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BASELINE SURVEY ON

KEPPETIYAWA NORTH

GRAMA NILADHARI DIVISION

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Baseline Survey on

Keppetiyawa North Grama Niladhari Division

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FOREWORD

The Youth Agri-Entrepreneurship Village Development Programmeme, launched by the Ministry of Agriculture in Sri Lanka in 2023, aims to attract young people to the agriculture sector. The programme encourages youth to cultivate crops for both domestic consumption and export to international markets. Within its scope, the Keppertiya North Grama Niladhari Division in the Hambantota district is a key area of focus. The government plans to support the farming community in this village by providing the necessary facilities and technical knowledge. However, before implementing the programme, it is essential to assess the current situation in the village.

A baseline survey was conducted to evaluate the village's socio-economic status, living conditions, community needs, agricultural practices, and challenges. The survey revealed critical insights into the socio-economic background and living conditions of the households. Additionally, detailed information on the village's agricultural practices is crucial for shaping future interventions.

The survey identified several areas for improvement, including agricultural diversification, the adoption of modern agricultural technologies to increase productivity, and improved access to agricultural information services. These findings will be invaluable for policymakers in making informed decisions about the development of the Keppetiyawa North GND.

Dr. G.G. Bandula
Director/Chief Executive Officer

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The research team is immensely grateful to the villagers in Keppetiyawa North Grama Niladhari Division for generously sharing their valuable time and providing information that contributed to the success of this study. We also extend our thanks to all administrative and field-level officers who supported the collection of primary data and other relevant information for the survey.

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M.A.C.S. Bandara
W.H.A. Shantha
R.M.D.H. Rathnayake

EXECUTIVE SUMMARY

The Ministry of Agriculture (MOA) is actively engaging in implementing various development programmes aimed at enhancing local food production and securing food availability in Sri Lanka. In 2023, the MOA introduced the Youth Agri-Entrepreneurship Village Development Programmeme with the objective of attracting the youth to the agricultural sector. This initiative seeks to encourage young people in Sri Lanka to cultivate crops for both domestic consumption and export to international markets. Keppetiyawa North, located in the Weeraketiya Divisional Secretariat area of the Hambantota District, has been selected as one of the villages to be developed under this programme. The government plans to support the farming community in this village by providing necessary facilities such as agricultural equipment, protected net houses, drip irrigation systems, seeds, fertilizers, and technical knowledge.

Given that the Hambantota District experiences water scarcity during droughts, with most tanks relying on rainwater, the village tank rehabilitation activities are being carried out in parallel with the Youth Agri-Entrepreneurship Village Programmeme to expand cultivation activities. Prior to the implementation of this development project, it is essential to assess the village's current situation, including community needs, living conditions, livelihood opportunities, existing resources, and any gaps. Conducting a baseline survey provides a snapshot of the village's conditions, identifies socio-economic factors, and serves as a benchmark for tracking progress. Consequently, a baseline survey was conducted in Keppetiyawa North GND to assess the present situation of the village.

The primary objective of this survey is to gain insights into critical aspects of the selected village community by collecting essential information on household characteristics, employment status, agricultural practices, existing resources, and challenges, through surveys and community consultation. The survey targeted the entire population of Keppetiyawa North GND, encompassing 901 individuals across 255 households. A well-structured questionnaire survey, along with Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs), was employed to gather information from the villagers. The collected data was descriptively analyzed to draw conclusions and provide suitable recommendations.

The analysis of the Keppetiyawa North GND community offers a comprehensive overview of its demographic, economic, and agricultural landscape. The community exhibits a balanced gender distribution, with 47 percent males and 53 percent females. Household sizes tends to be smaller, with 30 percent comprising 1-2 members and 39 percent having 3-4 members. The age distribution is diverse, with 30 percent of the population falling within the 51-70 age group.

Primary employment is mainly in government positions (30%), self-employment (14%), crop farming (10 %), and private sector roles (12%). The majority of households (39%) fall within intermediate income brackets, indicating a moderate standard of

living. Sole ownership is the predominant form of land ownership, accounting for approximately 48 percent of all land plots in the village.

Homeownership is strong (89%), with high prevalence of permanent dwellings (96%). Most houses feature indoor kitchens (75%), and utilities are widely available, with 98 percent using electricity for lighting and 85 percent relying on firewood for cooking. Water-seal toilets are present in 84 percent of households, with 73 percent having squatting pans and 27 percent using commodes. Pipe-borne water is the primary source of drinking water (79%). Transportation mode is mainly motorbiking (54%) and bicycles (19%). Communication tools are common, with mobile phones (88%), radios (69%), and televisions (86%) widely used. However, agricultural and fishing assets are limited, with only one household owning a fishing net. Miscellaneous assets include sewing machines (41%) and water tanks (62%).

The village exhibits diverse cropping patterns, with mixed crops (40 %) being the most common, followed by rice farming (32%), perennial crops (7%), and year-round vegetable cultivation (2%). The community has reported limited impact from climate change on cropping patterns, with 98 percent noting no significant changes in the past five years. Stable weather conditions have allowed for consistent agricultural practices. Seasonal cultivation preferences emphasize the importance of the 2022 *Yala* season (41%) engaged in cultivation) and the 2022/23 *Maha* season (54% engaged in cultivation).

Land preparation for paddy cultivation primarily involves ploughing, with mechanization being common (52% using two-wheeled tractors and 42% using four-wheeled tractors). Rotavators are the most commonly used equipment (97%). The use of seeds and planting materials is widespread, with 70 percent acquiring paddy seeds based on yield (85%), variety duration (66%), cropping season (30%), seed availability (30%), and consumer preference (16%). Fertilizer application is prevalent, with chemical fertilizers used by 56 percent of farmers. Organic fertilizer usage faces challenges such as poor-quality products and lack of awareness. The majority of farmers (64%) prefer chemical fertilizers in-kind due to their convenience in supply. Female engagement in agriculture is limited, with only 17 percent of households having one female member engaged in agricultural activities, highlighting gender disparities.

Irrigation practices are predominantly rainfed (72%), with 27 percent using canal irrigation. Advanced methods such as sprinkler irrigation are rare (1%). Paddy cultivation is dominant (60%), but there is a strong willingness (94%) to diversify agricultural activities. Challenges to diversification include unsuitable lands, waterlogging, wild animal damage, and the quality of planting materials. Livestock rearing is practiced by only 24 percent of households, with dairy cows (38%) being the most common, followed by layers (32%), buffalos (21%), and goats (9%). Farmers face challenges such as shortages of pastures and fodder during dry periods, low productivity of animals, and high feed costs.

Agricultural loans are accessed by only three percent of farmers. Membership in organizations or societies is limited, with 75 percent of households not registered in any Farmer Organization (FO). Approximately Nine percent of the community seeks agricultural information from various sources, with expectations from the government focused on the provision of seeds and essential services.

The comprehensive analysis of the Keppetiyawa North GND community highlights several key areas for intervention and development. Economic support and financial inclusion are essential to empower the community, particularly those facing financial constraints, by providing access to microfinance, credit services, and financial literacy programmes. Agricultural diversification, especially in lowlands, should be encouraged through targeted support and incentives for farmers willing to explore other field crops (OFCs). The adoption of modern agricultural technologies should be improved to enhance productivity, focusing on advanced techniques in land preparation, irrigation, and crop management. Enhanced access to agricultural information services is vital, with the development of digital platforms to ensure that farmers receive timely and relevant guidance on best practices and market opportunities.

Land ownership assistance should be explored to address the needs of the landownership requirement, ensuring equitable resource access. Community development initiatives, such as strengthening FOs and facilitating workshops, are necessary to foster collective strength and greater community engagement. Promoting environmental sustainability practices, particularly water-saving techniques and climate-smart agriculture, will ensure long-term resilience. Lastly, periodic evaluation and adjustment of government support programmes, are crucial to adapting to the evolving needs of the community and ensuring these programmes remain effective and beneficial.

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LIST OF ABBREVIATIONS

ARPA	-	Agriculture Research Production Assistant
ASC	-	Agrarian Services Center
CES	-	Constant Elasticity of Substitution
COP	-	Cost of Production
DAD	-	Department of Agrarian Development
DOA	-	Department of Agriculture
DS	-	Divisional Secretariat
FAO	-	Food and Agriculture Organization
FGD	-	Focused Group Discussions
FO	-	Farmer Organization
GND	-	Grama Niladhari Division
HARTI	-	Hector Kobbekaduwa Agrarian Research and Training Institute
LCWZ	-	Low Country Wet Zone
MLE	-	Maximum Livelihood Estimation
MOA	-	Ministry of Agriculture
MOP	-	Muriate of Potash
SFA	-	Stochastic Frontier Analysis
TSP	-	Triple Super Phosphate

CHAPTER ONE

Introduction

1.1 Introduction

The Ministry of Agriculture (MOA) implements various development programmes in Sri Lanka to increase local food production and achieve food security. The primary intention of these programmes is to create a self-sufficient country through agricultural revival. In 2023, the MOA launched the Youth Agri-Entrepreneurship Village Programmeme to attract the young community to agriculture. Currently, most farmers engaged in paddy cultivation in Sri Lanka belong to the older generation, with limited youth involvement in this sector. However, young farmers are significantly involved in other agricultural activities such as vegetable and fruit cultivation, floriculture, and livestock farming.

To attract more youth, there is a need to increase high-income entrepreneurial development programmes in the country. One objective of the Youth Agri-Entrepreneurship Village Programmeme is to encourage the youth to grow crops that can be used domestically and exported to foreign markets. The MOA identified seven villages in the Hambantota district, representing six divisional secretariat divisions, to develop Youth Agri-Entrepreneurship Villages as the initial step of this programme.

They plan to provide necessary facilities, including agricultural equipment, protected net houses, drip irrigation systems, seeds, fertilizers, and technical knowledge to support the farming community in these villages. Additionally, they plan to select ten families from each village and distribute three goats and ten chickens to each family. The hybrid goats will be distributed to families with the infrastructure for goat management. The Hambantota district faces water scarcity during drought conditions, with most tanks in the selected villages relying on rainwater. Therefore, village tank rehabilitation activities are ongoing alongside the Youth Agri-Entrepreneurship Village Programmeme to expand cultivation activities.

The MOA allocated Rs.318 million for developing Keppetiyawa North as a Youth Agri-Entrepreneurship Village, with an estimated 262 total beneficiaries. Proposed activities in Keppetiyawa North include tank rehabilitation, development of agricultural roads, establishment of agro-wells, providing protected net houses, facilitating animal husbandry, home gardening, distribution of agricultural equipment, and awareness programmes for farming communities. Through these activities, the government aims to boost the confidence of the youth in agriculture and attract them to the sector.

Before implementing such development projects, it is essential to identify the current situation of the village, including the community and environment, specifically to identify community needs, existing resources, and gaps. Conducting a baseline survey is crucial to provide a snapshot of the current conditions in the village before any

interventions. It helps identify socio-economic conditions of the community and serves as a benchmark to track the project's progress. Therefore, a baseline survey was conducted in Keppetiyawa North GND to assess the present situation of the village as the initial step.

1.2 Objectives of the Baseline Survey

The general objective

The main objective is to understand critical aspects of selected village communities by collecting essential information about household characteristics, employment status, agricultural practices, assessing existing resources and identifying challenges through survey and community consultations.

Specific Objective are as follows.

1. To examine household demographics, socio-economic status, and living conditions within the village communities.
2. To identify agricultural practices and livestock production in the village, with particular focus on paddy cultivation to understand the techniques, challenges, and issues in these specific areas.
3. To draw conclusions and suggest policy implications focused on improving the overall well-being of the community through sustainable practices.

The study aims to comprehend the community's makeup through examination of socio-economic challenges, environmental issues, and factors impacting residents' livelihoods. Subsequently, the assessment involves scrutinizing current resource utilization patterns and identifying opportunities for sustainable resource management. Ultimately, this systematic process lays the groundwork for crafting a livelihood development plan that capitalizes on the community's strengths and encourages potential growth.

1.3 Organization of the Report

The report is structured in six chapters. Chapter one provides an overview of the study background, objectives and the organization of the report. Chapter two presents a comprehensive explanation of the methodology employed in the study. Chapter three presents household dynamics in Keppetiyawa North GND. Chapter four presents a comprehensive analysis of crop and livestock production of the represented GND. Chapter five presents paddy cultivation and management practices of the GND. Finally, Chapter seven concludes the report by summarizing the findings and presenting policy implications based on the baseline study's outcomes.

CHAPTER TWO

Methodology

2.1 Study Location

Keppatiyawa North Grama Niladhari Division (GND) selected as the study location is located in the Weerakatiya Divisional Secretariat (DS) in the Hambantota district. The selection decision was influenced by the MOA's keen interest in prioritizing the development of this area. Additionally, the ministry has allocated resources to Hector Kobbekaduwa Agrarian Research and Training Institute to design a development plan that incorporates Climate Smart Technologies for effective implementation.

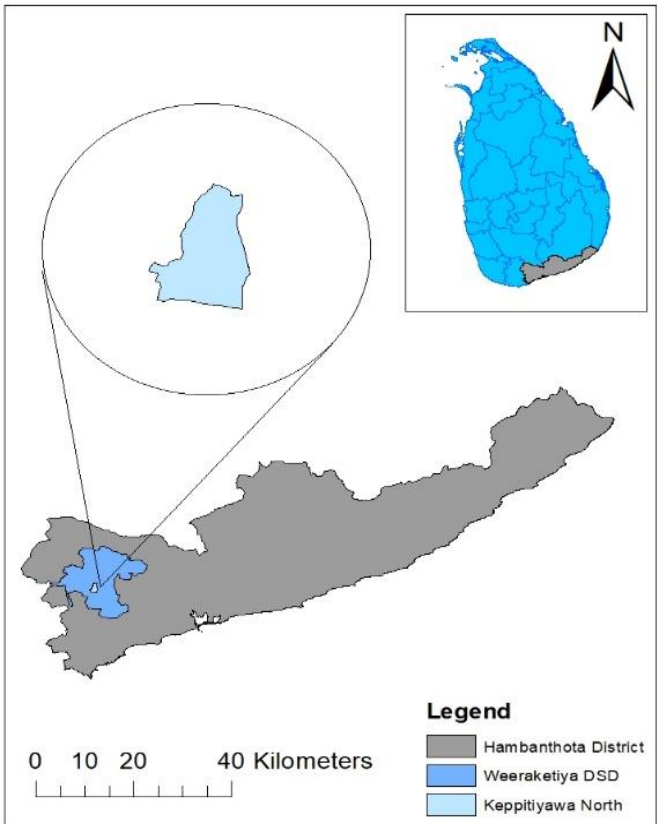


Figure 2.1: Map of Kappetiyawa North GNS

2.2 Sample Selection

The survey's target population encompasses residents of Kappetiyawa North GND, totaling 901 individuals across 255 households. The study accounted for all households (N=255) in the village during the data collection process.

2.3 Data and Methods of Data Collection

Both primary and secondary data was gathered during the baseline survey. Primary data was collected by the following methods.

