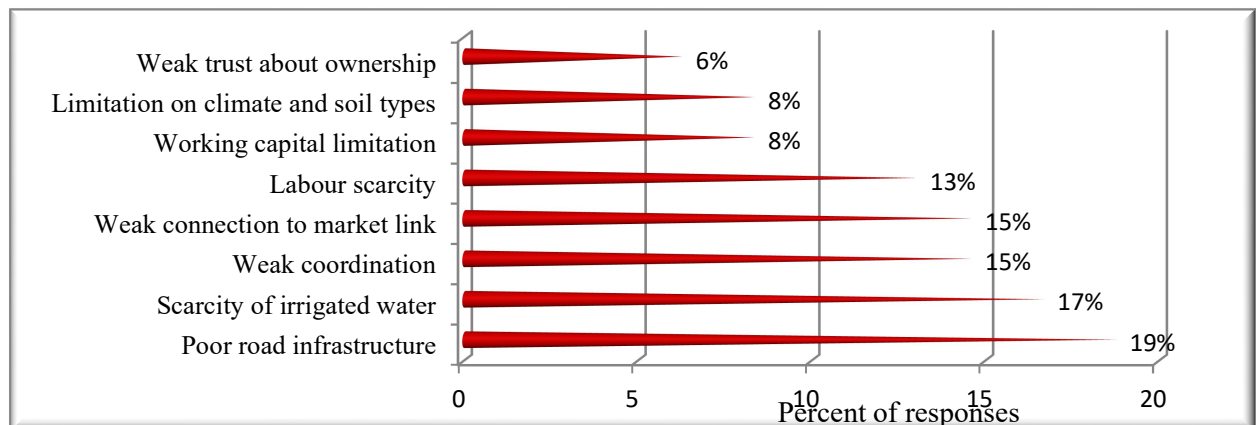


Figure 8c Constraints of agroforestry project by respondents in Taikkyi Township (n=25)

More or less similar constraints were noticed in Taikkyi Township as Kyauktakar Township such as scarcity of irrigation water, working capital, weak trust about ownership and weak coordination. Moreover, weak connection of market link and weak trust about ownership were found in Taikkyi Township (Figure 8c).

4.5.3 Suggestion of local community for long run sustainable agroforestry management

The study collected the suggestion of local community for sustainable agroforestry management. In Takkon Township, getting more training about sustainable management, unity of local community and cultural practices would be key factor for sustainable agroforestry management. Moreover, according to the constraints, water harvesting training, and establish tubes well for irrigation water were suggested by respondents in Tatkon Township (Figure 9a).

Regarding the sustainable forest management, suggestions of the respondents in Kyauktakar Township were required training for law, market and cultural practices of crop cultivation, to get tube well for irrigation water, better road, more unity electricity and protection the forest fire. Among these suggestion, training was the most suggested for their agroforestry management long run (Figure 9b). In Taikkyi Township, suggestion about more unity of local community was the most suggested (44%), then training about cultural practices, water harvesting and tube well for irrigation water, market link, road and electricity and protection the forest fire were suggestion for the better agroforestry management (Figure 9c).

