Study Report on

Baseline Study at Aspirational Districts of NITI Aayog

Dcor
Development Corner

MAHASHAKTI FOUNDATION
Creating opportunities, empowering the poor

Conducted by
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ABBREVIATIONS

BSKY	Biju Swasthya Kalyan Yojana
CAPI	Computer Assisted Personal Interview
CD	Community Development
FPCs	Farmer Producer Companies
FPOs	Farmer Producer Organizations
GP	Gram Panchayat
GSDP	Gross State Domestic Product
HH	Household
IVDP	Integrated Village Development Program
KCC	Kisan Credit Card
LTIMindtree	L&T Infotech and Mindtree
NTFP	Non-Timber Forest Produce
OBC	Other Backward Class
ODK	Open Data Kit
ORMAS	Odisha Rural Development & Marketing Society
PDS	Public Distribution System
PSU	Primary Sampling Unit
SC	Scheduled Caste
SHGs	Self Help Groups
SPSS	Statistical Package for the Social Sciences
ST	Scheduled Tribe

1. EXECUTIVE SUMMARY

Introduction

The baseline study, conducted by the Mahashakti Foundation with the support of the LTIMindtree Foundation, was designed to assess the socio-economic conditions in the aspirational districts of Balangir, Bargarh, and Kalahandi in Odisha. These districts face considerable developmental challenges, including high levels of poverty, illiteracy, health, and significant migration rates. Despite the state's wealth in agriculture and natural resources, these areas—home to large populations of Scheduled Tribes (ST), Scheduled Castes (SC), and other marginalized communities—remain underdeveloped.

The study was initiated as part of a broader effort to identify existing gaps in development and propose targeted interventions that could uplift these communities. By focusing on key areas such as agriculture, health, education, and community empowerment, this baseline study provides a crucial foundation for future development programs aimed at improving the livelihoods and socio-economic conditions of the region.

With a predominantly rural population and agriculture being the primary source of income, the surveyed districts face environmental challenges such as poor irrigation facilities and dependence on rain-fed agriculture. These constraints, combined with social issues such as malnutrition and limited access to quality education, have contributed to the persistent cycle of poverty in the region. The findings of this study will serve as a benchmark for subsequent interventions, offering a clear roadmap for improving the living standards and economic opportunities for marginalized communities in these districts.

Project Objectives

The project's objectives focus on improving the socio-economic conditions of the target districts by addressing critical areas such as the environment, empowerment, health and nutrition, and education. Environmental goals aim to optimize water allocation and storage, restore natural habitats, and diversify household incomes through sustainable practices in agriculture, horticulture, and livestock. Empowerment initiatives seek to improve rural livelihoods through enterprise development, value addition, and providing timely support and information to farmers, while bridging the gap between access to essential services and enhancing the quality of life. In health and nutrition, the project aims to reduce malnutrition by 50% among children and pregnant women, while ensuring that all eligible households access government health services and entitlements. In education, the project focuses on increasing school enrollment and retention rates, improving the quality of education, creating a safe and inclusive learning environment, and building the capacity of teachers to provide gender-responsive education, while fostering active community engagement. These objectives are designed to foster sustainable development and long-term improvements in the livelihoods of marginalized communities.

Methodology

A cross-sectional design was used for this study, with quantitative data collected from 780 households across 30 villages in the three districts. The sample was selected using a two-stage cluster sampling method to ensure statistical representativeness. Data were collected through interviews, and various socio-economic indicators were analyzed, including income, agricultural practices, irrigation facilities, health, and education. The survey instrument was

developed and piloted to ensure data accuracy, and the survey team was rigorously trained. Data were collected using the CAPI form of the ODK application and analyzed using SPSS to generate descriptive statistics and identify key trends.

Purpose of the study

The purpose of this study is to provide a comprehensive baseline assessment of the socio-economic conditions in the aspirational districts of Balangir, Bargarh, and Kalahandi. These regions face a range of significant challenges, including limited access to education and healthcare, poverty, and environmental degradation. The study aims to identify the key issues impacting the livelihoods of marginalized communities, with a particular focus on women farmers. Its findings will inform the design of targeted interventions to address these challenges. By collecting data on critical indicators such as income, agricultural practices, health, and education, the study seeks to develop a roadmap for sustainable development initiatives that can improve living standards and economic opportunities for these vulnerable populations. Furthermore, the study provides valuable insights for stakeholders—including government agencies, NGOs, and development partners—by offering a deeper understanding of the socio-economic landscape. This will enable them to implement programs that effectively tackle the root enabler and barriers.

Key Findings

The study reveals that the respondents, primarily women farmers from the districts of Balangir, Bargarh, and Kalahandi, have a generally low level of formal education, with 36.3% being illiterate, including the highest rates in Paikmal (41.8%). Only 15.2% have completed secondary school, and just 4.5% have completed senior secondary school. Agriculture is the main occupation for 21.1% of the respondents, with M. Rampur leading at 32.3%. Additionally, 10.9% of respondents are engaged in non-agricultural wage labor, and 57.2% serve as housewives, with Gudvella and Paikmal showing the highest proportions at 66.3% and 64.9%, respectively. Regarding household heads, 80.4% are male, and 53.3% are involved in farming. Educational attainment among household heads is also low, with 31.5% being illiterate, and only a small percentage having completed secondary education, highlighting the limited educational opportunities in the region.

About 92.8% of households hold a BPL card, with the majority also possessing BPL (88.8%) or Antyodaya Anna Yojana (AAY) ration cards (8.9%). Additionally, 46.9% of households have Odisha Labour Cards, indicating access to labor welfare benefits. In terms of housing, 99.7% of households own their homes, with 57.7% living in pucca houses and 14.7% in semi-pucca houses. Despite this, 27.6% still reside in kuccha houses, and only 59.8% have access to toilet facilities, highlighting the need for better sanitation infrastructure.

Agriculture is the dominant livelihood in the region, with 53.3% of households involved in cultivation during the reference period. Most households have small landholdings, with a large proportion cultivating less than 1 hectare. The Kharif season is the most active for agriculture, with 98.7% of households growing rice, the staple crop. Other crops like black gram (7.9%) and green gram (7.7%) are also cultivated but on a smaller scale. Irrigation remains a challenge, with only 10.5% of households having access to irrigation, primarily through canal irrigation. The cost of inputs such as seeds, fertilizers, and labor adds to the financial burden, and many households report limited access to modern agricultural tools. Additionally, many households are burdened by loans, paying interest to banks and moneylenders, which further affects their agricultural income and overall financial stability.

This study states the health-related issues are widespread across the surveyed districts, with a significant prevalence of minor illnesses such as fever (77.8%), colds (71.9%), and coughs (52.4%), affecting a large portion of households. Other minor conditions like diarrhea and vomiting also contribute to the overall health burden. Major illnesses, though less common, include malaria (54.7%), hypertension (17.5%), and diabetes (6.1%), which have a severe impact on affected families. Limited access to healthcare services further compounds these challenges, as many households face barriers in receiving timely and adequate treatment. Additionally, malnutrition remains a significant concern, particularly among children and pregnant women, underscoring the urgent need for nutrition-specific interventions

Access to credit varied across districts, with Gudvella block securing higher average loans of ₹127,500, while M. Rampur block had significantly lower average loans of ₹7,500. Paikmal reported moderate borrowing with an average loan of ₹70,000. Limited access to financial services restricts many households from making necessary agricultural investments, highlighting the need for improved financial inclusion strategies.

The majority of households in the surveyed districts have access to government welfare programs, with over 90% receiving subsidized rice through the Public Distribution System (PDS). However, there is a gap in accessing other services, such as supplementary nutrition for pregnant women and children, with only 22% of mothers receiving such benefits. Similarly, 31% of households have children benefiting from immunization and health check-ups. Financial inclusion schemes, such as the Kisan Credit Card (KCC) and revolving funds through Self-Help Groups (SHGs), have moderate reach, with approximately 35% and 46.3% of households benefiting, respectively.

Only a small number of households in the surveyed districts reported owning businesses, mostly in areas like small-scale retail, poultry, or livestock trading. Gudvella has the highest percentage of business ownership at 44.8%, while M. Rampur has the lowest. The average income from these businesses varies, with Gudvella households reporting an average income of ₹93,000, compared to just ₹26,211 in M. Rampur. Despite the potential for supplementary income, households engaged in business activities often face limitations due to restricted market access and inadequate capital.

Livestock ownership plays a vital role in household income, with 52.4% of households involved in livestock rearing. M. Rampur had the highest involvement, with 65.8% of households owning livestock. Income from livestock, particularly cattle and goats, varies across blocks, with Paikmal reporting the highest average income from cattle at ₹14,304. The collection of Non-Timber Forest Products (NTFP) also contributes to household income, with 52.7% of households involved in NTFP activities, and Paikmal again leading with an average NTFP income of ₹6,116 per household.

Only a small proportion (3.4%) of households reported owning significant movable productive assets, such as tractors, ploughs, and spray pumps. Paikmal had the highest asset ownership at 5.7%, followed by Gudvella at 2.3%. The average income generated from these assets was ₹9,433 per household, indicating that households with access to modern farming tools could significantly supplement their income.