1. **Questionnaire Survey**: Primary data for the survey was obtained from Computer-Assisted Personal Interviewing (CAPI) techniques, conducted by means of a structured questionnaire.
2. **Focus Group Discussions (FGDs)**: FGDs were conducted among the group of villagers. Guidelines for the FGDs were developed based on the research objectives and identified variables and attributes related to the study focus.
3. **Key Informant Interviews (KIIs)**: In the survey representatives of farmer organizations and ground-level officers such as Grama Niladhari (GN), Economic Development Officer (EDO), Samurdhi Officer, Agriculture Research Production Assistant (ARPA), Divisional Secretary in Weeraketiya DS were mainly interviewed to gather important insights regarding the village situation as key informants.

2.4 Data Analysis

Data gathered from households in the survey area underwent initial tabulation and cleaning. Subsequently, descriptive statistical techniques, encompassing frequencies, percentages, means, and standard deviations, were applied to concisely summarize the collected data. The outcomes were effectively presented through graphs and tables. The data analysis process was facilitated using statistical software such as SPSS and Microsoft Excel, ensuring a comprehensive and accurate examination of the information at hand.

2.5 Problems Encountered and Strategies Adopted

Those residing outside the Keppetiyawa North GND area but in its vicinity were also surveyed. Some of those who residing in other districts such as Colombo, Galle and Matara but could be met in the field during cultivation seasons were also enumerated. However, a significant number of households had to be abandoned due to their non-residence in the selected area even though they own lands located in Keppetiyawa GND.

CHAPTER THREE

Households Dynamics in Keppetiyawa North GND

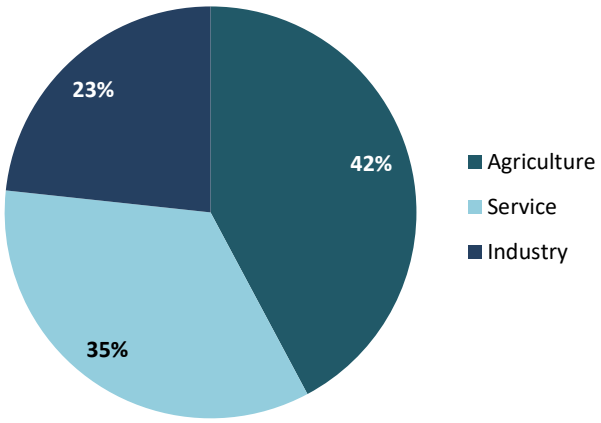
This chapter provides a comprehensive overview of households within Keppetiyawa North GND. It initiates by detailing the geographic context of the study area. Subsequently, it delves into the demographic profiles of the households. The discussion then progresses into examining the active involvement of households in agricultural pursuits. Finally, it offers an in-depth analysis of lands and their utilization by households in Keppetiyawa North GND.

3.1 Geographic Information of the Survey Area

3.1.1 Hambantota District

Hambantota District stands as the largest administrative district within the Southern Province of Sri Lanka. Positioned Southeast of Colombo, it encompasses an area of 260,900 hectares in size approximately four percent of the country's 65,610 km^2 of total surface area and a 130 km shoreline. The population of the Hambantota District totals 525,370, with 96 percent classified as rural residents. Unemployment in the district affects 13 percent of the labour force, which amounts to 244,847 individuals, surpassing the national average of eight percent. As depicted in Figure 3.1, among the employed, 42 percent are engaged in the agricultural sector, 23.3 percent in industry, while the remaining 35 percent work in the services sector (District Secretariat Hambantota, 2022).

Hambantota District belongs to dry semi-arid region that has hot dry weather. The mean temperature ranges between 26^0C in January, the coolest month, to 30^0C in April, the hottest month. The major rainy season is the Northeast monsoon that stretches from October to January. The district's annual rainfall is between 1,000 and 1,250 mm in the dry areas, between 1,000 and 1,500 mm in the intermediate parts and between 1,500 and 2,000 mm in the wet parts. The district's natural drainage system comprises of several rivers and 19 other natural watercourses. Major inland bodies of water cover just over 113 km^2 of the district area (District Secretariat Hambantota, 2022).



Source: Resource Profile of Hambantota District, 2023

Figure 3.1: Workforce Distribution over Employment Sectors in Hambantota District

The major crop cultivated in the Hambantota district is paddy. Apart from paddy there are several other vegetables and fruits such as banana, papaya, green gram, watermelon, passion fruit, and pomegranate are cultivated. The other major cropping system in the area is *chena* cultivation and the major source of irrigation is rainfall. A part of Hambantota district is provided with irrigation water and major irrigation schemes are Lunugamvehera, Udawalawa and Kirindi Oya.

3.1.2 Weeraketiya Divisional Secretariat

The Weeraketiya Divisional Secretariat, situated in the Hambantota district, encompasses a total land area of 95.3 square kilometers. As of 2022, the population within this area was recorded as 47,183 persons. The division comprises 60 GN Divisions, including the Keppatiyawa North GND, which is located within the Weeraketiya DS. Weeraketiya town is surrounded by paddy fields, coconut plantations and rubber estates. There are three irrigation engineer divisions located in the Hambantota district. Among them Weerakatiya is one of irrigation engineer division. Weerakatiya division has mainly four irrigation schemes including Kirama oya (5288 Ac), Kongal ara (326 Ac), Muruthawela (3442 Ac), Urubokuoya (5590 Ac) (Divisional Secretariat Weeraketiya, 2022).

3.1.3 Keppatiyawa North Grama Niladhari Division

The Keppatiyawa North Grama Niladhari Division comprises a population of 901 individuals distributed among 255 households. The survey was able to capture all 255 households to gather information (Divisional Secretariat Weeraketiya, 2022).

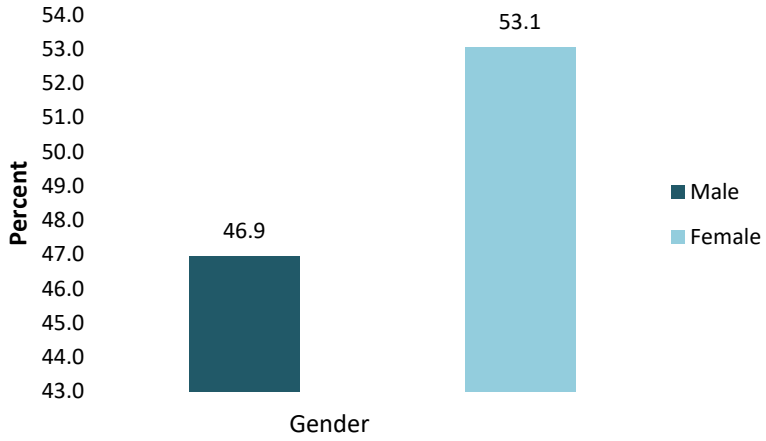
3.2 Demographic Profile of Villagers

Examining the demographic characteristics of 255 households offers valuable insights into societal trends and essential features. The study specifically targets key

attributes, including age, gender, the highest level of formal education attained, and the primary source of income for the principal farmer, who actively participates in agricultural activities and holds significant decision-making authority within the household. Additionally, the investigation delves into household size, alternative sources of income, family members engaged in agricultural activities, and the proportion of agricultural income relative to the total household income during the reference period.

3.2.1 Gender Distribution

Figure 3.2 shows the gender distribution of household head. Here, this data reveals that 46.6 percent of the total population (423 out of 901) comprises males, while females constitute a slightly higher percent at 53.1 percent (478 out of 901). This demographical insight underscores a relatively balanced gender representation, highlighting the diversity within the local community. Understanding the gender composition within this specific region is crucial for informed decision-making and targeted development initiatives that cater to the diverse needs and perspectives of both male and female residents.

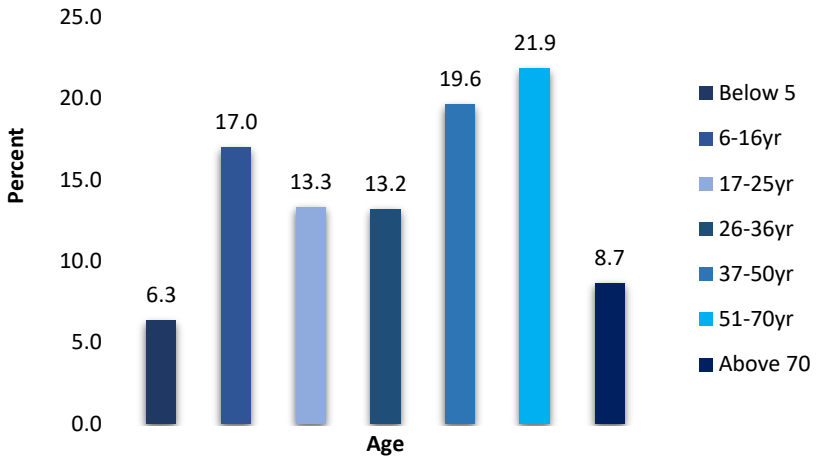


Source: HARTI Survey Data, 2023

Figure 3. 2: Distribution of Household Head by Gender

3.2.2 Age Distribution

The data reveals a varied composition, with the highest percent of individuals falling within the age group of 51-70 years, comprising 21.9 percent (197 individuals out of 901) of the total population. This suggests a relatively significant proportion of middle-aged to elderly residents within the community. On the contrary, the lowest demographic representation is observed among those below 5 years old and it acquired six percent of the total. Above 70 years old, constituting eight percent of the population and there were 78 persons within this category.

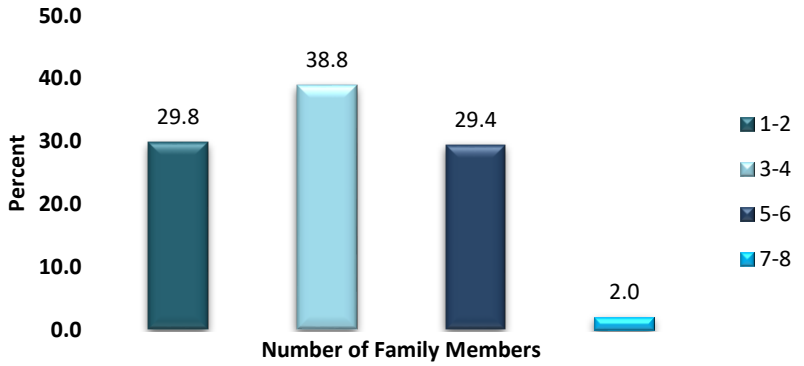


Source: HARTI Survey Data, 2023

Figure 3.3: Percentage Distribution of Age of Household Head

3.2.3 Household Size

There were 255 households and notably, 29.8 percent (76 HHs) of the total families exhibit a relatively smaller unit, consisting of 1-2 members. Meanwhile, a significant 38.8 percent (99 HHs) of families encompass 3-4 members, portraying a predominant family size within the community. The data further underscores the diversity in family dynamics, as 29.4 percent (75 HHs) of the total families comprise 5-6 members. Interestingly, a distinct minority of two percent (5 HHs) of families consists of 7-8 members, showcasing the rarity of larger family structures in this region.



Source: HARTI Survey Data, 2023

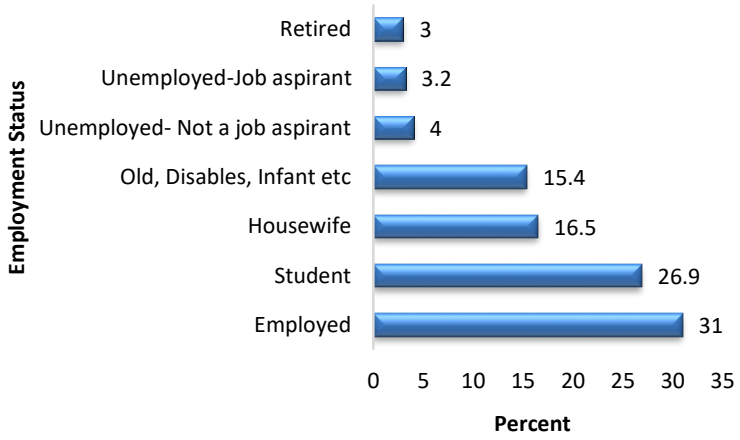
Figure 3.4: Distribution of Households by Household Size

These results suggest a growing trend towards smaller family units within the farming community, which can be attributed to various factors such as urbanization, modernization, and changing social norms. The shift towards smaller family units may have significant effects for the agricultural sector, particularly in terms of labour availability, farm management practices, and resource allocation.

3.2.4 Employment Status of Villagers

Among the villagers, a 31 percent (279 out of 901) of the total population is employed. This employment figure underscored the economic engagement within the community. Three percent (29 out of 901) of the population fell under the category of unemployed job aspirants, indicating a segment actively seeking employment opportunities.

Conversely, four percent (36 out of 901) of the total population faced unemployment without aspiring for employment. Moreover, a notable 26.9 percent (242 out of 901) of the population comprised students, emphasizing the importance of education within the community.



Source: HARTI Survey Data, 2023

Figure 3. 5: Distribution of Employment Status

Beyond the working-age demographic, three percent (27 out of 901) of the population is retired, signifying a segment that has contributed to the workforce in the past. Additionally, 15.4 percent (139 out of 901) represent individuals categorized as old, disabled, infants, or otherwise not part of the labour force. This portion of the population may require special attention and support systems to address their unique needs and challenges.

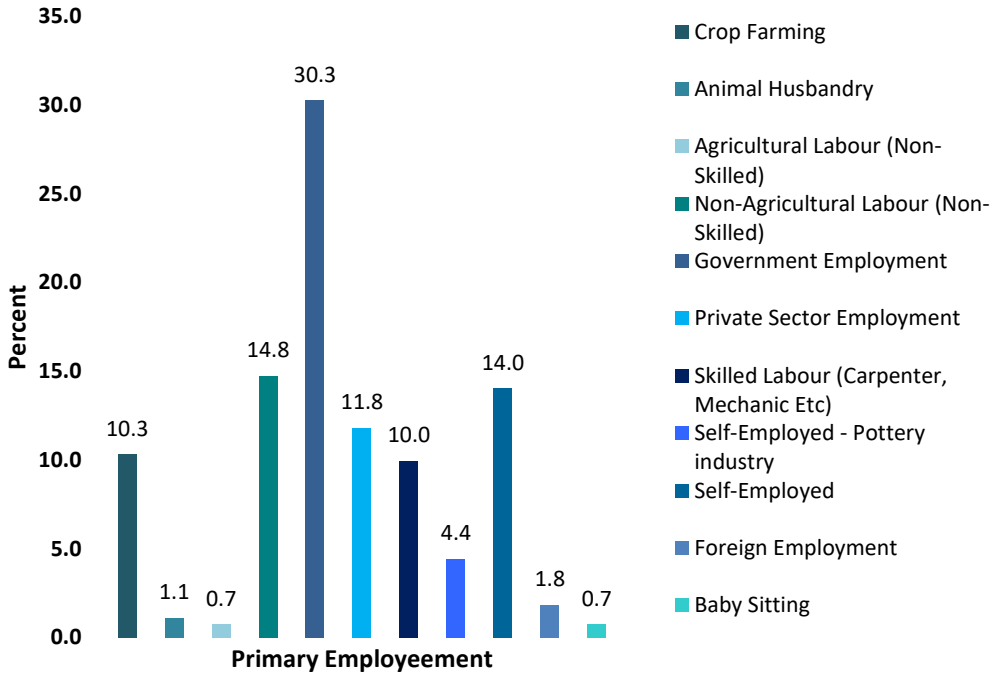
Lastly, 16.5 percent (149 out of 901) of the total population comprised housewives, underlining the significance of domestic roles and responsibilities. This figure sheds light on the traditional gender roles and domestic contributions within the community.