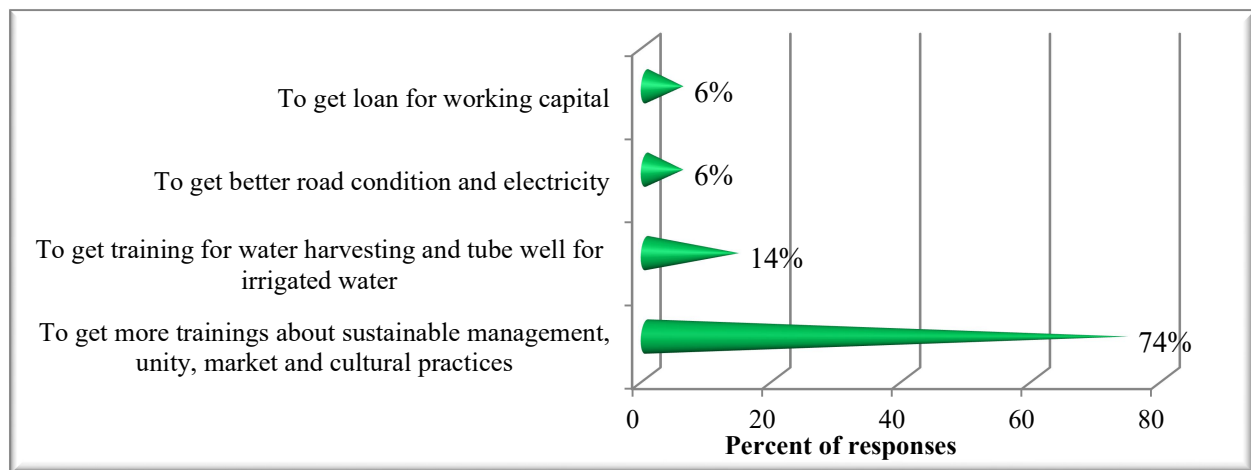


Figure 9a Suggestions for sustainable agroforestry management by respondents in Tatkon Township (n=15)

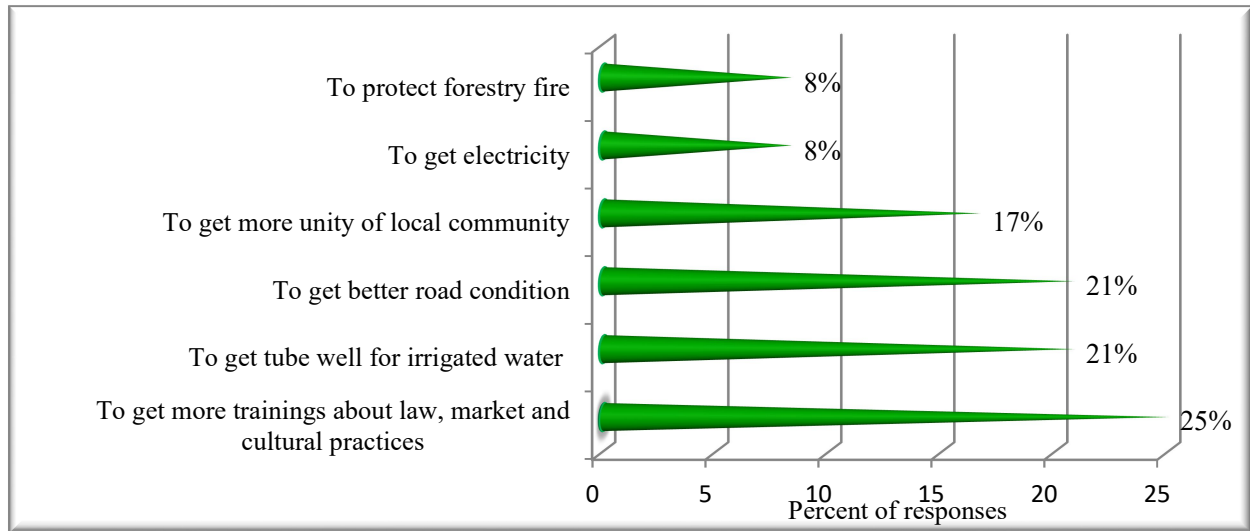


Figure 9b Suggestions for sustainable agroforestry management by respondents in Kyauktakar Township (n=15)