Migration remains a common livelihood strategy, with 32.4% of households having members who migrate for work. Male migration is more prevalent, and on average, male migrants spend about 158 days away from home, earning ₹63,285 per household. M. Rampur reported the highest migration income, with an average of ₹65,145 from male migrants. Female migration is less common, but when it occurs, it contributes to household income, with female migrants earning ₹59,489 on average.

Agricultural income remains low across most households, with many farmers earning less than ₹100,000 annually from crop cultivation. The net income of households, including earnings from non-agricultural activities and remittances, averaged ₹152,411 annually, though there are significant income disparities. Some households earn as little as ₹5,250 annually, while others report much higher incomes, underscoring the varying economic conditions across the surveyed blocks

Study Recommendation

To address the socio-economic challenges in Gudvella, M. Rampur, and Paikmal, several targeted interventions are proposed. Support for poultry and agriculture-based businesses should include financial management training and expanded access to micro-credit facilities, particularly in M. Rampur, to enhance financial inclusion and business growth. In Paikmal, capacity-building for value-added Non-Timber Forest Product (NTFP) collection can increase household incomes. Livestock management training and better access to veterinary services are essential to improve agricultural productivity, while integrated livestock farming with strong market linkages should be encouraged. Education initiatives should focus on improving transition rates for girls and upgrading school infrastructure, especially in Paikmal. Expanding vocational training for migration-reliant households will help improve income opportunities. In health and nutrition, focused interventions, mobile healthcare services, and community-based nutrition programs are needed to address malnutrition and healthcare gaps. Additionally, formalizing migration support, scaling Self-Help Group (SHG) programs for women's empowerment, and promoting climate-resilient farming practices will help ensure sustainable development and economic resilience in these districts.

Conclusion

The study reveals significant socio-economic disparities across Gudvella, M. Rampur, and Paikmal, particularly in agriculture, education, health, and livelihoods. While Paikmal excels in agricultural activities, M. Rampur relies heavily on migration, and Gudvella shows potential in business development but faces challenges in education and healthcare. To address these issues, targeted interventions in financial inclusion, vocational training, healthcare infrastructure, and agricultural productivity are essential for promoting sustainable development and improving the quality of life for marginalized communities in these districts.

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2. STUDY OVERVIEW

2.1. INTRODUCTION

Odisha is the ninth largest state in India with a share of 4.7% of India's total landmass. In terms of population, it is eleventh largest comprising 3.47% of India's total population, of which more than 83% is rural (Census 2011).[1] Despite its wealth in agriculture and natural resources, Odisha faces significant regional disparities, particularly in its western and southern regions. These areas, home to large populations of Scheduled Tribes (ST), Scheduled Castes (SC), and other marginalized communities, experience considerable developmental challenges.

While Odisha's economy is largely driven by agriculture and has shown strong growth—achieving a Gross State Domestic Product (GSDP) growth of 10.57%[2] in 2023-24—many regions continue to struggle with poverty, malnutrition, illiteracy, and unemployment. In response to these challenges, the government has undertaken efforts to improve governance and development, yet underdevelopment persists.

The districts in focus are divided into several Community Development (CD) Blocks, many of which are classified as "very backward" or "backward," highlighting ongoing challenges in achieving equitable development. Key issues include low educational levels, high unemployment, poor infrastructure, and environmental challenges like water scarcity. The region's agriculture, heavily dependent on natural resources and rain-fed farming, remains vulnerable to climatic shocks, perpetuating a cycle of poverty.

In Bolangir district, which includes 14 blocks such as the surveyed Gudvella block, the population is predominantly rural with a significant presence of ST and SC communities. Although Gudvella block has a relatively high literacy rate of 73.85%[3], gender disparities remain. While there has been progress in education due to government initiatives, healthcare access is limited, with only a few community health centers and a district hospital serving the population. The district's agriculture, dominated by crops like paddy, groundnut, mustard, and vegetables, is hindered by limited irrigation, with only 19.945 of the cultivated area being irrigated. There are about 20.43% Small Farmers, 71.27% Marginal Farmers and 8.29% Big farmers in this district[4].

Similarly, Bargarh district, especially the Paikamal block, faces challenges similar to those in other underdeveloped areas. Despite being known as the "Rice Bowl of Odisha" due to its significant paddy production, crops like sugarcane, groundnut & vegetable are also grown[5]. The literacy rate in the district is 73.36% while in block of Paikamal is 66.04%[6]. The district has limited healthcare access, and inadequate infrastructure. As per Census 2011, all of the population of Paikamal Block lives in urban areas constituting 14.7% of Schedule Caste and 38.3% of Scheduled Tribe[7]. Over 80% of the population is dependent on agriculture. The district has only 44 % and 27 % of total cultivated area with flow of irrigation system during Kharif and Rabi respectively. Also there is an increase in the production and productivity of

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[1] Census 2011

[2] Annual Budget 2024-25, Government of Odisha, "Statement Presented along with Odisha Budget 2024-25" Finance Department of Odisha.- FORM-I, FISCAL POLICY STRATEGY STATEMENT, p.1

[3] Population Census 2011 India; Gudbhela Population-Bolangir, Orissa

[4] Government of Odisha – Bolangir, https://balangir.odisha.gov.in/departments/agriculture

[5] Wikipedia - Bargarh District - Economy; https://en.wikipedia.org/wiki/Bargarh#Economy

[6] Census of India 2011; DISTRICT CENSUS HANDBOOK, BARGARH; PART XII-A (p.39)(p.41)

[7] Census 2011

non–paddy crops like pulses, oil seeds, maize & cottons. There are about 36% Small Farmers, 38% Marginal Farmers and 26% Big farmers in the district[8].

Kalahandi district reflects the broader challenges of the area. In Madanpur Rampur block, the literacy rate is 65.41%[9], with notable gender disparities. Although agricultural productivity has improved, particularly through the Indravati Water Project, the district continues to face environmental challenges such as drought and deforestation, threatening livelihoods. There are about 56.3% Small Farmers, 18.4% Marginal Farmers, 22.8% Medium Farmers and 26%[10]Large farmers in this district.

This study employs the "Graduation Pillar" approach, as proposed by Nobel laureate Abhijit Banerjee, advocating for a comprehensive strategy for poverty alleviation through the "Integrated Village Development Program" (IVDP). This global approach targets key areas like education, environment, empowerment, and health and nutrition to address the root causes of poverty.

To address the developmental gaps in these regions, the NITI Aayog, India's top policy think tank, has identified over 500 aspirational blocks across the country based on 39 development indicators, including education, health, nutrition, and environmental sustainability. The regions in focus are among these areas requiring comprehensive and sustained development efforts.

This study provides a strategic framework to tackle the persistent challenges faced by these regions. It aims to offer a thorough understanding of the regional disparities in Odisha and propose targeted interventions that can close the development gap, ensuring more equitable and sustainable growth across the state and lifting its most disadvantaged regions out of poverty.

2.2.   NEED AND RELEVANCE OF THE STUDY

The present baseline study is one of the components of the aforesaid project before the start of its implementation. The study in the intervention area aims to establish the baseline for the impact assessment of the project through user surveys and evaluation at the later stage of the project. It also intends to identify the substantial existing challenges faced by small and marginal farmers in the selected blocks of Bargarh, Kalahandi and Balangir districts. The study is expected to document various parameters such as small landholdings, low agricultural productivity, rampant migration, widespread malnutrition, poor health, and high infant mortality rate. These identified challenges will form the basis for further intervention and will lead to the articulation of clear parameters for monitoring and evaluation of the project under implementation. The baseline study will also provide information to measure these challenges in terms of their impact on productivity, health, and socio-economic conditions in the selected blocks of the districts. It will help to understand and analyze the quantitative challenges in the local social-economic and political context.

It is expected that the primary evidence-based baseline study would capture gap between the lives and livelihoods of the community at:

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[8] Government of Odisha-Bargarh; https://bargarh.odisha.gov.in/departments/agriculture
[9] Census of India 2011; DISTRICT CENSUS HANDBOOK, BARGARH; PART XII-A (p.44)
[10] Mid Term Evaluation of "Special Programme for Promotion of Millets in Tribal Areas of Odisha" (Odisha Millets Mission, OMM) Phase-I Blocks; Kalahandi District (p.20)

- Household-level, focusing on their dependency on agriculture and horticulture, and their income from these sources, including wage earnings from farm and non-farm activities, as well as migration, and their knowledge of available state mechanisms to improve their livelihood status.
- The school survey, we will know the education status of the selected district and the percentage of it.
- From the ANM center, we will know the infant mortality rate.
- The role of the community, community institutions, SHGs, and primary agricultural cooperatives in ensuring substantial improvement in livelihoods and income from agriculture.
- Institutional coordination mechanisms, financial linkages, market linkages, availability of extension services, technical and material inputs, etc.
  Physical infrastructure, quality of services provided, and accessibility to markets in all villages from the perspective of small and marginal farmers.

2.3. STUDY PURPOSE AND OBJECTIVES

The baseline study will serve as a critical tool for comparing initial conditions with subsequent user surveys and the final evaluation of the project. It will assist in the targeted interventions aimed at improving the livelihoods of small and marginal women farmers, particularly from Scheduled Tribes, Scheduled Castes, and backward communities in Western Odisha. These groups are among the most disadvantaged, lagging behind on key development indicators such as food and nutrition security, literacy, and health.