3.2.4.1 Primary Employment of the Family Members

Upon analyzing the data in the dataset, it was found that the primary employment of household heads exhibited a diverse range of occupations. A total of 28 individuals (10%) were engaged in crop farming, underscoring the significance of agriculture within the community. Additionally, there were 3 individuals (1.5%) involved in animal

husbandry, 2 in non-skilled agricultural labour (1%), and 40 (15%) in non-agricultural non-skilled labour, reflecting a varied economic landscape.

Furthermore, the data revealed that 82 household heads (30%) were employed in government positions, while 32 (12%) were actively contributing to the private sector. Skilled labour was represented by 27 (10%) individuals, showcasing a workforce with specialized expertise. Notably, 12 individuals (4.5 %) were self-employed in the pottery industry, emphasizing entrepreneurial endeavour within the community.

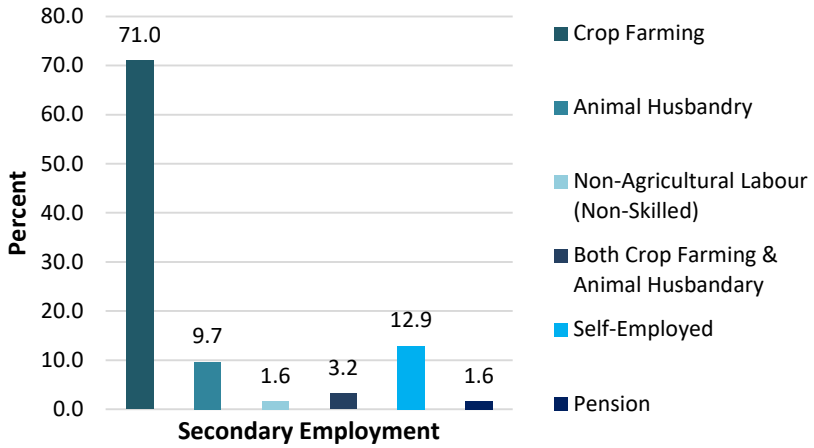


Source: HARTI Survey Data, 2023

Figure 3.6: Primary Employment of the Family Members

Moreover, there were 38 self-employed individuals (14 %) engaged in various occupations other than pottery industry, demonstrating a significant portion of the household heads taking charge of their own enterprises. In terms of migrant workers, five individuals (2 %) worked for foreign employers. Lastly, two individuals (1%) were involved in the role of baby sitters, highlighting the diversity of employment opportunities within the dataset.

3.2.4.2 Secondary Employment of the Family Members



Source: HARTI Survey Data, 2023

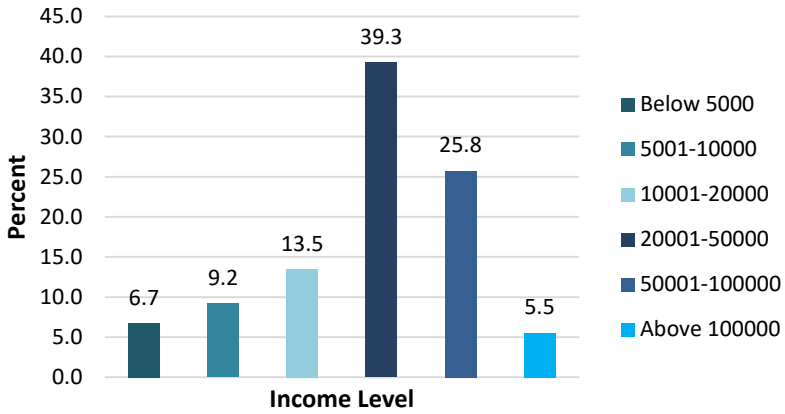
Figure 3.7: Secondary Employment of the Family Members

In the analysis of secondary employment among household heads, it was observed that a majority of 209 household heads (approximately 77%) were not involved in any secondary employment. Among those who pursued secondary occupations, 44 individuals (approximately 16.2 %) were engaged in crop farming, emphasizing its significance as a supplementary source of income. Additionally, six individuals (approximately 2.2%) were involved in animal husbandry, contributing to the agricultural diversity within the community. One person (approximately 0.4%) pursued non-agricultural labour (non-skilled), highlighting the presence of alternative employment options. Two individuals (approximately 0.7 %) were simultaneously involved in both crop farming and animal husbandry, showcasing a dual commitment to agricultural pursuits. Moreover, eight individuals (approximately 3%) were self-employed, and one person (approximately 0.4%) relied on a pension for secondary income.

3.2.5 Income and Expenditure

3.2.5.1 Income from Primary Employment

At the lower end of the spectrum, seven percent of the total population earned below Rs.5,000.00 per month, underscoring a segment grappling with financial constraints and potentially facing economic vulnerability. Conversely, at the higher levels, six percent of the population commanded income levels surpassing Rs.100,000 per month, portraying a relatively affluent demographic. The majority fell within the intermediate income brackets, with 39.3 percent earned between Rs.20,001.00 and Rs.50,000.00 per month, and 25.8 percent earned between Rs.50,001.00 and Rs.100,000.00 per month. Notably, the data suggests a concentration towards the middle-income range, signifying a considerable proportion of the population enjoying a moderate standard of living.

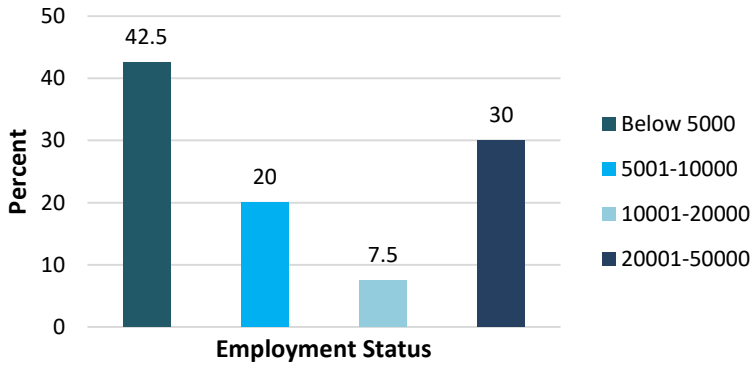


Source: HARTI Survey Data, 2023

Figure 3.8: Distribution of Households by Income Levels of Primary Employment

3.2.5.2 Income from Secondary Income Sources

Among those with secondary income sources, 42.5 percent earned below Rs. 5,000 per month, representing the lower echelons of the income spectrum. Additionally, 20 percent garnered a monthly income ranging from Rs. 5,001.00 to Rs. 10,000, portraying a moderate-income bracket. A smaller segment, constituting eight percent, earned between Rs. 10,001.00 and Rs. 20,000, reflecting a slightly higher economic standing. Notably, a substantial proportion, accounting for 30 percent, earned between Rs. 20,001.00 and Rs. 50,000 per month, signifying a comparatively affluent segment within the community. It is crucial to recognize the existence of villagers devoid of any secondary income source, highlighting the economic vulnerability of this subset.

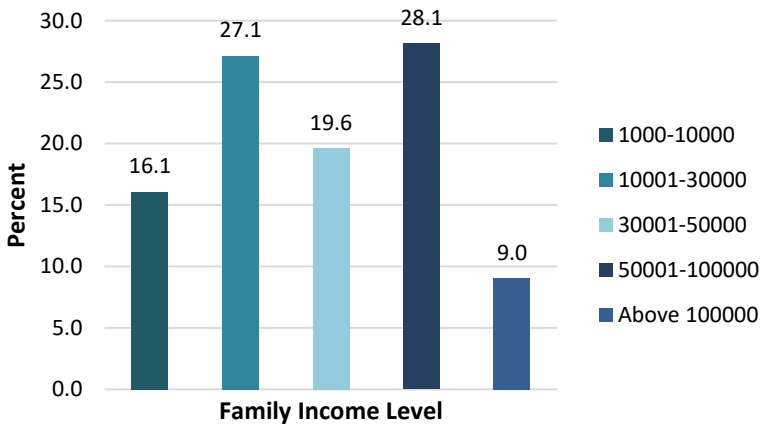


Source: HARTI Survey Data, 2023

Figure 3.9: Distribution of Households by Income Levels of Secondary Employment

3.2.5.3 Total Income Levels

In the surveyed Keppetiyawa GND, the distribution of total income across the population is characterized by a diverse range of earnings. Notably, the majority of the population falls within the income brackets of Rs. 50,001.00 to Rs. 100,000.00, comprising 28 percent of the community. This signifies a significant proportion of individuals earning within a moderate to relatively high range. On the other end of the spectrum, the lowest percent is observed in the category of individuals earning above Rs. 100,000.00, constituting 9 percent of the population. This indicates a relatively smaller proportion of the community enjoying higher income levels. Meanwhile, the percent for the remaining income brackets are distributed as follows: 16 percent earning between Rs.1,000.00 and Rs.10,000.00, 27 percent earning between Rs.10,001.00 and Rs.30,000.00, and 20 percent earning between Rs.30,001.00 and Rs.50,000.00. This comprehensive breakdown provides valuable insights into the economic landscape of the village cluster, emphasizing the dispersion of income levels and the concentration of individuals within specific earning ranges.



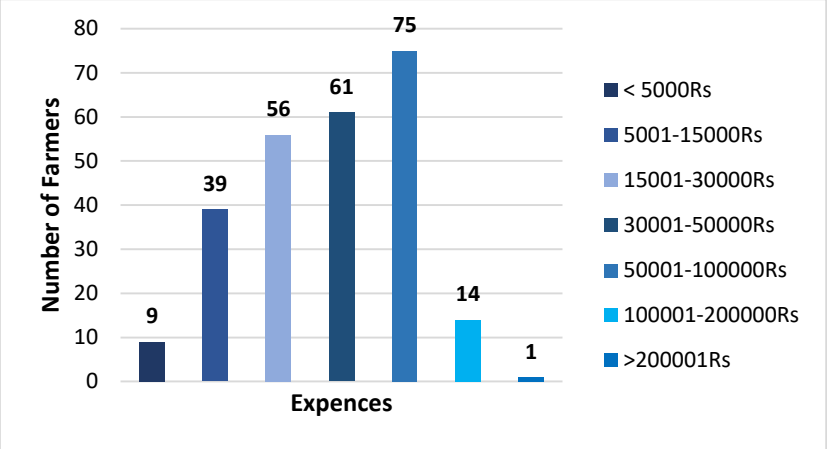
Source: HARTI Survey Data, 2023

Figure 3.10: Distribution of Households by Total Income Level

3.2.5.4 Household Expenses

When examining household expenses within the dataset, it was observed that a significant proportion of households exhibited diverse spending patterns. Specifically, 305 percent of households, representing nine in total, incurred expenses of less than Rs. 5,000.00. Moving up the expenditure scale, 15 percent of households (39) fell within the range of Rs. 5,001.00 to Rs. 15,000.00. Additionally, 22 percent (56 households) reported expenses ranging from Rs. 15,001.00 to Rs. 30,000.00, while 24 percent (61 households) spent between Rs. 30,001.00 and Rs. 50,000.00. Furthermore, 29.5 percent (75 households) had expenses in the range of Rs. 50,001.00 to Rs. 100,000.00, and 5.5 percent (14 households) reported higher expenditures, falling within the bracket of Rs. 10,0001.00 to Rs. 200,000.00. A mere 0.5 percent of households (1) surpassed the Rs. 200,001.00 threshold, indicating an outlier in terms

of higher household expenses. These percentages collectively underscore the diverse financial profiles and spending behaviour evident within the sampled households in the past.



Source: HARTI Survey Data, 2023

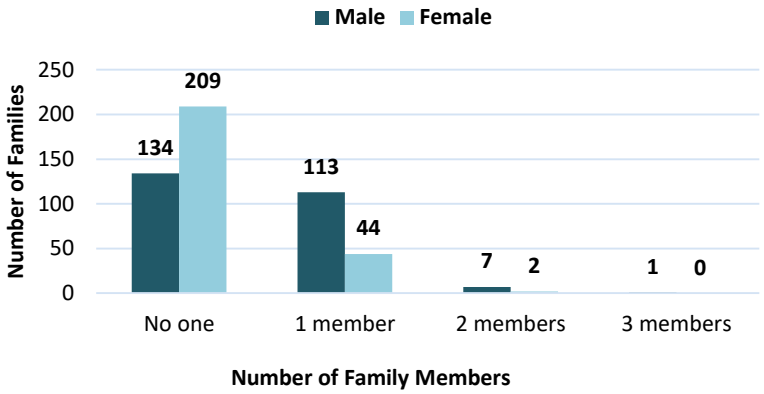
Figure 3.11: Distribution of Households Expenses

3.3 Household Engagement in Agriculture

Insights from Figure 3.6 provided valuable insights into the dynamics of household participation in agriculture. The data illuminated a noteworthy pattern: 51 percent of households refrained from involvement in farming activities, while the remaining 49 percent actively engaged in agricultural pursuits. This show cast a significant portion of the population chose not to partake in farming, contrasting with the nearly equal percent of households that embraced agricultural practices.

3.3.1 Male and Female Members Engaged in the Agricultural Activities

Within the total of 255 households, a comprehensive overview of male family members engaged in agricultural activities reveals diverse patterns. A notable 44.3 percent of households consisted of 113 families where only a single male member actively participated in agricultural pursuits. Additionally, 2.7 percent of households, totaling seven families, boasted the collaboration of two male members in agricultural endeavour. In a unique scenario, 0.4 percent of households featured three male family members collectively involved in agricultural activities. On the other hand, a substantial 52.5 percent of households, totaling 134, exhibited a distinctive characteristic where no male member was engaged in agriculture. This data highlights the varied nature of male participation in agricultural activities among the surveyed households, showcasing both individual commitment and collaborative efforts within family units during that period.



Source: HARTI Survey Data, 2023

Figure 3.12: Engagement of Male & Female Family Members for Agriculture Activities

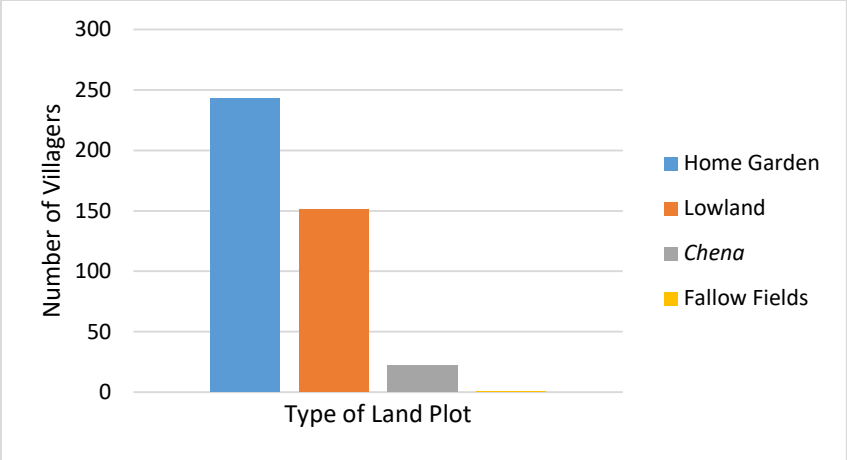
On the contrary, within the total of 255 households, female family members and their involvement in agricultural activities reveals somewhat different pattern. Specifically, 44 families, constituting approximately 17.3 percent of the total households, were characterized by having only one female member engaged in agricultural activities. Furthermore, in a smaller subset, comprising two households or 0.8 percent, there were instances where two female members actively participated in agricultural pursuits. Conversely, a significant portion of the households, totaling 209 or 82 percent, did not have any female members engaged in agricultural activities during the time of data analysis.