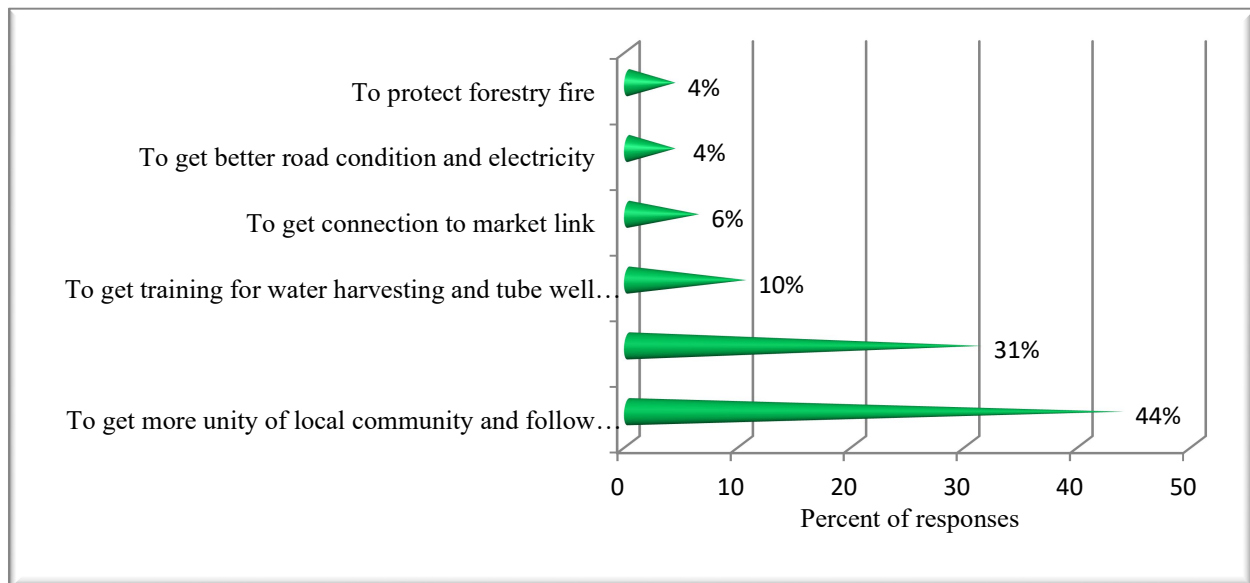


Figure 9c Suggestions for sustainable agroforestry management by respondents in Taikkyi Township (n=25)

5. Conclusion

Forests are an crucial element of rural societies who are living in and nearby forest areas, by giving tangible and intangible profits of providing of wood and non-wood products, recreation, etc. (Ministry of Environmental Conservation and Forestry, 2012). Consequently, the socio-economic situation of local households powerfully impacts sustainable forest management in Myanmar (Oo, 2012). Moreover, sustainable management of forest and agroforestry is governed by on effective participation of local community. This study provides insight into

participation, understanding, adoption, trust and willingness of local people in the project activities and agroforestry management of under the MLC project of Forest Department in Myanmar. In addition, it explores the local community perceptions about strength, constraints of agroforestry project and suggestion for long run sustainable agroforestry management. The number of sample respondents (55) in three Townships covered 36% of total participants of the MLC project activities.

According to the findings of Mbeche et al. (2021), influencing of resource and institutional variables was varied and their effect on participation was generally weaker. Resource characteristics influenced participation at planning of forest projects. These results point to the need to take the household context (gender, education, household expenditure and vulnerability) into consideration during planning and implementation of the forestry programs.

The study pointed out female participation in decision making in farming activities and agroforestry project participation in the study areas. The study findings approved the World Bank (1991), women perform an essential role in the management of natural resources, including soil, water, forest and energy and often have a profound traditional and contemporary knowledge naturally. Therefore, women should be allowed to participate at the local, regional, national and international levels on sustainable forest management issues. As resource managers, women should be consulted and supported in what they are already doing to participate in decision making in household level specifically, more women should be involved in decision making with regards to policies, programmes or funding of future forest management projects.

In line with the new agroforestry management provision, participation needs to be as broad as possible considering the agroforestry management and market link for their crop production. Results indicated that the local people's participation was limited in the market link activities. Findings about the understanding of the project activities and sustainable impact of the agroforestry were also not so high. However, willingness and adoption of the respondents were higher level than understanding.

These findings would be affected by education and institutional capacity of local people. It suggests that the improvement in the educational status of local people could increase their participation, understanding in promoting long-term agroforestry management for their ensure income generation. According to this study, it is strongly recommended that income-generating opportunities and value-added products be explored and created in order to support sustainable forest management.

Significant findings were observed in the strength and constraints of the project activities, local community noticed well about the benefit of the project such as getting technologies, knowledge, unity, supports, incomes, ownership, and better environment. However, they still required irrigation, coordination, infrastructure, working capital and so on. According to the results, training of law, market, cultural practices, water harvesting technologies, and unity would be the strategic factor for the long run sustainable agroforestry management.