Given their high dependence on a complex natural resource base, which includes rain-fed agriculture and Non-Timber Forest Products (NTFPs) gathering, these communities are especially vulnerable to weather and climate shocks. The study will provide a detailed estimate and measurement of changes in livelihood patterns and income among these rural households, offering a comprehensive understanding of the project's impact after its implementation.

Additionally, the baseline study will be instrumental in evaluating the effects on various economic and social indicators, including education, irrigation facilities, the social status of women within households, and time utilization. The data gathered through this study will significantly enhance the project's ability to plan, monitor, and evaluate interventions efficiently and effectively, ensuring that the objectives of socio-economic development are met in these vulnerable communities.

Project Objectives:

1. **Environment**
   - To optimize water allocation, storage, and utilization to meet diverse needs such as irrigation and ecosystem requirements.
   - To protect and restore natural habitats, biodiversity, and ecological balance within the project area.
   - To reduce vulnerability and enhanced living standards of marginalized families with the key livelihoods through watershed, agriculture, horticulture, and livestock.
   - To increase and diversify of household's income in a sustainable way.

2. **Empowerment**
   - To improve livelihoods through various enterprises, value addition and processing.

- To improve rural livelihoods through knowledge building via Expert Connectivity, Reducing Cost and Time, Timely Information and Support.
- To bridge the gap between access to services and serve as critical conduit to enhance the quality of life.
- To improve farmers' income and food security by extending shelf life and distress sale of the crop.

3. **Health & Nutrition**
- To decrease the prevalence of malnutrition to 50% among children (0-6 years) and Pregnant Women.
- Sensitize the key stakeholders and parents on "First 1000 Days of life" to changes in attitude and skills and create a supportive enabling environment leads to sustained changes in key behaviors.
- Ensure 100% households/eligible beneficiaries of the projected area to avail the govt., health services, schematic benefits, and entitlements.

4. **Education**
- Increase enrolment and retention rates in secondary and High schools.
- Improve the quality of education, ensuring a safe and inclusive learning environment.
- Enhance the capacity of teachers to provide gender-responsive education.
- Foster community engagement, including the involvement of parents, PRI members, and CBOs.

2.4. SOCIAL ISSUES & CHALLENGES and CHALLENGES IN PROJECT IMPLEMENTATIONS REGION

Addressing key challenges for Integrated Village Development in Odisha

1. Implement sustainable income generation programs and skill development initiatives to uplift the economics status of villagers.
2. Introduce nutrition-specific interventions and awareness campaigns to improve the health and well-being of the community.

3. Establish mobile health clinics and community health centres for better healthcare services and accessibility.
4. Upgrade school infrastructure, provide quality education, and promote adult literacy programs for holistic development.

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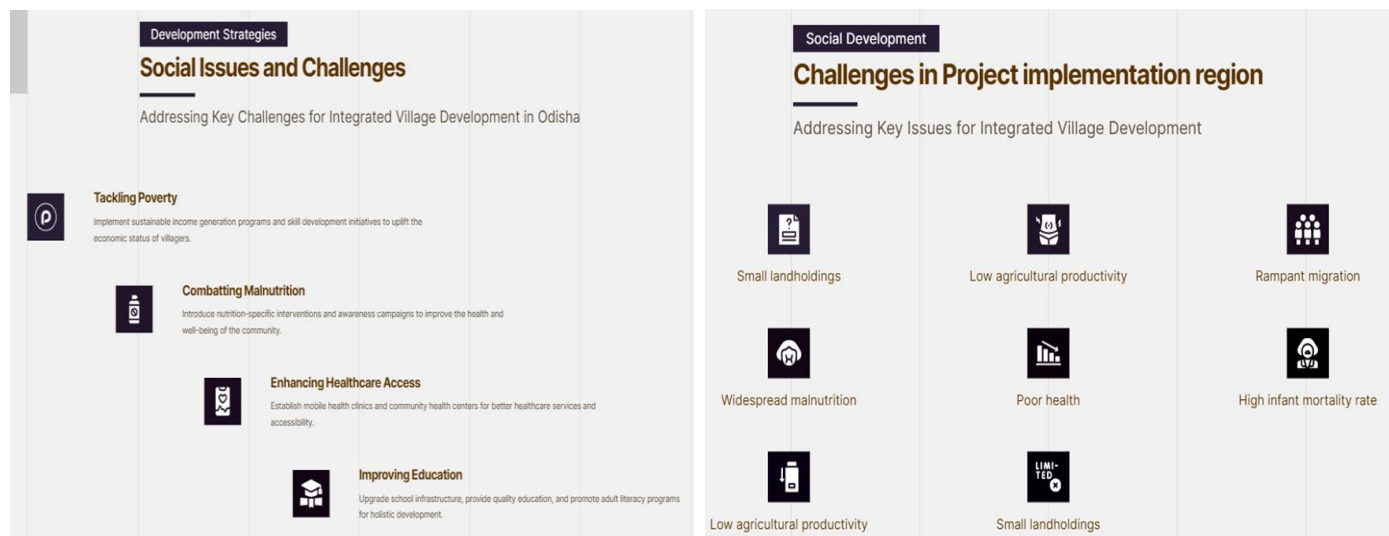
2.5. REPORT STRUCTURE

Chapter Iintroduces the socio-economic development project implemented through Integrated Village Development Project(IVDP) and also various agricultural interventions by the Mahashakti Foundation, supported by LTIMindtree Foundation, the CSR wing of LTIMindtree (L&T Group).

Chapter II details the methodology adopted for conducting the study. It outlines the study design and elaborates on the quantitative data collection methods employed. The chapter also discusses the analytical techniques used to process and interpret the collected data, ensuring the findings are robust and reliable.

Chapter III presents the findings of the quantitative household survey conducted among farmers in the selected aspirational districts. These districts include Bargarh, Kalahandi, and Balangir. The chapter offers an in-depth analysis of various aspects such as land ownership, availability of irrigation facilities, ownership of agricultural implements and machinery, land preparation practices, health and nutrition status, access to entitlements, and income derived from own trees, non-timber forest products (NTFP), and livestock. The detailed presentation of these findings provides valuable insights into the socio-economic conditions of the households surveyed.

Chapter IV focuses on the analysis and presentation of the data within the framework provided by NITI Aayog. This chapter contextualizes the findings within broader national development goals and highlights the alignment or gaps between the project's outcomes and the aspirations set forth by NITI Aayog.

Chapter V offers recommendations for the project implementation, drawing directly from the findings of the household survey. These recommendations are aimed at enhancing the effectiveness of the project and ensuring that the interventions lead to tangible improvements in the socio-economic status of the target communities. The chapter provides actionable insights that can guide the Mahashakti Foundation and LTIMindtree Foundation in refining their strategies for maximum impact.***

3. STUDY METHODS

3.1. STUDY DESIGN AND METHODS

The baseline study was conducted using a cross-sectional design as part of the project's evaluation framework. A quantitative method was employed to carry out a household survey among the study respondents prior to the implementation of the project. This approach aimed to establish a baseline for the key result indicators of the project. At a later stage, the baseline data is expected to enable the project team to compare it with periodic user surveys and endline survey data, allowing for an accurate measurement of the project's outcomes and results.

QUANTITATIVE DATA COLLECTION &ANALYSIS

3.1.1. SURVEY PARTICIPANTS

Our survey participants from the three districts—Balangir, Bargarh, and Kalahandi—were women farmers.

3.1.2. SAMPLING DESIGN, SIZE AND COVERAGE

The sample size for conducting the baseline household survey is 780. It has been calculated based on the Sample Size Calculator adapted from the Magnani, R. (1999), Sampling Guide. Since multiple outcome indicators will be measured, the base rate for any indicator is assumed as 50% to get a conservative estimate. So, to detect an improvement of 10% in any such indicator at the time of midline or endline, and making allowance for 80% power and 95% confidence level (Type 1 error rate of 5%) along with considering a design effect of 2, the sample size for the baseline is computed to be 780. The formula used for computing the sample size is given below.

$$n = D \left[(Z_{\alpha} + Z_{\beta})^2 * (P_1 (1 - P_1) + P_2 (1 - P_2)) / (P_2 - P_1)^2 \right]$$

where

n	= required minimum sample size
D	= design effect i.e. 2
P1	= the estimated level of population proportion at the time of the baseline (i.e. 50%)
P2	= the expected level of population proportion at the time of the MTE (i.e. 60%)
P2 - P1	= the size of the magnitude of change between baseline and MTE it is desired to be able to detect (i.e. 10%)
Zα	= the z-score corresponding to desired level of significance (95%) i.e. 1.96
Zβ	= the z-score corresponding to the desired level of power (80%) i.e. 0.842
Contingency %	= 10%

SAMPLING OF PSUs

Primary Sampling Units (PSUs) Selection for Household Survey

The household survey PSUs were selected using a two-stage cluster sampling design.

Stage I: Block-Wise Sampling Frame Preparation

District and Block Selection: The project covered three administrative districts: Kalahandi (M.Rampur Block), Balangir (Gudvella Block), and Bargarh (Paikmal Block).