3.4 Land Use and Management

3.4.1 Type of Land

Households typically possess diverse types of land plots, such as lowlands, uplands and fallow fields, which they may either own, cultivate, or manage for landowners. The distribution of land plots among households is depicted in Figure 3.14.

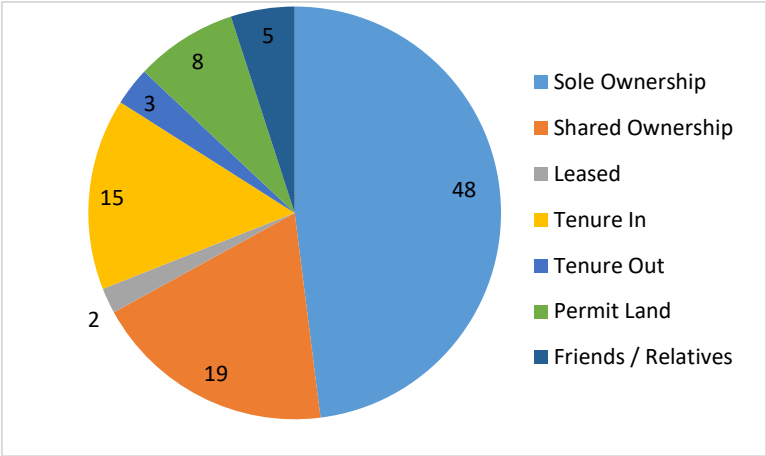
The households exclusively possessed two main categories of land plots: lowland (59%) and upland (7%). Lowlands were traditionally dedicated to paddy cultivation, forming the backbone of their agricultural activities. Interestingly, among the households, only one individual was observed to have fallow fields.



Source: HARTI Survey Data, 2023

Figure 3.13: Distribution of Land Plots by Land Type

3.4.2 Land Ownership



Source: HARTI Survey Data, 2023

Figure 3.14: Distribution of Land Plots by Land Ownership in Paddy Cultivation

Land ownership encompass sole ownership, shared ownership, leased land, tenure in, tenure out, permit land, encroached land, and mortgaged land. Predominantly, sole ownership emerged as the most widespread form of land ownership across various farming communities, constituting approximately 48 percent of all land plots. Following closely, shared ownership represented the second most prevalent category, encompassing 19 percent of land plots. This prevalence may be attributed to either a lack of a robust legal framework governing shared land ownership or simply a preference among landowners for sole ownership. Notably, two percent of the total land plots were leased for cultivation, while 15 percent were categorized as tenure in lands, and three percent were lands tenured out by farmers. Moreover, around eight percent of the lands held permit status, specifically granted for agricultural activities, and five percent were owned through connections with friends or relatives.

3.4.3 Land Extent Distribution

Table 3.1 provides information on the mean extent of land plots owned or cultivated by paddy farmers categorized by irrigation system and the type of land including lowland, upland, and home garden. Data shows that lowland areas have the largest mean extent across all irrigation systems, with an average of 2.81 acres (1.137ha) as lowland areas are the most suitable for paddy cultivation due to their water-retaining capacity. Minor irrigation system has the lowest mean extent of lowland areas, which could be attributed to the region's located dry zone with limited water resources for irrigation.

Table 3.1: Mean Extent of Land Plot by Land Type based on the Source of Irrigation Water

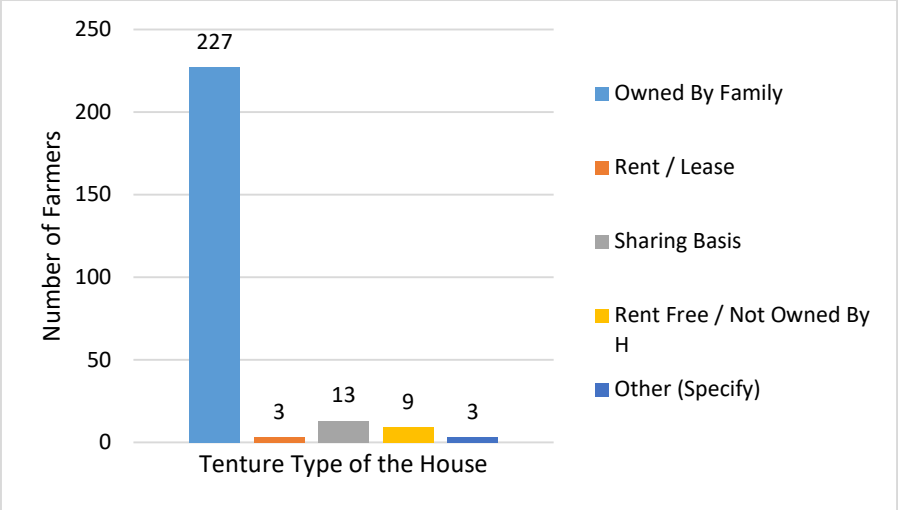
Water Management System	Average Extent (Acre)			Average Extent (ha)		
	Lowland	Upland	Home garden	Lowland	Upland	Home garden
Major	2.95	1.73	0.85	1.19	0.70	0.34
Mahaweli	2.62	1.11	1.07	1.06	0.45	0.43
Minor	1.89	1.95	0.58	0.76	0.79	0.23
Rainfed	3.38	1.82	1.03	1.37	0.74	0.42
Total	**2.81**	**1.76**	**1.03**	**1.14**	**0.71**	**0.42**

Source: HARTI Survey Data, 2023

3.5 Housing Conditions and Amenities

3.5.1 Tenure Status of the House

When considering the characteristics of dwellings, the focus of this paragraph is on the tenure types of houses. Out of a total of 255 households, a substantial 89 percent of the houses were owned by families, reflecting a strong sense of homeownership within the community. Additionally, five percent were shared on a cooperative basis, while one percent were rented or leased. Another four percent were rent-free but not owned by the household head. The remaining one percent comprised other tenure types that were not explicitly mentioned (Figure 4.1). These percentages provide a comprehensive overview of the distribution of tenure types, illustrating the predominant trend of homeownership among the surveyed households.



Source: HARTI Survey Data, 2023

Figure 3.15: Distribution of Type Tenure of House

3.5.2 Permanency Status of Houses

Within the sample of 255 households, a substantial 96 percent of the households inhabited permanent houses, highlighting a strong inclination towards stable and enduring dwellings within the community. In contrast, four percent of the households resided in temporary housing structures. This data highlights the overwhelming prevalence of permanent housing, reflecting a desire for enduring and secure living arrangements among the surveyed households.

3.5.3 Housing Characteristics

Among the 255 households surveyed, the data on housing completion status reveals that a significant majority had fully completed homes. Specifically, 67 percent (172 houses) of the households enjoyed the status of having fully completed houses, indicating a substantial proportion of settled and established residences within the community. In contrast, 33 percent (83 Houses) of the households were in the process of constructing their homes, reflecting ongoing development and growth within the surveyed population.

Within the subset of 83 houses that were under construction, the various stages of completion provided a better perspective on the ongoing housing projects at that time. A minimal two percent were in the initial stages, having only laid the foundation. Other one percent had progressed slightly further, completing the foundation but not yet the walls. At the same time, two percent had reached the stage of constructing walls, while four percent had successfully installed roofs. The focus on interior elements revealed that seven percent had completed or partially completed doors and windows, demonstrating progress in enclosing the structures. The majority,

constituting 67 percent, had completed or partially completed plaster, showcasing significant advancement in the overall construction process (Table 3.2).

3.5.3.1 Material of Floor

Within the subset of 83 houses that were under construction, the various stages of completion provided a better perspective on the ongoing housing projects at that time. A minimal two percent were in the initial stages, having only laid the foundation. Other one percent had progressed slightly further, completing the foundation but not yet the walls. At the same time, two percent had reached the stage of constructing walls, while four percent had successfully installed roofs. The focus on interior elements revealed that seven percent had completed or partially completed doors and windows, demonstrating progress in enclosing the structures. The majority, constituting 67 percent, had completed or partially completed plaster, showcasing significant advancement in the overall construction process (Table 3.2).

3.5.3.2 Material of Wall

Among the 255 households surveyed, the construction materials used for dwellings showcased a predominant reliance on durable and conventional building materials. A substantial 96 percent of the houses were constructed using bricks, emphasizing a widespread preference for sturdy and long-lasting structures within the community (Table 3.2). In contrast, a minimal four percent of the houses were made of mud, reflecting a smaller proportion adhering to traditional building methods, perhaps influenced by economic considerations or local building practices.

3.5.3.3 Material of Roof

Among the 255 surveyed houses, the roofing materials reflected a variety of choices. A predominant 65 percent of the houses featured tile roofs, showing a preference for a durable and aesthetically pleasing roofing option. Asbestos roofs were also a common choice, comprising 33 percent of the surveyed houses, probably in terms of affordability and durability. A smaller percent, two percent, featured metal sheet roofs, potentially chosen for their practicality and ease of installation. The remaining houses had concrete roofs, representing a minimal percentage (Table 3.2).

3.5.3.4 Area of Houses

In the context of the surveyed houses, the distribution of living spaces showcased a diverse range of sizes. A notable nine percent of the houses had an area below 200 sq ft, reflecting a segment with compact living spaces. The majority, 36 percent of the houses occupied a space between 501-1000 sq ft, showcasing a significant proportion of households with relatively spacious living areas. Additionally, constituting 27 percent, fell within the 201-500 sq ft range, indicating a prevalent preference for moderately sized residences. Furthermore, 20 percent of the houses spanned between 1001-1500 sq ft, representing a substantial portion of the surveyed

dwellings. Larger residences, ranging from 1501-2400 sq ft, comprised eight percent of the sample, while a minimal one percent an expansive area above 2401 sq ft (Table 3.2).

Table 3. 2: Housing Characteristics of Keppetiyawa North GND

Parameters	Indicators	Frequency	%
Condition of the house	Fully completed	172	67
	Just started	2	2.5
	Foundation completed	1	1.25
	Walls completed	2	2.5
	Roof completed	4	5
	Doors /Windows (completed/ half completed)	7	8
	Plastering (completed/ half completed)	67	80.75
Material of the floor	Mud	8	3
	Cement	135	53
	Tile	81	32
	Concrete	27	11
	Other	4	1
Material of the walls	Mud	10	4
	Bricks	245	96
Material of the roof	Tile	165	65
	Asbestos	83	32
	Metal sheet	6	2.5
	Concrete	1	0.5
Area of the house	<200 sq ft	22	9
	201-500 sq ft	69	27
	501-1000 sq ft	92	36
	1001-1500 sq ft	50	20
	1501-2400 sq ft	20	8
	>2401 sq ft	2	1
Location of the Kitchen	Inside the house	191	75
	Outside the house	64	25
Main source of lighting	Electricity	251	98
	Kerosene	4	2
Source of cooking fuel	Firewood	216	85
	Electricity	1	0.5
	Gas	34	13
	Saw dust	1	0.5
	Do no cook	3	1
Type of toilet facilities	Water seal (Squatting Pan)	156	61
	Water seal (Commode)	59	23
	Temporary pit	1	0.5
	Direct pit	38	15
	No toilets	1	0.5
Location of water sealed toilet	Inside the house	58	27
	Outside the house	157	73
Main source of drinking water	Domestic well	53	21
	Pipe-borne water	202	79

Source: HARTI Survey Data, 2023

3.5.3.5 Location of Kitchen

Among the 255 surveyed households, the location of kitchen facilities provided a glimpse into housing arrangements. A significant 75 percent (191 units) of the households had their kitchens situated inside the house, emphasizing a prevalent preference for internal cooking spaces. The remaining 25 percent (64 units) (Table 3.2) opted to have their kitchens located outside the main dwelling. This choice might reflect a variety of factors, including cultural practices, spatial considerations, or the desire for a separate cooking area.

3.5.3.6 Main Source of Lighting

Among a total of 255 households, the predominant choice for lighting source was electricity, with 251 households (98%) relying on it as their main source of lighting. In contrast, a minority of households, specifically four in number (2%), opted for kerosene as their primary lighting solution (Table 3.2).

3.5.3.7 Main Source of Fuel for Cooking

When it came to the primary source of cooking fuel among total households, the majority, comprising 85 percent, relied on firewood and the minority, 0.5 percent who opted for electricity as the main cooking fuel and 0.5 percent, utilized sawdust as a cooking fuel alternative. Additionally, 13 percent of households, totaling 34, favoured gas for their cooking needs. Notably, there were three households, accounting for one percent, (Table 3.2) that did not engage in cooking.

3.5.3.8 Type of Sanitary Facilities

When considering toilet facilities among a total of 255 households, the majority (84%), opted for water seal type toilets. Among these, 73 percent (156 households) preferred the squatting pan type, while 27 percent (59 households) chose the commode type. Conversely, 15percent of households (38) among total, employed the direct pit type, and a negligible 0.4 percent each utilized the temporary pit or had no toilet at all (Table 3.2).

Notably, within the subset of households with water-sealed toilets, 27 percent had the convenience of an indoor toilet, while the remaining 73 percent had their toilets situated outside the house (Table 3.2).

3.5.3.9 Main Source of Drinking Water

Within the total sample of 255 households, 20.8 percent (53 households) relied on domestic wells as their primary source of drinking water. The majority, constituting 79.2 percent (202 households), accessed their drinking water through pipe-borne sources, specifically from the National Water Supply and Drainage Board (NWSDB) or the Community Water Supply and Sanitation Project (CWSSP). This distribution highlights a significant disparity in water sourcing preferences, with a considerable

portion of the community favouring the convenience and reliability offered by piped water systems. (Table 3.2)

3.6 Household Assets

Within a sample of 255 households, the distribution of assets showcased a varied landscape. None of the households possessed buffaloes-drawn ploughs, ploughing implements/weeders, transplanters, combine harvesters, or tsunami machines. However, one household (0.5%) had a disc plough, while three households owned harrows, and another household had seeders. Interestingly, 15 households (6%) were equipped with 2-wheel tractors, and four households owned four-wheel tractors (2%). Additionally, three households (1%) utilized hand-driven tractors. Seven households had water pumps (3%), and three households (1%) possessed various other irrigation equipment, such as irrigation pipes. In the realm of agricultural tools, 44 households (17%) were equipped with Knapsack sprayers. Turning to the domain of fishing, one household reported (0.5%) owning a fishing net, but no households had boats or canoes.

In terms of transportation, a significant 54 percent (138 households) had motorcycles, while 19 percent (48 households) relied on bicycles. Eleven households owned lorries, and 14 households possessed cars, reflecting a diverse array of transportation means. Moreover, 15 percent (38 households) utilized three-wheel vehicles, and four percent (10 households) had vans. In the realm of communication and entertainment, the majority of households were well-equipped, with 88 percent (224 households) having mobile phones, 69 percent (175 households) owning radios, and 85.5 percent (218 households) having televisions.