Therefore, the future projects, plans and strategies should promote agroforestry management extension program to strengthen the knowledge level of local community, which can be led by the governmental institution like as the Department of Forestry through inclusive technical training and technical guidance of forest management, legal literacy, crop cultivation practices, value addition, market linkage for ensure income earning from their agroforestry plantation.

6. References

- Adams, M.A., W. Oduro, M. Ansong (2017) “Factors Affecting Stakeholders’ Participation in collaborative Forest Management: The Case of Krokosua Hills Forest Reserve in Ghana JENRM”
<https://www.sciencedirect.com/science/article/pii/S1389934121001131?via%3Dihub#bbb0005M>
- Adhikari, B., S.D. Falco, and J.C. Lovett (2004), “Household Characteristics and Forest Dependency: Evidence from Common Property Forest Management in Nepal”. *Ecological economics*, 2004. 48: 245–257.
<https://www.intechopen.com/chapters/52823>
- Bell J. *et al.* (2015) A Comparative Analysis of the Transformation of Governance Systems : Land-Use Planning for Flood Risk, J. Environ. Policy Plan.
- Brooks J.S. *et al.* (2012), “How national context, project design, and local community characteristics influence success in community-based conservation projects” *Proc. Natl. Acad. Sci.*
- FAO FRA, 2020 “Global Forest Resources Assessment” Country report Myanmar, Food and Agriculture Organization (FAO) <https://www.fao.org/3/cb0030en/cb0030en.pdf>
- Forest Department, 2022, “Livelihood Assessment of local communities to support Community Forestry Development in Taikkyi, Kyaukdagar and Tatkone Townships in Myanmar by Expert Team” Forest Department, Ministry of Natural Resources and Environmental Conservation (Official report)
- Friends of the Earth International (FEI) (2023) “Why community forest management?”
<https://www.foei.org/publication/why-community-forest-management-matters-a-background-briefing/>
- Leedy, P.D. and Ormrod, J.E. (2005) “Practical Research: Planning and Design”. Prentice Hall, Upper Saddle River, NJ.
<http://www.worldcat.org/title/practical-research-planning-and-design/oclc/53831701>
- Li, Y.; Chang, H.; Dou, Y.; Zhao, X. (2023) “Willingness and Influencing Factors of Farmers’ Forestland Management in Ethnic Minority Areas: Evidence from Southwest China.” *Forests* 2023, 14, 1377. <https://doi.org/10.3390/f14071377>
- Mbeche et al., (2021) “Understanding forest users' participation in participatory forest management (PFM): Insights from Mt. Elgon forest ecosystem, Kenya”
<https://www.sciencedirect.com/science/article/pii/S1389934121001131?via%3Dihub#bi0005>, <https://doi.org/10.1016/j.forpol.2021.102507>
- Ministry of Environmental Conservation and Forestry. (2012). “Evaluation on 2001-2002 to 2010-2011 period of thirty years national forest management master plan, Myanmar. Naypyitaw, Myanmar”: Natural forest and plantation section, Forest Department.
- Oo TN. 2012. Current status of REDD+ readiness preparation in Myanmar. Myanmar: Forest Department, Ministry of Environmental Conservation and Forestry. [Google Scholar]
- POINT (Promotion Of Indigenous and Nature Together), 2019 “Forest Management, Women’s Rights and REDD+ in Myanmar” Written by Julia Fogerite,
<https://iwgia.org/en/documents-and-publications/documents/publications-pdfs/english-publications/424-point-norad-iwgia-book-forest-management,-women%E2%80%99s-rights-and-redd-in-myanmar-2019-eng/file.html#:~:text=In%20Myanmar%2C%20women%20manage%20forests,for%20how%20forests%20are%20managed.>

- Poschen P. 2000. Social criteria and indicators for sustainable forest management. Germany: GTZ Forest Certification Project. [[Google Scholar](#)]
- Yang, F.; Jiang, Y.; Paudel, K.P. (2021), "Farmers' willingness to participate in Forest Management for Carbon Sequestration on the Sloping Land Conservation Program in China" International Forestry Review, Volume 23, Number 2, June 2021, pp. 244-261(18), <https://doi.org/10.1505/146554821832952799>
- World Bank, (1991), "Women and Development in Malawi: Constraints and Actions, Washington, DC, World Bank.