Step 1: Geographic Grouping: All project revenue villages/PSUs were grouped geographically within the three selected districts: Kalahandi, Balangir, and Bargarh.

Step 2: Block and Gram Panchayat Selection: From each district, one block was selected, and within each block, 5 Gram Panchayats were chosen.

Step 3: Sample Allocation:A total of 780 samples were equally divided among the three districts, resulting in 260 samples per district.

- Each of the 5 Gram Panchayats within a block received 52 samples.
- To ensure a statistically representative distribution, two villages were selected from each Gram Panchayat.

Stage II: PSU Selection

Village Selection: Simple random sampling method was applied to select the required number of PSUs.

- Villages with populations under 30 were excluded from the sample.
- Two villages were then randomly selected from each Gram Panchayat to fulfill the sampling requirements.

Sample Sites:

Table 1: Sample Sites

Sl. No	District	Block	GP	Village	Sample size
1	Kalahandi	M.Rampur	Domkorlakunta	Domkorlakunta	26
2	Kalahandi	M.Rampur	Domkorlakunta	Borbhata	26
3	Kalahandi	M.Rampur	Manikera	Pipalpada	26
4	Kalahandi	M.Rampur	Manikera	Gandpadar	26
5	Kalahandi	M.Rampur	Mohangiri	Kotobhali	26
6	Kalahandi	M.Rampur	Mohangiri	Sidrubali	26
7	Kalahandi	M.Rampur	Dedsuli	Dedsuli	26
8	Kalahandi	M.Rampur	Dedsuli	Kaupadar	26
9	Kalahandi	M.Rampur	Singapur	Sirkhiheju	26
10	Kalahandi	M.Rampur	Singapur	Talabaju	26
11	Balangir	Gudvella	Gudvella	Gudvella	26
12	Balangir	Gudvella	Gudvella	Gunimunda	26
13	Balangir	Gudvella	Madhekela	Bhuanpada	26
14	Balangir	Gudvella	Madhekela	Sirabahal	26
15	Balangir	Gudvella	Tentulikhunti	Jambhel	26
16	Balangir	Gudvella	Tentulikhunti	Sirjapali	26
17	Balangir	Gudvella	Deuligudi	Jammunda	26

Sl. No	District	Block	GP	Village	Sample size
18	Balangir	Gudvella	Deuligudi	Mundapala	26
19	Balangir	Gudvella	Ghuna	Ranimal	26
20	Balangir	Gudvella	Ghuna	Tarsuguda	26
21	Bargarh	Paikmal	Mithapali	Baturakhmar	26
22	Bargarh	Paikmal	Mithapali	Kuradhiphasa	26
23	Bargarh	Paikmal	Jhitiki	Jhitiki	26
24	Bargarh	Paikmal	Jhitiki	Muneikel	26
25	Bargarh	Paikmal	Bartunda	Patrapali	26
26	Bargarh	Paikmal	Bartunda	Badibahal	26
27	Bargarh	Paikmal	Jamseth	Kharamal	26
28	Bargarh	Paikmal	Jamseth	Cherangajhanj	26
29	Bargarh	Paikmal	Chhindeikela	Makhanamunda	26
30	Bargarh	Paikmal	Chhindeikela	Baraprlia	26
Total	**3**	**3**	**15**	**30**	**780**

3.1.3. DESIGNING OF SURVEY INSTRUMENT AND PILOT TESTING

The household survey instrument was designed under the guidance of Mahashakti Foundation. After the questionnaire was finalized, the DCOR team developed the CAPI application using SurveyCTO and piloted it in one non-sampled village. Before administering the questionnaire for the survey, the CAPI application's functionality, consistency, and logic checks were thoroughly tested. Any issues identified during the field practice were addressed to ensure a smooth and accurate data collection process.

3.1.4. TRAINING OF THE SURVEY TEAM

Before data collection, we conducted a rigorous 3-day training session, including a 1-day field practice, for our survey team, which consisted of 2 Field Supervisors and 12 Field Investigators, from July 16 to 18, 2024. The training was jointly conducted by representatives from Mahashakti Foundation and D-COR

3.1.5. DATA COLLECTION & QUALITY ASSURANCE

The household survey of farmers was conducted from March 18 to March 24, 2022. Considering that there were three study districts and three study blocks, the survey team was divided into two sub-teams, each comprising 3 Field Supervisors and 24 Field Investigators. Each sub-team was assigned to cover three blocks. The household survey data were collected electronically using tablets through one-to-one interviews with the farmers. Prior appointments were scheduled, and verbal informed consent was obtained from the farmers before conducting the interviews.

Throughout the data collection process, we maintained the highest quality standards by implementing various measures. Sampling and non-sampling errors in the survey were minimized by strictly adhering to the sampling protocol established for the study. This was further supported by ensuring proper logic checks in the CAPI system, conducting spot and back checks, and performing data validation, scrutiny, and cleaning. Approximately 15% of the interviews conducted by each research investigator were directly observed by supervisors to ensure the quality of data collection remained high throughout the survey.

3.1.6. DATA ANALYSIS AND REPORT PREPARATION

After completing the survey, we thoroughly cleaned the database by checking for data consistency and accuracy. The data was then analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including frequency tables, means, medians, and other relevant statistical values, were generated through SPSS and have been carefully interpreted and presented in this report. The findings are visually represented in the form of tables, graphs, and charts to enhance clarity and understanding.

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4. STUDY FINDINGS: HOUSEHOLD SURVEY OF FARMERS

As presented in the previous chapter, the baseline study covered 780 households from 30 project villages across the Bargarh, Balangir, and Kalahandi districts, with 260 households surveyed in each district. This chapter presents the findings of the household survey of farmers, structured under the following sections.

4.1. SOCIO-DEMOGRAPHIC PROFILE OF THE RESPONDENTS

4.1.1. Gender & age of the respondent

We surveyed all the female respondents in this region and collected the age distribution data across the three surveyed blocks—Gudvella, M. Rampur, and Paikmal—as shown in the chart 1. The 30-40 years age group was the most represented, accounting for 28.7% of the total respondents, while the smallest age group was those above 60 years, comprising 11.3% of the population. The data in chart 1 further indicated that the mean age of respondents was consistent across the blocks, with an overall mean of 40 years and a median of 39 years. The minimum age recorded was 18 years, while the maximum age was 66 years. Gudvella, M. Rampur, and Paikmal, all these blocks showed similar patterns, with slight variations in mean age, ranging from 39 to 41 years.

Chart 1: Proportion of Gender & Age of the Respondents (in %)

- 18-30 years age: 22.6%
- 30-40 years age: 28.7%
- 40-50 years age: 22.0%
- 50-60 years age: 15.4%
- Above 60 years age: 11.3%
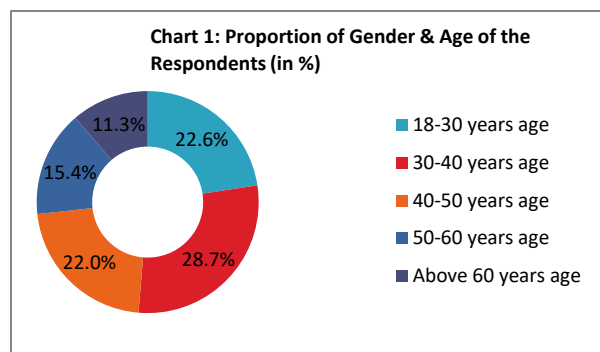
4.1.2. Marital status of the respondents

The chart 2 displaying the marital status of the respondents reveals that a significant majority, 89.8% (N=716), of the female participants are married, making this the predominant marital status across the surveyed blocks. This high percentage indicates that marriage is a common social norm among the women in these regions. Additionally, the data in chart2 shows that 7.4% of the respondents are widowed. Smaller portions with 2.6% respondents have never married, which, although a minority provides insight into the diversity of marital experiences among the women surveyed.Separated respondents were negligible in number (0.1%) in the surveyed blocks and no such case was seen being divorced and deserted.

Chart 2: Proportion of Marital Status of the Respondent (in %)

Category	%
Currently Married	89.8%
Widowed	7.4%
Divorced	0.0%
Separated	.1%
Deserted	0.0%
Never Married	2.6%
Don't Know	0.0%
Refused	0.0%
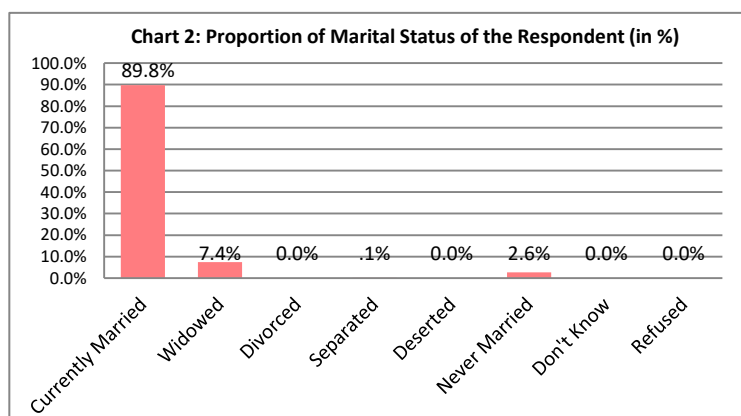
4.1.3. Family size of the HHs and gender, age breakup of the members

The chart 3 below illustrates the family structure of the respondents, revealing key insights into household composition, gender distribution, and age demographics. The mean family size across the surveyed households is 5, with the number of members per household ranging from 1 to 15. Households were categorized into four groups based on size which was shown in chart 4, and it was found that the majority fall within the 3-5 members and 5-10

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members category, representing 45.3% and 43.9% of the total, respectively. Smaller households with 1-3 members account for 9.4%, while those with more than 10 members are quite rare, comprising only 1.4%. This distribution indicates that most households in the surveyed blocks are medium to large in size.