Furthermore, 41 percent (105 households) possessed sewing machines, and 62 percent (159 households) owned water tanks. This data illustrates a diverse array of assets within the community, reflecting the multifaceted nature of households' resources and amenities.

3.7 Membership of Organizations and Societies

Farmer Organization

In the Keppetiyawa North GND, a total of 255 households were surveyed, with 191 of them not being registered in any Farmer Organization (FO). However, 60 individuals out of the total were actively engaged and had registered with such organizations. Among the registered members, 59 were solely participants, actively contributing to the organization's activities. Moreover, two individuals had held the track representative position, demonstrating their commitment to the organizational structure. Additionally, one person had served as the president, another as the secretary, and a third as the treasurer, showcasing a diverse range of leadership roles within the FO. This data highlights varied and active participation of individuals in different capacities within the community's agricultural initiatives in the past.

Women's Organization/Societies

Out of the totals of 255 households, 40 households were identified as having members actively participating in women's groups or societies in the village, showcasing a positive engagement in community initiatives. These societies serve as platforms that enable women to enhance their capacities and explore entrepreneurial opportunities. through various initiatives and support systems, they arm women with skills, resources, and guidance.

Local Savings and Loan Society

There were 38 households in Keppetiyawa North GND, who have with membership in a local savings and loan society, showcasing a positive trend of financial engagement within the community. These households were able to benefit from the services and opportunities provided by the local savings and loan society, indicating a proactive approach towards financial management and community support.

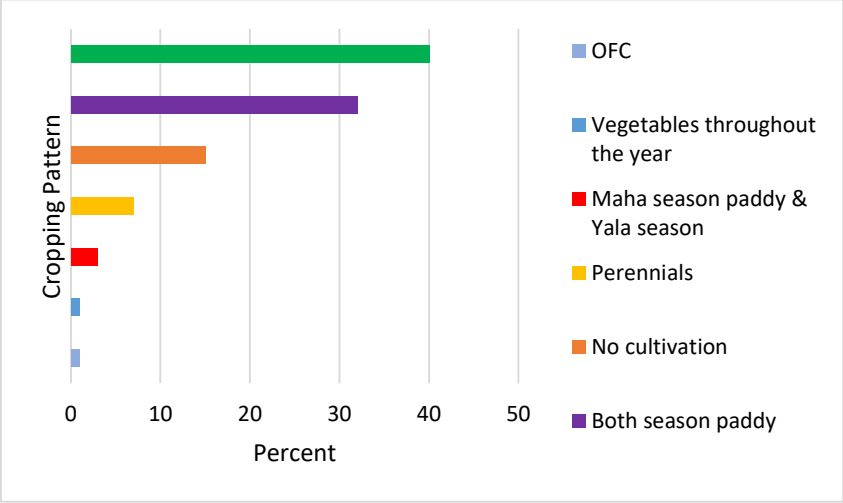
CHAPTER FOUR

Crop and Livestock Production in Keppetiyawa North GND

This chapter discusses the nature of crop cultivation in Keppetiyawa North GND. Primarily, it examines the prevalent cropping patterns in the region, tracing the changes in these patterns over time, and highlighting the key cultivation seasons. Additionally, the chapter provides insights into the main crops cultivated in the area. Furthermore, it discusses the livestock rearing patterns within the area.

4.1 Primary Cropping Pattern of Farmers

A diverse range of cropping patterns were adopted by farmers in Keppetiyawa North GND. Thirty-two percent of the respondents reported cultivating both seasons paddy, demonstrating a prevalent focus on rice farming. Additionally, three percent of respondents practiced a combination of *Maha* season paddy and *Yala* season fallowing, reflecting a strategic approach to seasonal cropping. A smaller percent, two percent, engaged in the year-round cultivation of vegetables, showcasing a commitment to diverse and continuous agricultural production. Some respondents, comprising one percent, reported cultivating other field crops. The most prevalent cropping pattern, however, was mix crop, with 40 percent of respondents adopting a combination of different crops. Furthermore, seven percent of landowners focused on perennial crops, emphasizing sustained and long-term cultivation practices. A notable portion, 15 percent, had not cultivated their land at the time of the survey, suggesting periods of fallow or non-agricultural land use.



Source: HARTI Survey Data, 2023

Figure 4.1: Percentage Distribution of Primary Cropping Pattern

4.2 Changing Cropping Pattern during Last Five Years

The residents of Keppetiyawa North GND, were fortunate to have been spared from any form of extreme climate events from 2018 to 2023 period. Throughout this period, the region experienced a relative stability in weather conditions, devoid of the disruptive impacts associated with severe climatic phenomena. Remarkably, the inhabitants of Keppetiyawa expressed a consensus that climate change did not emerge as the most influential factor affecting their day-to-day lives during this time frame. This absence of significant climatic disruptions fostered a sense of normalcy and consistency, allowing the community to focus on other aspects of their daily routines without the added challenges posed by extreme weather events.

Changes in the cropping pattern of their plots over the past five years were attributed to climate change and the respondents revealed that the majority (98%), reported no distinct alterations. Conversely, a minority of two percent acknowledged that their cropping patterns had indeed undergone modifications during this timeframe due to the impacts of climate change. Among the two percent of respondents who acknowledged changes in their cropping patterns due to climate change, underscored the prominent impact of irregular and insufficient rainfall.

4.3 Main Cultivation Seasons

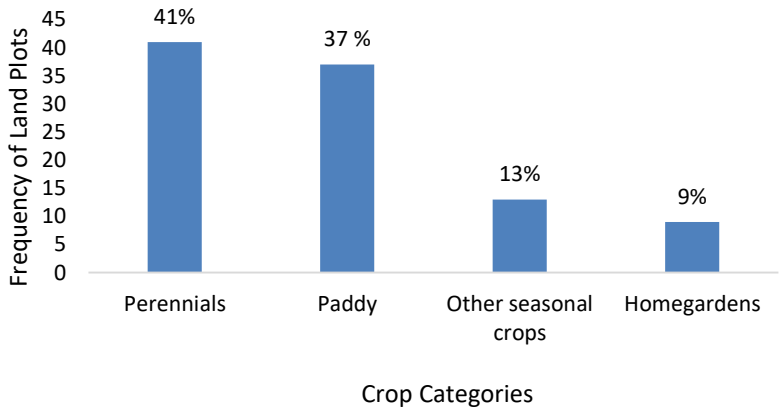
Among the surveyed land plots during the period spanning from the 2022 *Yala* season to the 2022/23 *Maha* season, 13 percent plots were dedicated to single-season cultivation during the specified timeframe. Additionally, 20 percent land plots, experiencing a more intensive farming strategy, cultivating crops across both the *Yala* and *Maha* seasons. The majority of land plots, accounting for 67 percent, fell into the category of rest. This group encompassed land plots that either remained fallow, was not engaged in cultivation during the specified period, or had other categorizations.

Within the sample of cultivation lands, constituting 41 percent of the sample, engaged in the cultivation of the 2022 *Yala* season and 54 percent 2022/23 *Maha* season. Interestingly, a smaller yet noteworthy proportion, accounting for five percent, reported year-round cultivation, reflecting a commitment to continuous agricultural activities. These percentages offer valuable insights into the distribution of cultivation practices, emphasizing the prominence of both *Yala* and *Maha* seasons, alongside a dedicated group practicing year-round cultivation.

4.4 Primary Crops Grown in Keppetiyawa North GND

Among the total land plots, a diverse array of agricultural pursuits is evident, as reflected by distinct percent associated with different types of cultivation. Notably, 37 percent of the plots are primarily dedicated to paddy cultivation, underscoring the significant emphasis on rice farming within this dataset. Home gardens represent Nine percent of the total, showcasing a smaller but notable proportion of land plots allocated for diverse plantations around households. Perennials constitute the largest

share at 41 percent, emphasizing a substantial focus on long-term crops such as fruit trees. Furthermore, 13 percent of the land plots are utilized for cultivating other field crops, highlighting the diversity in agricultural activities (Figure 4.2).



Source: HARTI Survey Data, 2023

Figure 4.2: Percentage Distribution of Land Plots over Crop Categories

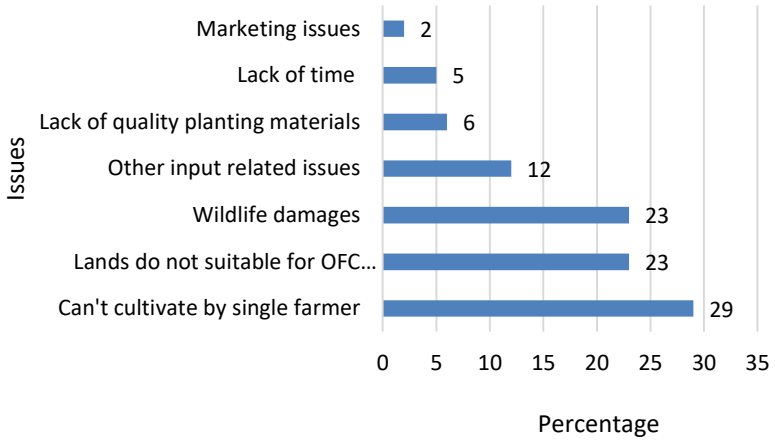
4.4.1 Cultivation of Paddy

Paddy is one of the main crops cultivated in Keppetiyawa North GND. There were 60 percent of farmers who cultivated paddy. Some farmers have cultivated in both seasons while the others have cultivated only in *Maha* or *Yala* season. Paddy was mainly cultivated under rainfed conditions. Most of the paddy farmers have sole ownership for their paddy lands. The study also found that different types of land plots are used for paddy cultivation, with lowlands being preferred due to their water retention ability.

4.4.2 Cultivation of Other Field Crops (OFCs)

In Keppetiyawa North GND, 94 percent of respondents expressed willingness to diversify their agricultural activities by cultivating OFCs other than paddy in their lands although they have not initiated the process. Merely four percent have previously cultivated OFCs and continue to do so. A marginal one percent had engaged in cultivation in the past but later discontinued.

4.4.2.1 Issues of Cultivating OFCs in Lowlands



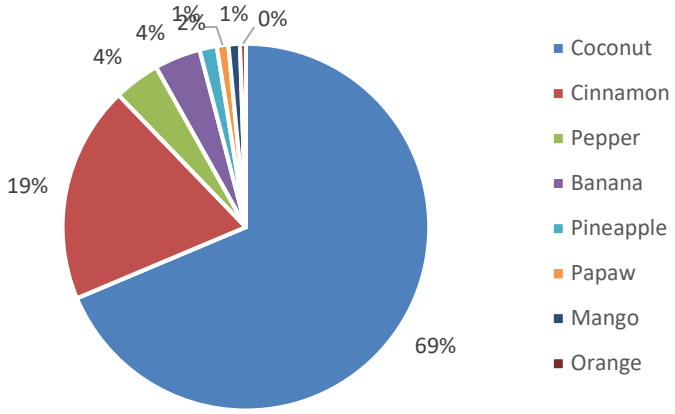
Source: HARTI Survey Data, 2023

Figure 4.3: Key Issues in Cultivating OFCs in Lowlands

Among primary challenges faced in cultivating OFCs in lowlands, a significant issue arises from the individual farmer's inability to make decisions regarding OFC cultivation in their fields (29%). This is attributed to the lack of willingness among other farmers in the vicinity to engage in OFC cultivation. Two other prominent issues include the unsuitability of lands for OFC cultivation due to waterlogging conditions (23%) and damages caused by wild animals (23%). Some farmers expressed concern about the quality of planting material (6%) as a hindrance in OFC cultivation. Meanwhile, factors such as a lack of time for farmers to dedicate to OFC cultivation (5%) and marketing issues (2%) were perceived as less severe challenges.

4.4.3 Orchards/Home gardening

A diverse array of crops was cultivated in orchards or home gardens by respondents. Coconuts were the most prevalent, with 68 percent of respondents engaging in their cultivation. Cinnamon followed, with 20 percent of respondents choosing to cultivate this spice. Bananas and pepper were separately cultivated by four percent of farmers, contributing to the variety of produce grown (Figure 4.4). The remaining five percent of respondents cultivated other fruit varieties such as mango, orange, pineapple, and papaya.



Source: HARTI Survey Data, 2023

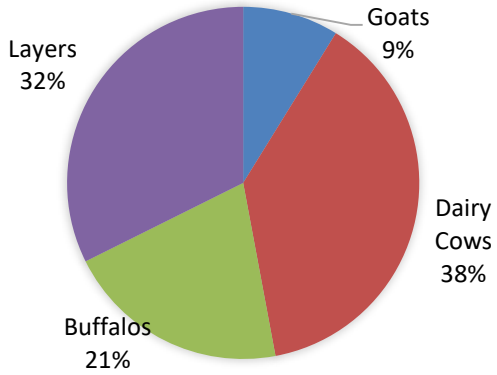
Figure 4.4: Crops Cultivated in Home gardens or Orchards

4.5 Rearing Livestock

With respect to raising or owning livestock and poultry over the last five years, approximately 24 percent of the respondents, comprising 31 households, were actively engaged in livestock and poultry management during the specified period, while the majority, constituting 74 percent, did not undertake such endeavors.

4.5.1 Type of Livestock Raised or Owned by Farmers

Among the respondents within the last five years the ownership of livestock and poultry demonstrated a variety of types. The predominant category was dairy cows, constituting 38 percent of the sample. Layers were also a prevalent type, with 32 percent of households owning them. Buffalos were held by 21 percent of respondents, showcasing a notable but relatively smaller proportion. Additionally, goats were owned by nine percent of households (Figure 4.5). These percentages provide information about the distribution of livestock and poultry ownership within the surveyed population, indicating the prevalence of dairy cows and layers as the primary types of livestock owned.



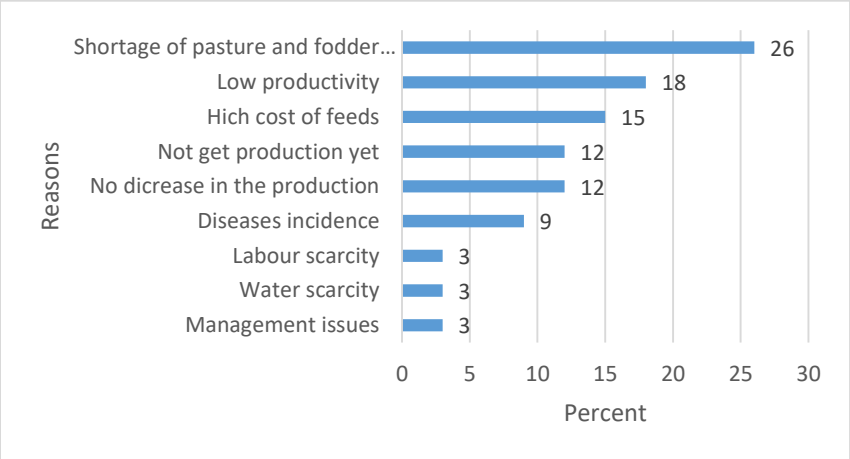
Source: HARTI Survey Data, 2023

Figure 4.5: Type of Livestock Raised or Owned by Farmers

4.5.2 Impact of Livestock Rearing on Livelihood

When assessing the impact of raising livestock on households' livelihoods, the data reveals diverse contributions to annual income. A notable 68 percent of respondents reported that livestock constituted less than 10 percent of their annual income, indicating a relatively modest contribution. Additionally, 15 percent of households derived between 10-30 percent of their income from raising livestock, signifying a moderate impact. A smaller percent, representing nine percent of respondents, reported livestock contributing between 30-50 percent to their annual income, suggesting a more substantial role in their livelihoods. Furthermore, nine percent of households gained more than 50 percent of their annual income from raising livestock, highlighting a significant reliance on livestock-related activities for their overall livelihoods.

4.5.3 Reasons for Decreasing the Livestock Production



Source: HARTI Survey Data, 2023

Figure 4.6: Reasons for Decreasing the Livestock Production

Among those who noted a decrease in livestock production, the leading cause cited by 26 percent of respondents was the shortage of pasture and fodder during dry spells. Following closely, 18 percent reported experiencing decreased productivity as a key reason for the decline. Additionally, 15 percent attributed the decrease to the high cost of animal feed, specifically concentrates. The remaining respondents, constituting 40 percent, identified various factors for the decline, including no change in production, instances of pests and diseases, water and labour scarcity, as well as management issues (Figure 4.6). These percentages highlight numerous challenges faced by households in maintaining consistent levels of livestock production, emphasizing the diverse array of factors that contribute to decreases in productivity within the surveyed community.

CHAPTER FIVE

Paddy Cultivation Practices in Keppetiyawa North GND

This chapter delves into paddy cultivation practices undertaken by farmers in Keppetiyawa North GND. Initially, it elucidates the methods employed by farmers in land preparation for planting. Subsequently, it explores approaches to crop establishment, water supply, and plant nutrient management practices. The discussion extends to encompass additional farming practices, including weeding, pest and disease control, as well as harvesting methods.

5.1 Land Preparation Practices and Source of Power

General land preparation practices of farmers who cultivated paddy during 2022 *Yala* and 2022/2023 *Maha* seasons were explored. Accordingly, the majority opted for ploughing as their primary land preparation method. Among the land plots that actively cultivating, the use of two-wheel tractor as the power source for land preparation was prominent, constituting 52 percent of the respondents. Four-wheel tractor was used by 42 percent of the landowners, indicating a significant reliance on mechanized power for this agricultural practice. Manual land preparation was practiced by six percent of the respondents, showcasing a smaller yet noteworthy proportion still engaged in traditional, manual methods. These percentages highlight the prevalence of mechanization, with the farmers in the study area.

Within the surveyed farmers employing plough machinery for the land preparation, the majority, accounting for 97 percent, utilized rotavators as their primary equipment for the specific land plot during the relevant season. Mould boards were employed by a smaller yet notable proportion, representing three percent of the respondents. Harrows were the least commonly used, with only one percent of farmers choosing this method for land preparation.

5.1.1 Acquisition of Power for Land Preparation

The source of power varied significantly. The majority, comprising 88 percent of respondents, opted to rent power from service providers, indicating a prevalent reliance on external sources for mechanized assistance. Additionally, six percent of respondents borrowed power from neighbours, showcasing a communal approach within the community. Self-owned power sources were utilized by six percent of respondents, reflecting a smaller yet notable proportion of farmers with independent access to machinery. Renting power from farmer organizations was the least common, representing only one percent of respondents.

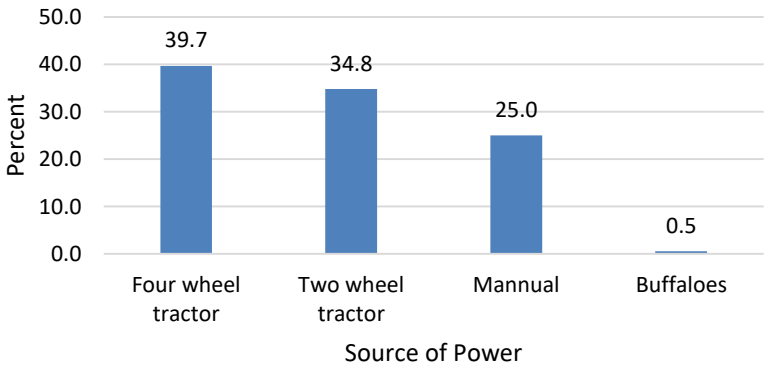
5.1.2 Labor Used for Land Preparation

On average, households allocated 2-man days of labour to undertake crucial tasks involved in the land preparation. This average reflects the collective effort invested by

family members and household labour in preparing the land for cultivation. Contrary to the average man days of household labour used for the land preparation, the data also revealed the engagement of hired labour in the agricultural activities. In here, the average man days of hired labour expended for the initial land preparation in these specific land plots during the relevant season was recorded as 2.4. This figure underscores the supplementary role of hired labour in supporting the farming operations, emphasizing the collaboration between household efforts and external labor sources. Considering about the labour costs associated with the land preparation in these specific land plots during the relevant season, the average daily cost per labourer was Rs. 2,497, reflecting the general compensation provided for the workforce engaged in the initial stages of agricultural activities.

5.2 Levelling of Land Plots

Among the total land plots surveyed for leveling, the data reveals varied sources of power employed for this agricultural task. Two wheeled tractor was utilized by 34.8 percent of landowner (Figure 5.1). Four Wheeled Tractor was the preferred choice for 39.7 percent of the surveyed plots. Manual land preparation, accounting for 25 percent of the surveyed plots, who chose a traditional, hands-on approach. Interestingly, minimal percent of 0.5 percent involved the use of buffaloes, representing a singular case. These percentages encapsulate the diverse strategies adopted by farmers for leveling agricultural lands. Nearly 64 percent of farmers have used rented power sources for leveling the lands. An average of 1.3 man-days of household labour and 3.7 man-days of hired labour were utilized for the leveling process.



Source: HARTI Survey Data, 2023

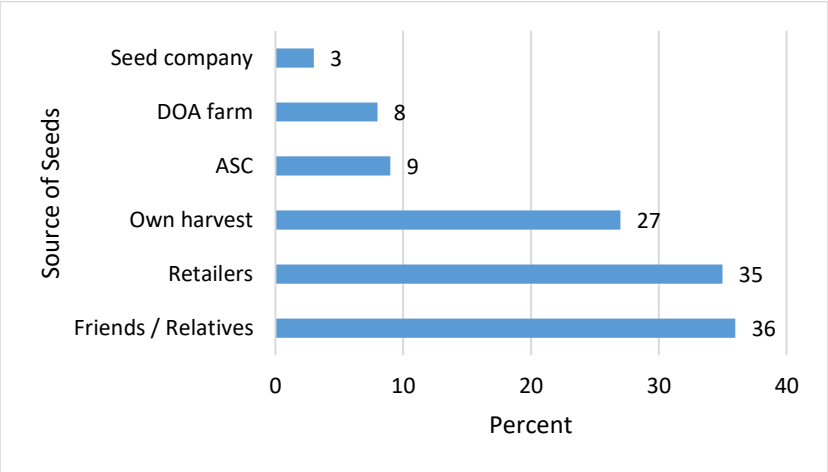
Figure 5.1: Sources of Power Used for Levelling

5.3 Seed Usage Foe Paddy Cultivation

5.3.1 Supply of Seeds

In Keppetiyawa North GND, farmers have actively engaged in acquiring paddy seeds from various sources, reflecting a significant portion of the community's agricultural participation and it represents 70 percent of population from the total. The remaining 30 percent of the total, did not partake in seed acquisition during the study period. This data suggests a diverse range of practices within the community, with a substantial proportion actively seeking seeds for cultivation and others potentially relying on alternative methods such as seed saving or sharing.

The largest proportion, constituting 36 percent, obtained paddy seeds directly from fellow farmers. Another substantial group, comprising 35 percent, sourced their seeds from retailers. Additionally, 27 percent of the respondents acquired seeds from other harvested crops, showcasing a reliance on self-sufficiency. A smaller but still noteworthy percent, totaling nine percent, received seeds from Agricultural Service Centers (ASC) within the area, while seven percent obtained seeds from the Department of Agriculture (DOA) farm. Only three percent of respondents opted for seeds from a seed company.



Source: HARTI Survey Data, 2023

Figure 5.2: Sources of Seeds and Planting Materials

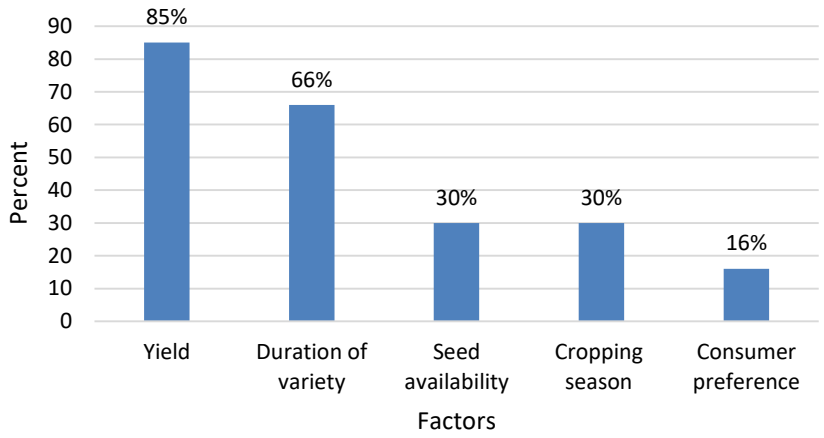
5.3.2 Nature of Seeds Supply

In investigation into the nature of the largest transactions of paddy seeds, the predominant method was cash purchase, representing the highest percent of 47 percent. This underscores the prevalent practice of directly purchasing rice seeds using monetary transactions. On the other end of the spectrum, the lowest percent, accounting for one percent, involved individuals acquiring seeds as a grant or gift for free, highlighting a less common but notable occurrence within the surveyed households. Additionally, 29 percent of respondents sourced seeds from their own

harvest, indicating a substantial reliance on self-sufficiency for seed procurement. Nearly 18 percent households, engaged in barter transactions, further showcasing the diverse methods employed in obtaining paddy seeds.

5.3.3 Factors Influencing Seed Selection

Critical factors influencing the selection of paddy varieties among the respondents are explained here. Notably, 85 percent of farmers prioritized yield as a pivotal factor in their decision-making process. Duration of the varieties also of substantial importance, with 66 percent considering this aspect when choosing paddy seeds. Cropping season played a role in variety selection for 30 percent of respondents, reflecting the significance of aligning cultivation with specific seasons. Seed availability was a consideration for 30 percent of farmers, underlining the practical challenges associated with accessing preferred varieties. Consumer preference emerged as a factor for 16 percent of respondents, indicating a growing awareness of market demands and the importance of meeting consumer expectations.



Source: HARTI Survey Data, 2023

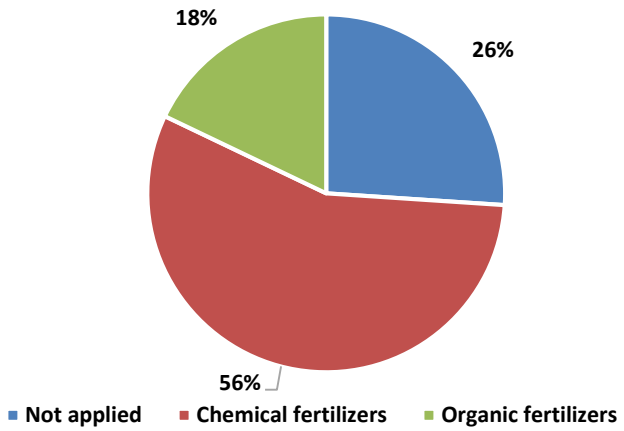
Figure 5.3: Factors Influencing for Selecting Paddy Variety

5.4 Crop Establishment

Among the total land plots engaged in cultivation, a predominant 94 percent opted for broadcasting of seeds as their preferred crop establishment method during the appropriate seasons. Only five percent of farmers practiced manual transplanting, and a mere one percent employed a combination of parachuting and manual direct seeding. The average man-days of male and female household labour utilized for crop establishment in their land plots during the relevant season was one each. The average number of hired male and female labour required for the crop establishment was two and five man-days respectively. The average cost for male hired labor per day was Rs.2440. And the daily wage rate for female labour was Rs.2000.

5.5 Fertilizer Application

Figure 5.4 explains the diverse fertilizer application practices adopted by farmers to enhance agricultural productivity. The data reveals that 56 percent of farmers have chosen to utilize chemical fertilizers. In contrast, 18 percent of farmers have opted for organic fertilizers, reflecting a notable preference for more sustainable and eco-friendly approaches. A substantial 26 percent of farmers have abstained from applying either chemical or organic fertilizers (Figure 5.5).



Source: HARTI Survey Data, 2023

Figure 5.4: Application of Fertilizers

5.5.1 Application of Chemical Fertilizers

5.5.1.1 Application of Basal Dressing

Among the land plots under consideration, 55 percent were subjected to basal dressing, while the remaining did not apply basal dressing. Within the subset of land plots where basal dressing was applied, the distribution of main types of basal dressing fertilizers varied. Urea was utilized in five percent of these plots, Triple Superphosphate (TSP) was the most prevalent, being employed in 84 percent of the plots. Muriate of Potash (MOP) was applied in seven percent of the cases, while Albert Solution was used in one percent of the plots.

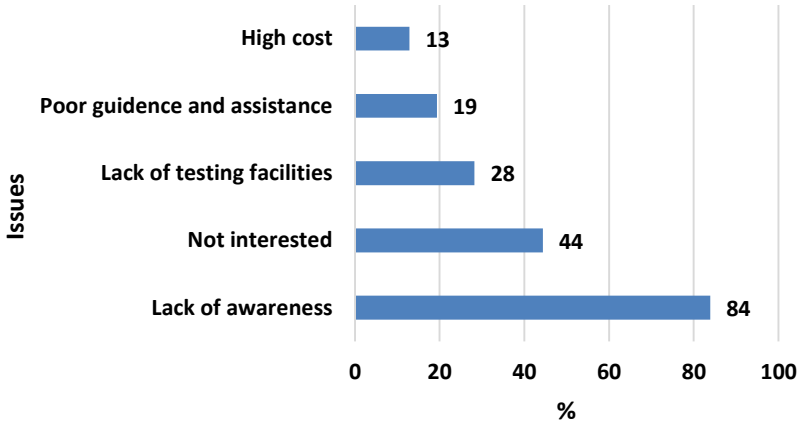
5.5.1.2 Application of Top Dressing

Out of the total land plots considered, the majority, constituting 93 percent, were subjected to top dressing fertilizers. Among the plots where top dressing fertilizers were applied, diverse preferences in fertilizer types were evident. Urea was the most widely used, applied in 86 percent of the plots, while TMOP was used in 57 percent of the cases. TSP had a prevalence of six percent among the plots. Additionally, three percent of the plots employed other fertilizers, such as micro nutrients, YaraMila Complex, or Albert Solution, demonstrating a degree of variability in the choice of fertilizers.