In addition to family size shown in chart 3, the gender distribution within these households' shows that female members (1,881) outnumber male members (1,781), suggesting a slight female predominance within the population. Furthermore in chart 5, the age breakdown of household members reveals that the 18-29 years age group is the most represented, comprising 21.6% of the total population, closely followed by the 40-59 years age group at 21.3%. Notably, the data indicates that 69.1% of the household members are 18 years or older, while 30.9% are below 18 years of age.

Chart 3: Proportion of Gender Break-up of HHs Members (in %)

- Male 48.6%
- Female 51.4%
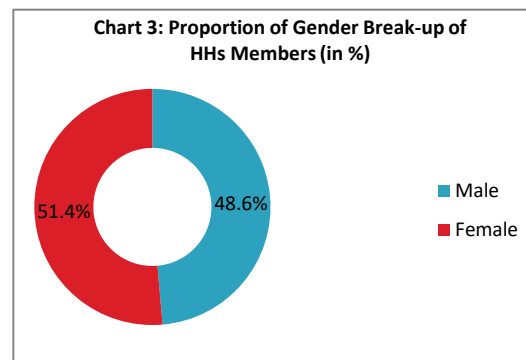
This demographic profile highlights a youthful population within the surveyed households, with a significant proportion of members in their prime working years. The predominance of medium to large family sizes, combined with the slight female majority and the age structure skewed towards young adults and middle-aged individuals.

Chart 4: Proportion of Family Size of the HHs (in %)

- 1-3 members: 9.4%
- 3-5 members: 45.3%
- 5-10 members: 43.9%
- Above 10 members: 1.4%

Chart 5: Proportion of Age Break-up of the HHs (in %)

- <=2 years: 4.0%
- 3-6 years: 6.4%
- 7-10 years: 7.5%
- 11-14 years: 6.7%
- 15-17 years: 6.2%
- 18-29 years: 21.6%
- 30-39 years: 14.2%
- 40-59 years: 21.3%
- >=60 years: 12.1%
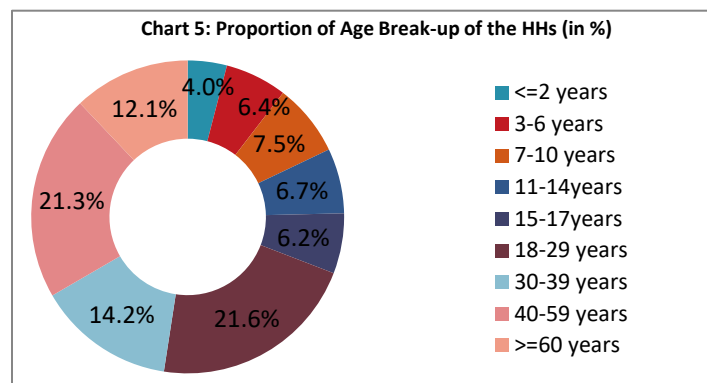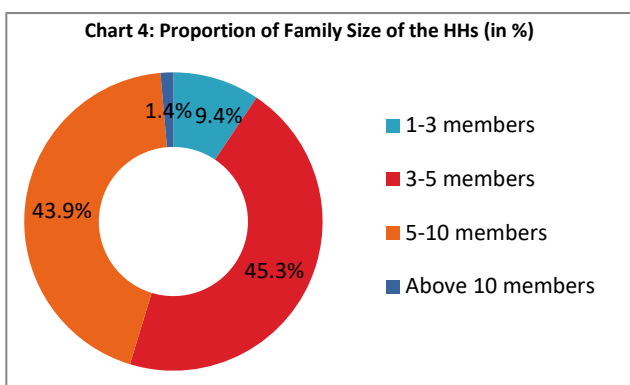
4.1.4. Caste and Religion of the Respondents

The caste and religion of the respondents were shown in the charts below. The data in chart 6reveals that the majority of respondents belong to Scheduled Tribes (ST), accounting for 45.5% of the total respondents. This is particularly prominent in M. Rampur, where 55.3% of the respondents are from Scheduled Tribes, followed by Paikmal with 50.0%, and Gudvella with 31.0%. The Other Backward Class (OBC) category is the second most represented, comprising 34.5% of the total respondents. The General Caste category has the smallest representation, accounting for only 2.5% of the total respondents, with Gudvella having the highest proportion of General Caste respondents at 5.0%. The intersection of caste and religion highlights the culture and social structure of the population. This religious homogeneity is particularly evident in Gudvella and Paikmal, where 100% of the respondents are Hindu as shown in Chart 7. In M. Rampur, while the majority of respondents are Hindu (89.1%), there is also a notable minority of Christian respondents, accounting for 10.9% (28 individuals) of the population in that block. There are no respondents identifying as Muslim or belonging to other religions across any of the blocks.

Chart 6: Proportion of Caste of the respondent (in %)

- Scheduled Caste — 17.4%
- Scheduled Tribe — 45.5%
- Other Backward Class (OBC) — 34.5%
- General Castes — 2.5%

Chart 7: Propotion of Religion of the respondent (in %)

- Hindu — 96%
- Muslim
- Christian — 4%
- Other (Specify)
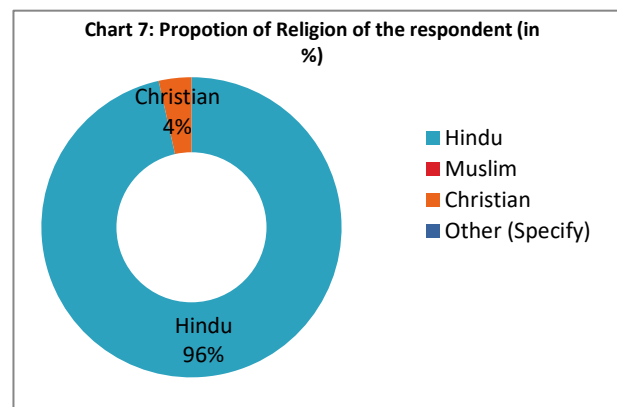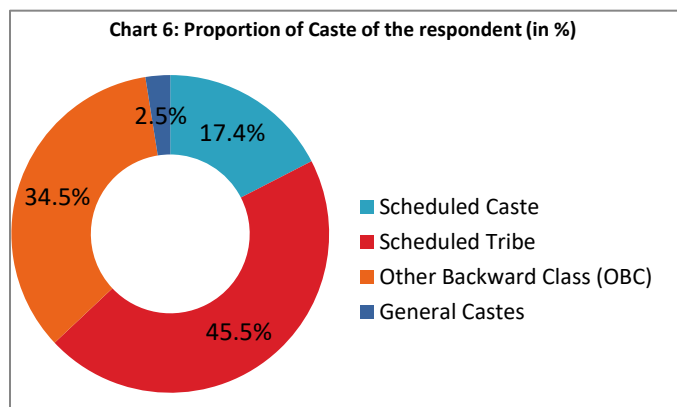
4.1.5. Educational level of the respondents

Of the total respondents covered in the study shown in chart 8 across the three surveyed blocks—Gudvella, M. Rampur, and Paikmal—36.3% were found to be illiterate, with the highest percentage in Paikmal (41.8%), followed by M. Rampur (35.0%) and Gudvella (31.4%). The study revealed that 6.8% of the respondents were literate but without formal education. Additionally, 12.8% of the respondents had not completed primary school, while 15.2% had completed it.

In terms of secondary education, 15.2% of the respondents had completed secondary school (Class 10), and 4.5% had completed senior secondary education. Notably, none of the respondents across any of the blocks had completed graduation, postgraduation, or diploma courses, highlighting a significant gap in higher education attainment.

When examining the interplay between caste and education, it became evident that educational attainment was generally low across all caste groups, particularly among marginalized communities. Scheduled Tribes (ST), who made up the largest proportion of the population (45.5%), also had a high rate of illiteracy, particularly in Paikmal and M. Rampur. The data suggested that lower caste groups, such as Scheduled Tribes and Other Backward Classes (OBC), were more likely to experience lower educational outcomes.

Chart 8: Proportion of Educational Status of the Respondent (in %)

- Illiterate — 36.3%
- Literate without formal... — 6.8%
- Primary School... — 12.8%
- Primary School... — 15.2%
- Middle School... — 9.3%
- Secondary School... — 15.2%
- Senior secondary school... — 4.5%
- Graduation Completed — 0.0%
- Postgraduation... — 0.0%
- Diploma Course... — 0.0%
- Other (Specify) — 0.0%
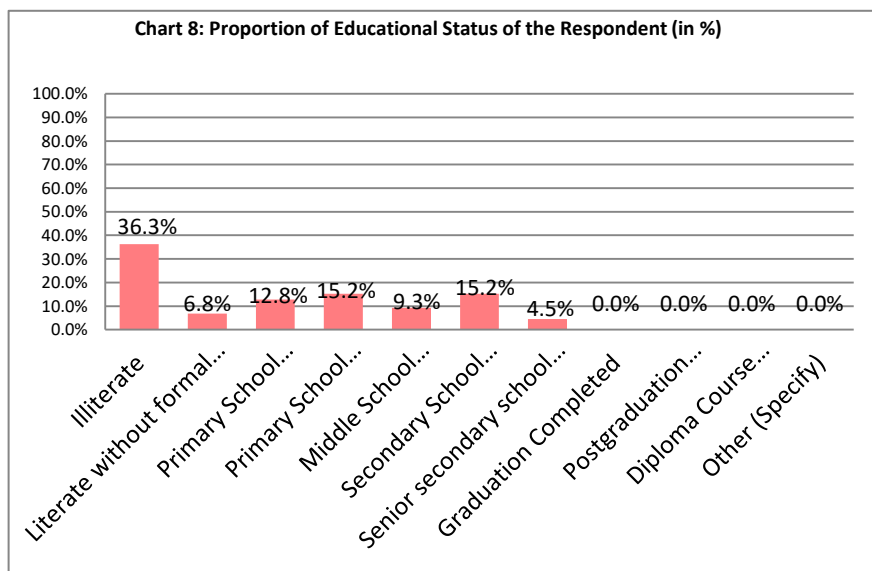
4.1.6. Occupation of the respondent

The data in chart 9 shows the primary occupations of respondents across the three surveyed blocks—Gudvella, M. Rampur, and Paikmal—showed a diverse range of employment activities, with a significant majority engaged in domestic roles. In total, 57.2% of respondents reported domestic engagement or housewife duties as their primary occupation, particularly in Gudvella (66.3%) and Paikmal (64.9%), with a lower percentage in M. Rampur (39.7%).

Agriculture was the second most common occupation, involving 21.1% of respondents, with M. Rampur leading at 32.3%, followed by Gudvella (16.7%) and Paikmal (14.9%). Non-agricultural wage labor accounted for 10.9%, while agricultural wage labor was reported by 3.6% of respondents across the blocks. Non-agricultural wage labor was the next significant category, with 10.9% of respondents engaged in this type of work. Agricultural wage labor was reported by 3.6% of the respondents, with similar percentages across the blocks (around 3.9% in M. Rampur and Paikmal, and 3.1% in Gudvella).

A small but notable 0.6% of respondents were unemployed or actively seeking work, highlighting a need for economic opportunities. The absence of engagement in allied agricultural activities and the limited involvement in formal employment underscored a heavy reliance on agriculture, wage labor, and domestic roles within these communities.

It was also notable that there was no reported engagement in allied agricultural activities, such as Poultry, Pisciculture, Goatery, or Dairy farming, across any of the blocks. Additionally, very few respondents were engaged in formal employment or business activities, highlighting a reliance on agriculture, wage labor, and domestic roles within these communities.

Chart 9: Proportion of Occupational Status of the Respondent (in %)
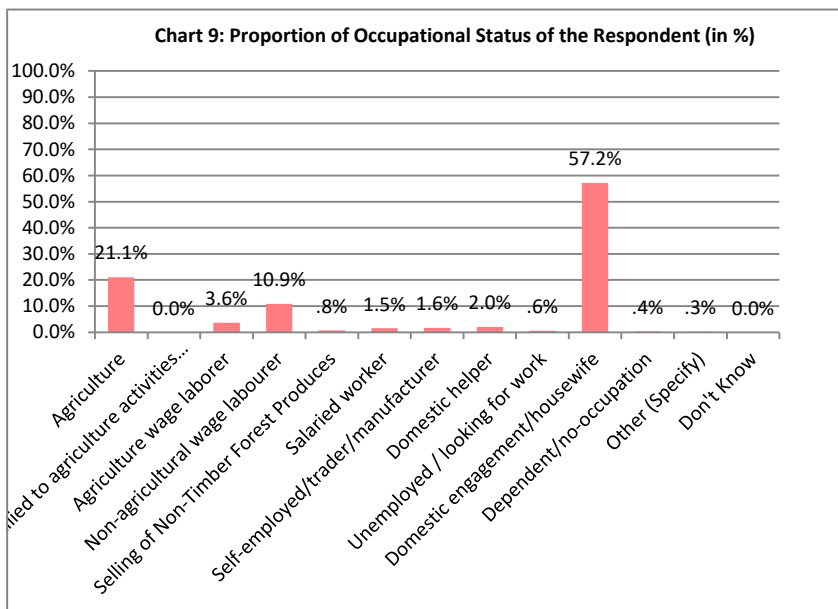
4.2. SOCIO-DEMOGRAPHIC PROFILE OF THE HOUSEHOLD HEAD

4.2.1. Gender & age of the household head

4.2.1.1. Gender

With the respondent profile, we also captured the household head profile. The chart 10 showed the gender of the household head across the three surveyed blocks. The majority of households were male-headed, accounting for 80.4% of the total, with female-headed households making up 19.6%. Paikmal had the highest proportion of male-headed households at 83.0%, while M. Rampur had the highest proportion of female-headed households at 22.6%.

Chart 10: Gender of the Household (in %)
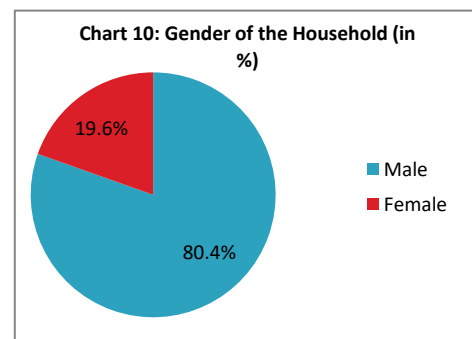
4.2.1.2. Age

In chart 11, the age distribution of household heads in the three surveyed blocks showed a wide range of ages, indicating diverse generational leadership within households. The data revealed that the majority of household heads fell within the middle-aged categories. Specifically, 26.9% of household heads were in the 40-50 years age group, making it the most represented age group overall. The 50-60 years age group was the next most common, accounting

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for 22.6% of the total household heads, Paikmal leading at (23.0%), followed closely by M. Rampur (22.6%) and Gudvella (22.1%).

Interestingly, only 5.9% of household heads were between 18-30 years old, indicating that younger individuals were less likely to be household heads. Similarly, only 3.1% of household heads were above 70 years old, with Paikmal showing the highest percentage in this oldest age category (5.0%).

Regarding the overall age of household heads, the mean age across all blocks was 48 years, with a median of 48 years as well. The youngest household head recorded was 19 years old, while the oldest was 82 years. Gudvella and Paikmal had a slightly higher mean age of 48 and 49 years, respectively, compared to M. Rampur, where the mean age was 46 years.

Chart 11: Age of the Household Head (in %)

- 18-30 years age: 5.9%
- 30-40 years age: 20.3%
- 40-50 years age: 26.9%
- 50-60 years age: 22.6%
- 60-70 years age: 21.2%
- Above 70 years age: 3.1%
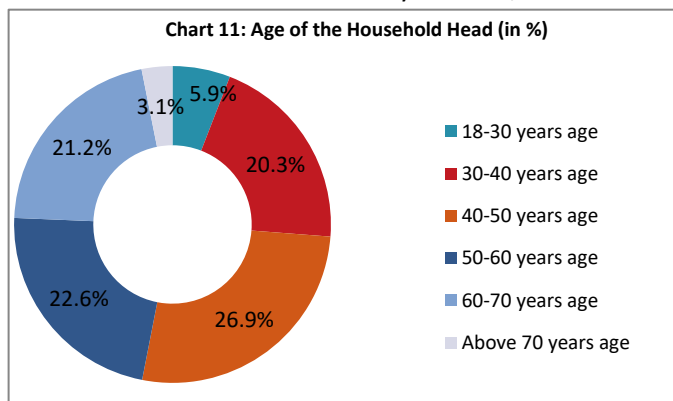
4.2.2. Educational level of the household head

The chart 12 shows the education level of household heads in the three surveyed blocks, revealing that 31.5% of household heads were illiterate, with Paikmal having the highest percentage (36.3%). A small portion of household heads (6.0%) were literate but without formal education. Among those with formal education, the majority had completed primary school (17.1%), followed by those who had completed secondary school (11.3%) and middle school (10.9%). However, very few household heads had completed higher education, with only 1.6% having graduated and a mere 0.6% having completed post graduation degrees. No household heads had completed a diploma course. This data indicated that while some household heads

Chart 12: Educational Level of the Household Head (in %)