5.5.1.3 Farmers' View on Chemical Fertilizer Application

A larger portion, comprising 48 percent, believed that chemical fertilizers only address the fundamental trio of Nitrogen (N), Phosphorus (P), and Potassium (K). Approximately eight percent of farmers, expressed confidence in the comprehensive ability of chemical fertilizers to provide all essential nutrients for their crops. Meanwhile, 15 percent of farmers maintained that chemical fertilizers go beyond N, P, and K, supplying additional essential nutrients for optimal crop growth. The remaining (29%) did not possess a clear understanding of the nutrient requirements of their crops or the capacity of basic fertilizers to fulfill these needs.

5.5.1.4 Soil Testing for Site-specific Fertilizer Application



*Multiple answers are possible

Source: HARI Survey Data, 2023

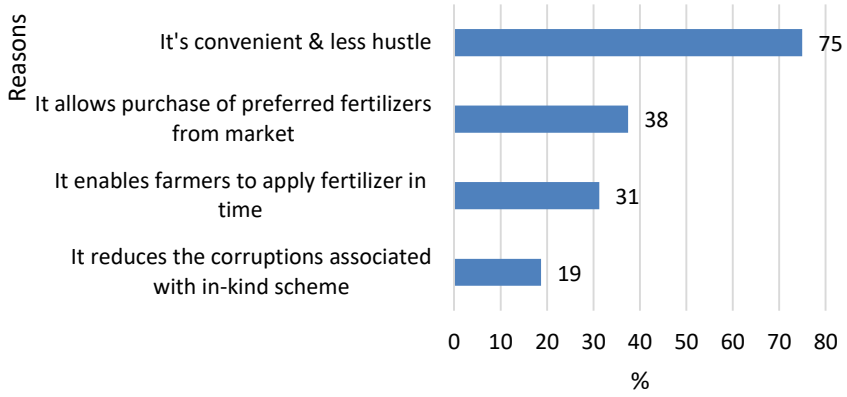
Figure 5.5: Issues in Practicing Site-specific Fertilizer Application

The majority of farmers in Keppetiyawa North GND, comprising 98 percent, did not engage in site-specific fertilizer application and instead relied on traditional methods for plant nutrient management. Various reasons were cited for the non-adoption of site-specific fertilizer application based on soil testing. A prominent issue highlighted by the farmers was a lack of awareness regarding this approach (84 %). Some farmers expressed disinterest in soil testing (44%), while others noted the absence of testing facilities in the locality as a limiting (28%). Furthermore, concerns were raised by certain farmers who felt they lacked proper guidance and assistance in implementing site-specific fertilizer application (19%), attributing it to the inadequate extension services in the area (Figure 5.4). Additionally, a small percent of farmers (13%) believed that they could not afford site-specific fertilizer application due to its perceived costliness.

5.5.2 Farmers' Preference for Mode of Fertilizer Subsidy Programme

The farmers were asked about the current government fertilizer subsidy programme with special reference to their preference on mode of subsidy programme. Accordingly, within the subset of the sample population engaged in agriculture 13 percent expressed a preference for receiving subsidies in the form of a cash grant, while a notable 64 percent indicated a preference for in-kind subsidies. Interestingly, 23 percent did not provide a response to this question, suggesting a potential assumption that they may not expect or desire any form of subsidy.

5.5.2.1 Reasons of Preference for Fertilizer Cash Grant



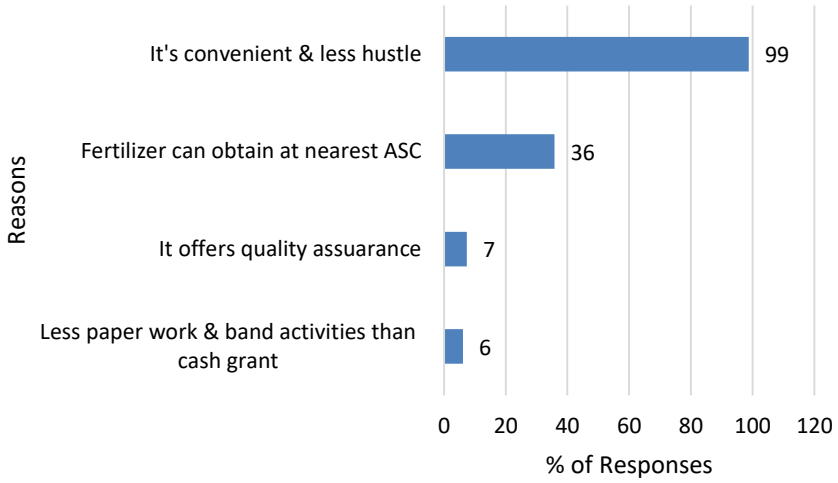
*Multiple responses are possible

Source: HARTI Survey Data, 2023

Figure 5.6: Reasons for the Preference of Cash Grant

Within the subset of individuals who voiced a preference for receiving cash grants as agricultural subsidies, a range of reasons was discerned to substantiate this choice. A significant 75 percent of the responses, comprising emphasized the convenience and reduced hassle associated with cash grants, indicating a preference for a streamlined and efficient subsidy disbursement process (Figure 5.6). Additionally, 38 percent of the responses highlighted the flexibility of cash grants, stating that it allowed them to purchase their preferred fertilizers directly from the market, tailoring their choices to meet specific agricultural needs. Furthermore, 31 percent of the responses, emphasized the timeliness of applying fertilizers, expressing that cash grants facilitated prompt acquisition and application. A smaller percent, 19 percent of responses, cited a reduction in corruption as a key factor, advocating for the transparency inherent in a cash-based subsidy system compared to in-kind schemes.

5.5.2.2 Reasons of Preference for In-Kind Subsidy



*Multiple responses are possible

Source: HARTI Survey Data, 2023

Figure 5.7: Reasons for the Preference of In-kind Subsidy

Within the subgroup that expressed a preference for receiving in-kind subsidies (81 households), a notable proportion acknowledged various reasons favouring the option of cash grants. An overwhelming 99 percent of the responses emphasized the convenience and reduced hassle associated with in-kind subsidies, highlighting a prevalent view within the group (Figure 5.7). Additionally, 36 percent of responses indicated proximity as a crucial factor, stating that obtaining fertilizers from the nearest ASC to the village was a key consideration. A smaller yet notable proportion, seven percent expressed a preference for in-kind subsidies due to the perceived quality assurance it provided. Furthermore, six percent of responses cited the appeal of streamlined administrative processes and reduced paperwork, asserting that in-kind subsidies required less paperwork and banking activities compared to the cash grant system.

5.5.2.3 Sufficiency of Fertilizers Distributed under Government Subsidy Programme

The households actively engaged in agricultural activities were asked for their opinions regarding the sufficiency of the fertilizer provided through the government subsidy programme. Among the respondents, 26 percent expressed the view that the subsidy was well-matched to the actual fertilizer requirement of their land. A substantial portion of households, equivalent to 42 percent asserted that the subsidy was insufficient, necessitating the additional purchase of fertilizer from the market. Interestingly, only one household, representing one percent, believed that the subsidy provided excess quantities, leading to the application of the entire bulk. And also, 31 percent households chose not to express a specific opinion on the adequacy of the subsidy.

5.5.3 Application of Organic Fertilizers/Materials

Even though only 18 percent of farmers are currently using organic fertilizers for cultivations in Keppetiyawa North GND, some other farmers have past experience in application of organic materials. Around 51 percent reported that having prior experience in using organic fertilizer for crop production on their farmlands.

5.5.3.1 Types of Organic Fertilizers/Materials Used

The majority, constituting 63 percent of the plots that used organic manure, opted for compost as their primary organic fertilizer. Other than this cow/goat dung, poultry manure, burnt paddy husk, green manure, liquid and organic fertilizer were utilized by farmers for their cultivations. Amongst, second highest (8%) applied organic material was the cow/goat dung. These percentages shed light on the prevalence of organic fertilizer usage among the surveyed land plots and the specific preferences within this category. Among farmers who applied fertilizer in solid form, the average amount utilized was 123 kilograms per acre, with a range from a minimum of 6 kilograms to a maximum of 335 kilograms.

5.5.3.2 Issues in Application of Organic Fertilizers/Materials

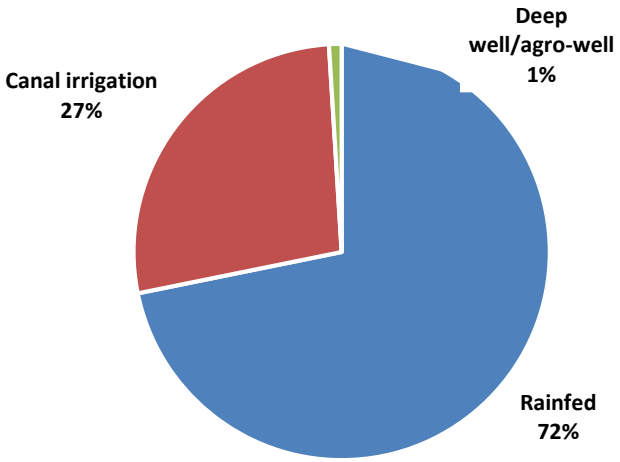
Within the various challenges encountered by farmers in application or organic fertilizers, key issue was the poor-quality products available in the market (48.7%). Lack of awareness regarding the proper use and quantities of organic fertilizers application was another issue. Additionally, 17.9 percent struggled with sourcing large quantities required for their fields, while 15.4 percent were unaware of the benefits and advantages associated with the use of organic fertilizers. Similarly, 15.4 percent were uninformed about the creation and promotion of organic fertilizers by extension services. The remaining farmers encountered diverse challenges, including the perception that the high labour required for organic fertilizer application is not economically sustainable. Some also noted that the addition of organic fertilizer, particularly paddy straw, made it difficult to perform certain field functions, such as land preparation. These retrospective insights highlight the multifaceted obstacles faced by farmers and underscore the importance of addressing these concerns for the successful promotion of organic fertilizer usage in agriculture.

5.6 Irrigation Practices in Keppetiyawa North GND

5.6.1 Source of Irrigation Water

In Keppetiyawa North GND, the utilization of diverse water sources for agricultural purposes is evident among the total land plots. The majority of land plots, comprising 72 percent, engage in rainfed agriculture. A substantial proportion, accounting for 27 percent, relies on canal irrigation as their primary water source. A smaller percentage, constituting one percent, employs alternative methods such as deep or tube wells or agro--wells for irrigation (Figure 5.8). This breakdown underscores the varied

strategies employed by farmers in accessing water resources for agricultural activities in Keppetiyawa North, GND.



Source: HARTI Survey Data, 2023

Figure 5.8: Source of Irrigation in Keppetiyawa North GND

5.6.2 Methods of Irrigation

When examining the irrigation methods employed across total of land plots, the majority of plots, comprising 47 percent, rely on flood irrigation, emphasizing a prevalent utilization of this traditional method that involves the flooding of fields. In contrast, a minimal percent, specifically one percent, opts for modern techniques such as sprinkler or basin irrigation, highlighting a limited adoption of more advanced water distribution systems. Notably, 52 percent of the land plots utilize a more manual approach, employing water hoses or buckets for irrigation purposes.

5.6.3 Water and Soil Conservation Practices

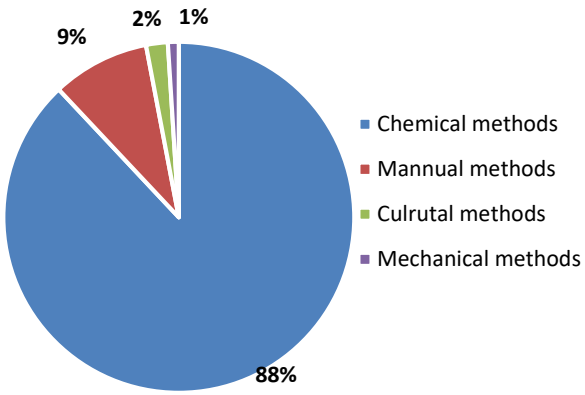
A substantial majority, accounting for 69 percent of the plots, showed sufficient water access, facilitating optimal conditions for successful farming endeavours. Conversely, 31 percent of the surveyed land plots faced the challenge of inadequate water resources, posing potential constraints on agricultural productivity. Only two percent of farmers have adapted water saving practices such as Alternate Wetting and Drying (AWD), soil and water conservation bunds using stones, coconut leaves, plant debris and incorporation of organic matters with soil to optimize water use and soil conservation in their agricultural lands.

5.7 Pest and Disease Management

Pest and disease management is very important to have a goof yield from the cultivation. Majority farmers in the sample have applied chemicals to control the pest and diseases. Accordingly, 73 percent of farmers have applied pesticides once to their

cultivation during the particular season, indicating a prevalent preference for a single application. Meanwhile, 18 percent of farmers opted for a two-time application, reflecting a moderately frequent approach to pest control. A smaller fraction, constituting five percent of respondents, used pesticides three times, indicating a more intensive pest management strategy. Others (4%) have applied more than three times.

5.8 Weed Management



Source: HARTI Survey Data, 2023

Figure 5.9: Weed Control Methods

In the context of seasonal crop cultivation, weed management is a critical aspect, and various methods are employed to address this challenge. Among the sampled land plots, distinct approaches to weeding were evident. The chemical method emerged as the predominant approach, with a substantial 88 percent employing weedicides for weed control. The use of chemical methods underscores the widespread adoption of efficient and scalable weed management practices. The manual method was utilized in nine percent of land plots, where relied on labour-intensive manual weeding techniques. Additionally, a minor fraction of land plots, one percent opted for the mechanical method, showcasing the adoption of machinery for weeding purposes. Furthermore, two percent employed cultural methods, indicating the incorporation of traditional or cultural practices to manage weed growth (Figure 5.9).

Family labor is significantly more extensively utilized for weed control compared to hired labour. The average family labour dedicated to weeding across the surveyed land plots was determined to be 2.7 males and 4.4 females. In contrast, hired labour figures showed a variation, with an average of one male and 1.5 females engaged in the same task.

5.9 Harvesting and Threshing

The survey revealed a diverse array of power sources employed for harvesting purposes. A substantial majority, comprising 86 percent opted for the combined harvester (*Bhuthaya/Tsunami*) machine, emphasizing its widespread popularity as the

preferred power source for harvesting activities. In contrast, a notable nine percent of participants adhered to manual methods, highlighting a traditional and labour-intensive approach to these agricultural tasks. Surprisingly, only one farmer utilized buffaloes for threshing the harvest, indicating a unique and less common method within the surveyed population.

5.10 Selling of Crop Yield

In the subset of households actively involved in agricultural activities, a relatively small proportion, constituting 12 percent of the respondents, engaged in selling of paddy. Amongst, majority representing 86 percent of these households, chose to sell their production directly to millers or processors, underscoring a preference for engaging with the primary processing stage of the paddy supply chain. A smaller proportion, accounting for seven percent, opted to transact with small-scale traders within their village, reflecting localized economic interactions. Likewise, another seven percent of households engaged with large-scale traders or wholesalers, suggesting a willingness to participate in broader market channels.