- Illiterate: 31.5%
- Literate without formal education: 6.0%
- Primary School Incomplete (Class 1 to 5): 15.7%
- Primary School Completed (Class 5): 17.1%
- Middle School Completed (Class 8): 10.9%
- Secondary School Completed (Class 10): 11.3%
- Senior secondary school Completed (12th/+2 /Intermediate): 5.3%
- Graduation Completed: 1.6%
- Postgraduation Completed: 0.6%
- Diploma Course Completed
- Other (Specify)

had achieved basic education, there was a significant gap in higher education attainment, particularly in Paikmal, where illiteracy was most prevalent.
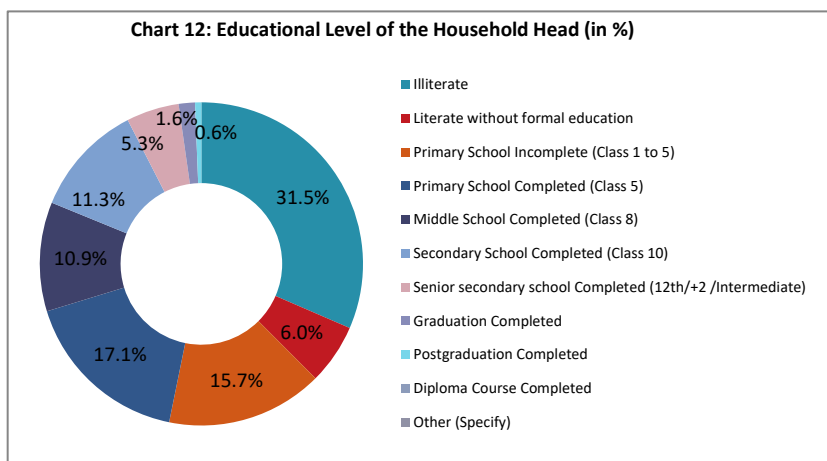
4.2.3. Occupation of the household head

Chart 13 below shows that agriculture was the predominant occupation among household heads across the three blocks, with 53.3% engaged in this sector. Paikmal had the highest percentage (59.6%), followed by M. Rampur (52.9%) and Gudvella (46.9%). Non-agricultural wage labor was the second most common occupation, involving 25.0% of household heads. Domestic engagement or housewife duties accounted for 6.8% of the total. Notably, small portions of household heads (0.5%) were unemployed or actively seeking work. Agricultural wage labor (4.0%) and self-employment (3.6%) were less prevalent. The figure also highlighted that only a very small number of household heads were involved in allied agricultural activities or other specific jobs, each representing less than 1% of the total.

Chart 13: Occupation of the Household Head (in %)
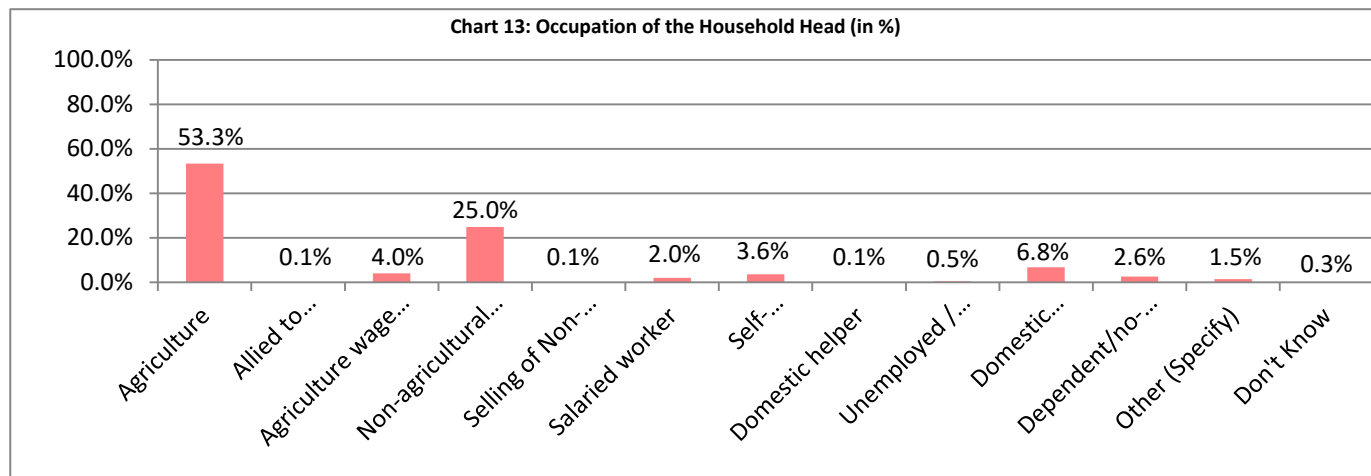
4.2.4. Phone ownership

The figure in chart 14 showed that the majority of households across the three surveyed blocks had access to a phone. Gudvella had the highest phone access rate at 85.7%, followed by M. Rampur at 83.3%, and Paikmal at 79.1%. Overall, 82.6% of households had access to a phone, while 17.4% did not.

Chart 14: Proportion of HHs Accessed Mobile Phone (in %)
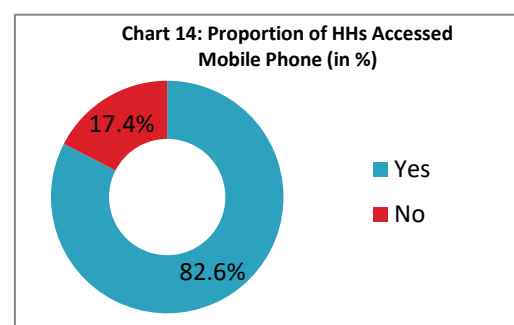
4.2.5. Housing status

In this survey we collect the household access to welfare schemes, housing status, and housing types across the blocks of Gudvella, M.Rampur, and Paikmal. We found that 92.8% of the households hold a BPL card, with Paikmal having the highest percentage at 94%, followed by Gudvella at 93%, and M.Rampur at 91.4% as shown in chart 15. Chart 16 shows regarding ration cards, the majority of households (88.8%) possess a BPL ration card, while 8.9% hold an AAY (Antyodaya Anna Yojana) card, and only 2.2% hold an AY (Annapurna Yojana) card. Very few households (0.1%) own a KBK APL card. Additionally chart 17 reveals that 46.9% of households have an Odisha Labour Card, with M.Rampur showing the highest ownership at 51%, compared to 41.1% in Gudvella and 48.6% in Paikmal.

Chart 15: Proportion of HHs Holding BPL card (in %)

Chart 16: Proportion of HHs Holding Differenet Types of Ration Card (in %)

Chart 17: Proportion of HHs Holding Labour Card (in %)
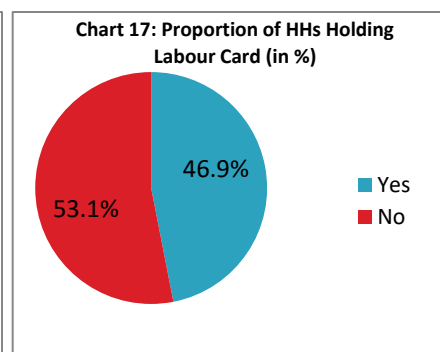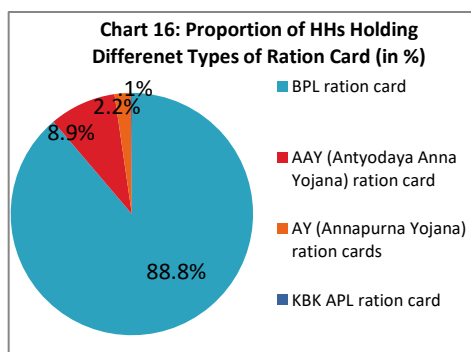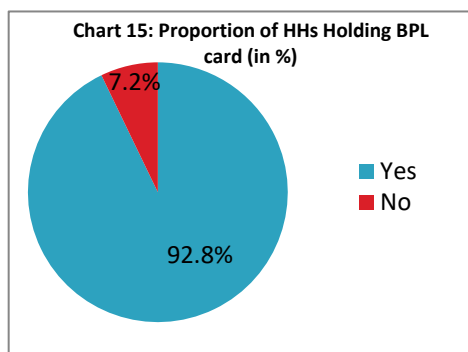
We found majority of households 99.7% own their homes, with less than 0.1% renting and 0.1% having another housing arrangement as shown in chart 18. In terms of housing types, chart 19 reveals that 57.7% of households live in Pucca houses, 14.7% in Semi-Pucca houses, and 27.6% in Kuccha houses. This shows that while the majority of

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households have relatively stable housing, a significant portion still reside in less permanent structures.This indicated that while many households had relatively stable housing, a significant portion still resided in less permanent structures.