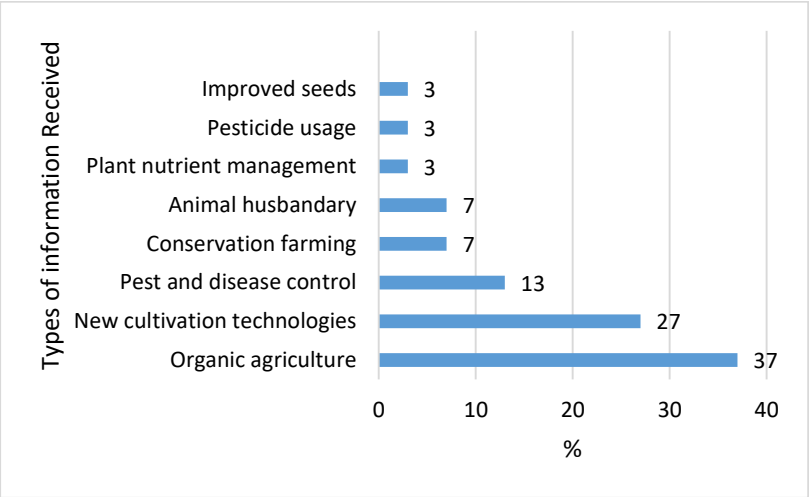
5.11 Financial Assistance in Agricultural Production

In the examination of farmers' access to financial support for agricultural production over the past two years, only three percent of the surveyed farmers reported receiving loans or credit to strengthen their agricultural endeavours. In the context of supporting agricultural production during last two years, households took initiatives to secure financial assistance through obtaining loans, either in cash or in-kind from government-run programmes (49%). Simultaneously, some farmers have received loans from government financial backing (29%) and micro-credit institutions or community credit schemes (29%). For the cultivation loans, interest rates typically ranged between six percent and 12 percent.

5.12 Agricultural Information and Advisory Services

Within the Keppetiyawa division, the survey revealed that 22 out of the total 255 households, accounting for approximately nine percent, had actively sought and received advice or information related to agricultural production from various sources such as organizations, private agents, or individual farmers. The relatively low percent seeking external advice suggests a potential area for targeted intervention or awareness programmes to promote knowledge sharing for agricultural practices within the Keppetiyawa North GND.

5.12.1 Types of Agricultural Information Received



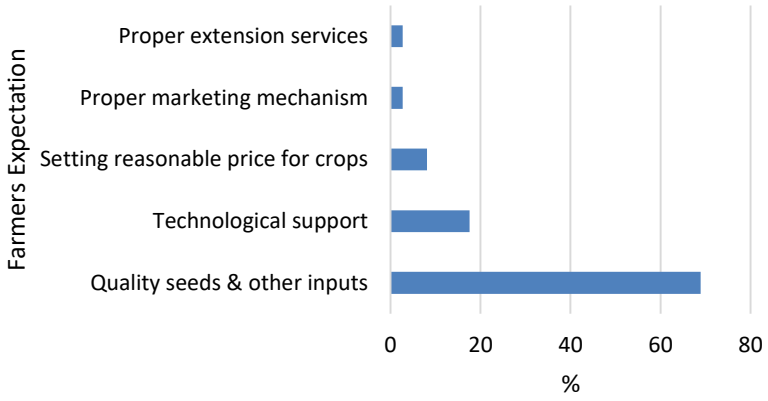
Source: HARTI Survey Data, 2023

Figure 5.10: Types of Agricultural Information Received

Among the households received advice or information related to agricultural production from diverse sources, a notable 37 percent of individuals benefited from insights on organic technologies. Another 27 percent received guidance on adopting new cultivation technologies, demonstrating a significant interest in modernizing farming practices. Pest and disease control were focal points for 13 percent of the respondents, while seven percent sought information on conservation farming. Similarly, seven percent focused on enhancing animal husbandry practices. The remaining percentages were distributed among specific topics, advice on improved seeds, and fertilizer and pesticide usage (Figure 5.10). These data underscore a multifaceted approach to agricultural knowledge acquisition, with a substantial emphasis on sustainable and innovative practices, reflecting the diverse needs and interests within the farming community.

5.12.2 Farmers Expectations from Government

Among the supportive services of government offered, the most crucial was identified as the provision of seeds and other inputs, constituting an impressive 69 percent. Following closely, technological support emerged as the second most sought-after service, equivalent to 18 percent of the total. Notably, setting a reasonable price for each crop was deemed the third most important service, with eight percent highlighting its significance. The rest exhibited a variety of requirements, with several opting for choices that represented smaller percentages.



Source: HARTI Survey Data, 2023

Figure 5.11: Farmers' Expected Assistance from Government

CHAPTER SIX

Findings, Conclusions and Policy Implications

6.1 Findings

The community exhibits a balanced gender distribution, with 47 percent males and 53 percent females. Household sizes tend to be smaller, with 30 percent having 1-2 members and a significant 39 percent consisting of 3-4 members.

In terms of age distribution, a diverse composition is observed, with the highest percent (22%) falling within the 51-70 age group. There is a potential demographic shift towards a more mature population, emphasizing the need for tailored interventions for an aging community.

The employment landscape is characterized by a relatively active and productive workforce, with 31 percent gainfully employed. Segments actively seeking employment opportunities (3.2%), those unemployed without aspiring for employment (4%), and a substantial student population (26.9%) are highlighted. Primary employment of household heads spans diverse occupations, including crop farming (10%), government positions (30%), private sector roles (12%), and self-employment (14%).

Income and expenditure analysis reveals diverse income brackets, economic heterogeneity, financial constraints (6.7% earning below Rs.5,000.00), and an affluent demographic (5.5% earning above Rs.100,000.00). The majority falls within intermediate income brackets, emphasizing a concentration towards the middle-income range and a moderate standard of living. Economic stratification and a concentration of affluence (30% earning between Rs.20,001.00 and Rs.50000.00) are observed. Recognition of villagers without secondary income sources emphasizes the economic vulnerability of this subset. The majority falls within the income brackets of Rs.50,001.00 to Rs.100,000.00, with nine percent earning above Rs.100000.00. Household expenses show significant diversity, ranging from less than Rs.5000.00 to over Rs.200000.00. There is a diverse financial profile and spending behaviour within the sample households.

Regarding household engagement in agriculture, 51 percent of households refrained from involvement, while 49 percent actively engaged in agricultural pursuits. Male engagement varies, with 44 percent having a single male member involved, and 53 percent having no male member engaged. Limited female engagement is noted, with only 17 percent of households having one female member engaged in agriculture, marking a gender disparity.

Land use and management showcase a strategic balance, with 59 percent of lowlands dedicated to paddy cultivation. There is a unique approach observed in one case with fallow fields, indicating adaptive land management practices. Land ownership is high

(97%), emphasizing a strong link between the community and agricultural activities. However, three percent of the population faces unique challenges without land ownership. Ownership types predominantly include sole ownership (48%).

Housing conditions and amenities reveal strong homeownership (89%) and permanent dwellings (96%). Houses vary in size, ranging from below 200 sq ft to above 2401 sq ft. Kitchen locations show that 75 percent prefer indoor kitchens, while 25 percent opt for outdoor kitchens, reflecting varied housing arrangements. Utilities and facilities include common use of electricity for lighting (98%) and firewood for cooking (85%). Toilet facilities consist of water-seal toilets (84%), with varied preferences for squatting pan (73%) and commode (27%). Drinking water is primarily sourced from piped water (79%).

Household assets encompass diverse transportation means (motorcycles 54%, bicycles 19%) and communication tools (mobile phones 88% radios 69%, televisions 85%). Limited agricultural and fishing assets are observed, with only one household owning a fishing net. Miscellaneous assets include sewing machines (41%) and water tanks (62%).

Diverse cropping patterns are evident, with mix crops being the most prevalent (40%). Additionally, 32 percent focus on rice farming, seven percent on perennial crops, two percent on year-round vegetable cultivation, and 15 percent had fallow land during the survey period. This diversity emphasizes the dynamic and adaptable nature of agricultural practices.

There is a limited impact of climate change on cropping patterns, with 98 percent of respondents reporting no distinct alterations in the last five years. Stable weather conditions during this period allowed the community to concentrate on other aspects of daily routines without added challenges from extreme weather events.

Seasonal cultivation preferences indicate that the majority of land plots (67%) fall into the category of rest during the specified period, indicating either fallow land or the need for further assessment regarding future cultivation strategies. Noteworthy preferences were observed for the 2022 *Yala* season (41% engaged in cultivation) and the 2022/23 *Maha* season (54% engaged in cultivation), highlighting the importance of these specific agricultural periods.

Land preparation practices involve ploughing as the primary method for the majority (90%) of sampled plots in Keppetiyawa North GND. Mechanization is prevalent, with 52 percent using two-wheeled tractors and 42 percent using four-wheeled tractors. Rotavators are the most commonly used equipment (97%) among households employing plough machinery. External sources are commonly utilized for power, with 88 percent renting power, six percent borrowing from neighbours, and six percent using self-owned power sources.

The levelling of land plots employs various power sources, with 39.7 percent using four-wheeled tractors, 35 percent using two-wheeled tractors, and 25 percent using manual methods. It was learnt that 64 percent of farmers use rented power sources for levelling, with an average of 1.3 man-days of household labour and 3.7 man-days of hired labour employed for the levelling process.

Use of seed and planting material is widespread, with 70 percent of farmers in Keppetiyawa North GND actively acquiring paddy seeds from various sources. Critical factors in seed selection include yield (85%), duration of varieties (66%), cropping season (30%), seed availability (30%), and consumer preference (16%).

Fertilizer application includes widespread use of chemical fertilizers (56%), with variations in application methods such as basal dressing (55%) and top dressing (93%). Issues in adopting site-specific fertilizer application include lack of awareness (84%), lack of interest (44%), absence of testing facilities (28%), and inadequate extension services (19%). eighteen percent of farmers use organic fertilizers, primarily compost (63%), but face challenges like poor-quality products (48.7%) and poor awareness (15.4%).

Irrigation practices predominantly rely on rain-fed agriculture (72%), with 27 percent relying on canal irrigation and one percent on alternative methods like wells. Flood irrigation is common (47%), while more advanced methods like sprinkler or basin irrigation are used by only one percent. Water-saving practices like Alternate Wetting and Drying (AWD) are adopted by only two percent of farmers, with 69 percent having sufficient water access.

Paddy cultivation dominates, with 60 percent of farmers engaged in it. However, there is willingness (94%) among respondents to diversify their agricultural activities by cultivating other field crops (OFCs), though only four percent have previously done so. Challenges in cultivating OFCs in lowlands include farmers' decision-making issues, unsuitability of lands due to waterlogging, damages by wild animals, and concerns about planting material quality.

Government fertilizer subsidies show preference for in-kind subsidies (64%) over cash grants (13%). Loans for agricultural production are accessed by only three percent of surveyed farmers.

Membership in organizations/societies is limited, with 191 households not registered in any Farmer Organization (FO). Approximately nine percent actively seek agricultural information from various sources.

Agricultural information and advisory services are accessed by approximately nine percent of surveyed households, with expectations from the government primarily focused on seed provision and other crucial services (69%).

6.2 Conclusion

In conclusion, the comprehensive analysis of the Keppetiyawa North GND community provides valuable insights into its demographic, economic, and agricultural dynamics. The community showcases a balanced gender distribution, with a slight majority of females and relatively smaller household sizes, indicating shifting societal structures.

The age distribution highlights a diverse population, with a significant proportion in the 51-70 age group, suggesting a potential demographic shift towards a more mature community. This demographic trend underscores the importance of implementing targeted interventions to address the evolving needs of an aging population.

The employment landscape reflects a relatively active and diverse workforce engaged in various occupations, such as crop farming, government positions, private sector roles, and self-employment. The income and expenditure analysis reveals economic heterogeneity, with a concentration in intermediate income brackets. Financial constraints are evident, with a notable percent earning below Rs.5000.00, while an affluent demographic segment exists, earning above Rs.100,000.00.

Household expenses exhibit significant diversity, emphasizing varied financial profiles and spending behaviours. Gender disparities in agricultural engagement are apparent, with limited female participation, highlighting the need for interventions promoting inclusivity.

Land use and management practices showcase strategic balance, with a predominant focus on paddy cultivation. Despite high land ownership rates, a small segment faces challenges without land ownership, indicating unique vulnerabilities. Housing conditions reflect strong homeownership, permanent dwellings, and diverse preferences in living spaces and amenities.

Transportation and communication assets are diverse, while agricultural and fishing assets are limited. Diverse cropping patterns underscore the adaptability of agricultural practices. The community reports a limited impact of climate change on cropping patterns, providing stability for daily routines.

Seasonal cultivation preferences reveal specific periods of heightened agricultural activities, emphasizing the community's responsiveness to seasonal variations. Land preparation practices, seed acquisition, fertilizer application, and irrigation practices showcase a mix of traditional and mechanized methods.

The community expresses a willingness to diversify agricultural activities, particularly in the face of challenges. Government support, such as fertilizer subsidies and agricultural loans, plays a role in shaping farming practices. Limited membership in organizations/societies and engagement with agricultural information services suggest areas for community development and outreach.

In conclusion, this study not only presents a detailed picture of the Keppetiyawa North GND community but also identifies key areas for targeted interventions and community development. The findings serve as a valuable foundation for stakeholders, policymakers, and community leaders to formulate strategies that align with the community's unique characteristics and challenges, fostering sustainable growth and well-being.

6.3 Policy implications

Based on the baseline survey of the Keppetiyawa North GND, the following policy implications are suggested:

1. Promotion of Inclusive Agricultural Practices:
   Implement policies to encourage and support greater female participation in agriculture, addressing gender disparities. Provide training, resources, and financial support specifically aimed at empowering women in agricultural activities.

2. Economic Support and Financial Inclusion:
   Introduce financial literacy programmes to address diverse income brackets and financial constraints observed. Facilitate access to microfinance and credit services for those facing economic vulnerabilities or seeking to enhance their economic activities.

3. Diversification of Agricultural Activities:
   Develop strategies to facilitate and incentivize diversification of agricultural activities, particularly in lowlands. Provide targeted support, such as technical assistance and incentives, for farmers willing to explore other field crops (OFCs).

4. Improving Agricultural Technology Adoption:
   Promote awareness and provide incentives for the adoption of modern agricultural technologies, especially in land preparation, irrigation, and crop management.

5. Enhanced Access to Agricultural Information Services:
   Strengthen and expand agricultural information and advisory services, ensuring that farmers have access to timely and relevant information. Develop digital platforms or community outreach programmes to disseminate agricultural best practices and market information.

6. Land Ownership Assistance:
   Explore policies to assist the three percent of the population facing challenges without land ownership, ensuring equitable access to resources.

7. Community Development Initiatives:
   Strengthening of Farmer Organizations (FOs) and support community development initiatives to enhance collective strength. Facilitate workshops and training programmes to improve community engagement and participation in decision-making processes.

8. Environmental Sustainability Practices:
   Promote sustainable agricultural practices that consider environmental impacts and encourage the adoption of water-saving techniques. Provide education and incentives for climate-smart agriculture to ensure long-term environmental resilience.

9. Evaluation and Adjustment of Government Support:
   Periodically evaluate the effectiveness of government support programmes, such as fertilizer subsidies and agricultural loans, and make adjustments based on the evolving needs of the community.

10. Tailored Aging Population Interventions:
    Develop and implement targeted programmes catering to the unique needs of the aging population (51-70 age group). Establish community centers or initiatives that provide healthcare and social support for seniors.

These policy implications aim to address specific challenges and opportunities identified in the Keppetiyawa North GND community, fostering sustainable development, improving overall well-being, and enhancing the resilience of the community to economic and agricultural dynamics.

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