Chart 18: Different Types of Housing Status (in %)

- Own House
- Rented
- Other (Specify)

0.1% 0.1%

99.7%

Chart 19: Different Types of Housing (in %)

- Pucca
- Semi-Pucca
- Kuccha

27.6%

14.7%

57.7%
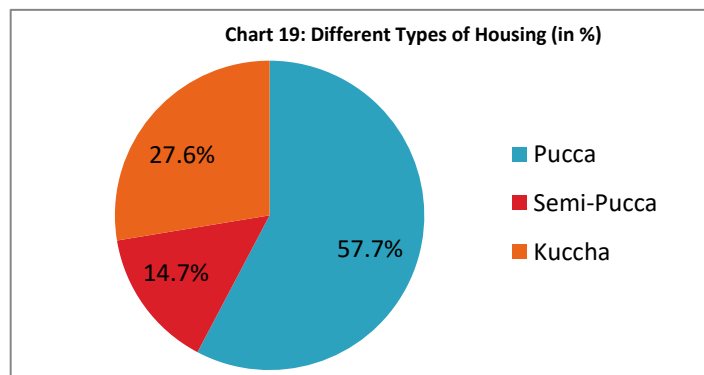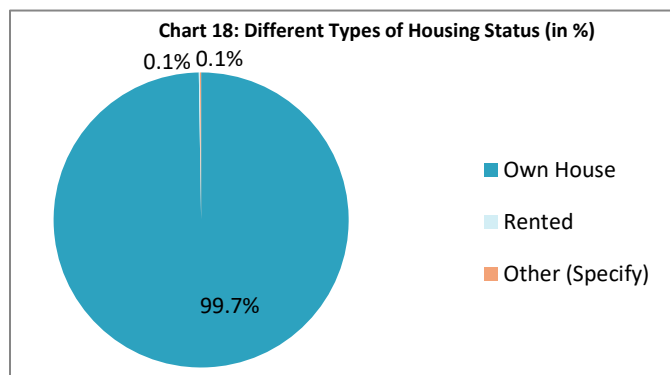
4.2.6. Facilities of the house

The 797 households covered in the study were asked about having the type of facilities available in their house and we found that electricity was the most widely available amenity, with 91.0% of households having access to it as shown in chart 20. Washing facilities were also relatively common, present in 76.2% of the surveyed households. Toilet facilities were available in 59.8% of the homes.
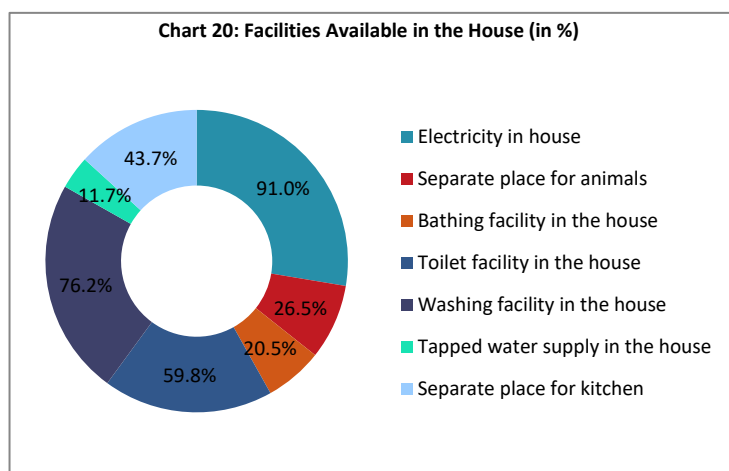
However, fewer households had other important facilities as shown in chart 15. Only 43.7% of households had a separate kitchen space, and even fewer, 26.5%, had a designated area for animals. Bathing facilities were available in just 20.5% of the homes, and a mere 11.7% had access to tapped water supply within the house.

Chart 20: Facilities Available in the House (in %)

- Electricity in house
- Separate place for animals
- Bathing facility in the house
- Toilet facility in the house
- Washing facility in the house
- Tapped water supply in the house
- Separate place for kitchen

43.7%
11.7%
91.0%
76.2%
26.5%
20.5%
59.8%

4.2.7. Source of the drinking water

The sources of drinking water as per the survey were maximum from Tube well / Hand pump that is 67.8% as shown in chart 21. This was followed by 19.3% of households sourcing their drinking water from piped water, 9.7% from open wells, 5.4% from community water tanks, and 3.5% from rivers or streams. A small percentage, 1.5%, reported using other sources.

Chart 21: Different Types of Source of Drinking Water for HHs (in %)

- Pipe water
- Tube well/hand pump
- River/stream
- Open well
- Community Water Tank
- Other, Specify

1.5%
5.4%
9.7%
3.5%
19.3%
67.8%

27
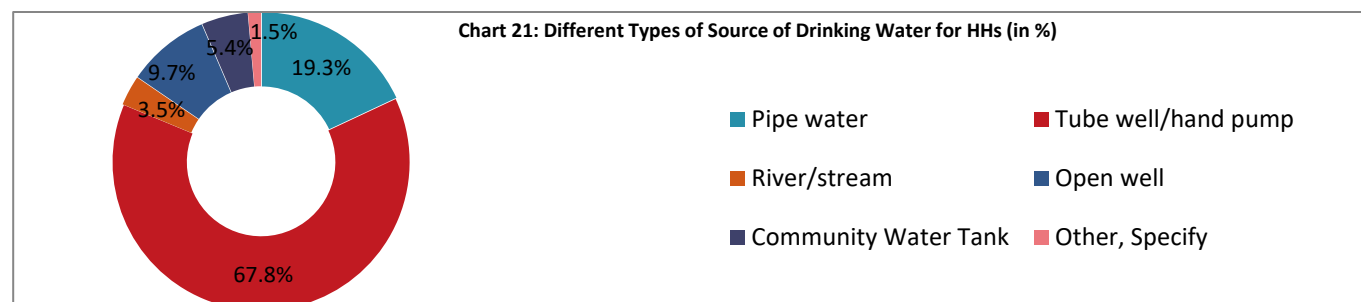
4.2.8. HHs own asset

Of the total 797 households surveyed, we found that the level of ownership of household items indicated that while a significant number of households (72.5%) owned an electric fan, and 74.9% had basic furniture such as chairs, stools, benches, or tables, ownership of other items was less widespread as shown in chart 22. Only 67.8% of households owned a stove or gas burner, and even fewer had a refrigerator, with just 9.5% reporting ownership. Additionally, only 26.6% of households owned a pressure cooker, and 33.0% had a television. Ownership of motorcycles, scooters, cars, or jeeps was reported by 38.1% of households. These figures suggest that while some basic amenities and appliances were relatively common, more costly or luxury items were less prevalent across the surveyed blocks.

Chart 22: Types of Asset Owned by HHs (in %)

- Refrigerator
- Stove/Gas burner
- Pressure cooker/pressure pan
- Television
- Electric fan (Ceiling/Table)
- Almirah/dressing table
- Chair, stool, bench or table
- Motorcycle, scooter, car or jeep
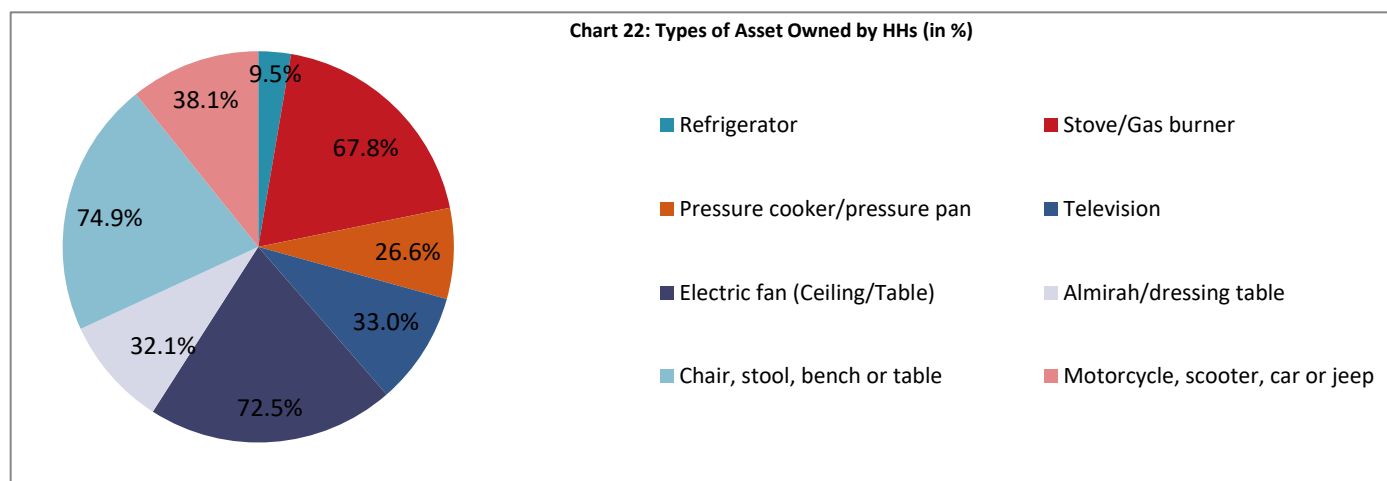
4.2.9. Own farming asset

Of the 797 households surveyed, we found that a substantial portion, 31.7%, reported not owning any farm assets. Among those who did own assets, the most common were traditional tools like the Desi plough, owned by 28.2% of households, and bullock-driven implements, owned by 6.3% as shown in chart 23. More advanced farming equipment, such as tractors (1.8%), power tillers (0.4%), and electric or diesel pumps (0.8%), were much less common. Other specialized tools like sprayers (3.3%) and soil turners (2.6%) also saw limited use. The data indicates a heavy reliance on basic, traditional farming tools, with limited access to more modern equipment, which could be due to economic constraints or the scale of farming operations.

Chart 23: Types of Own Farming Asset Available in HHs (in %)

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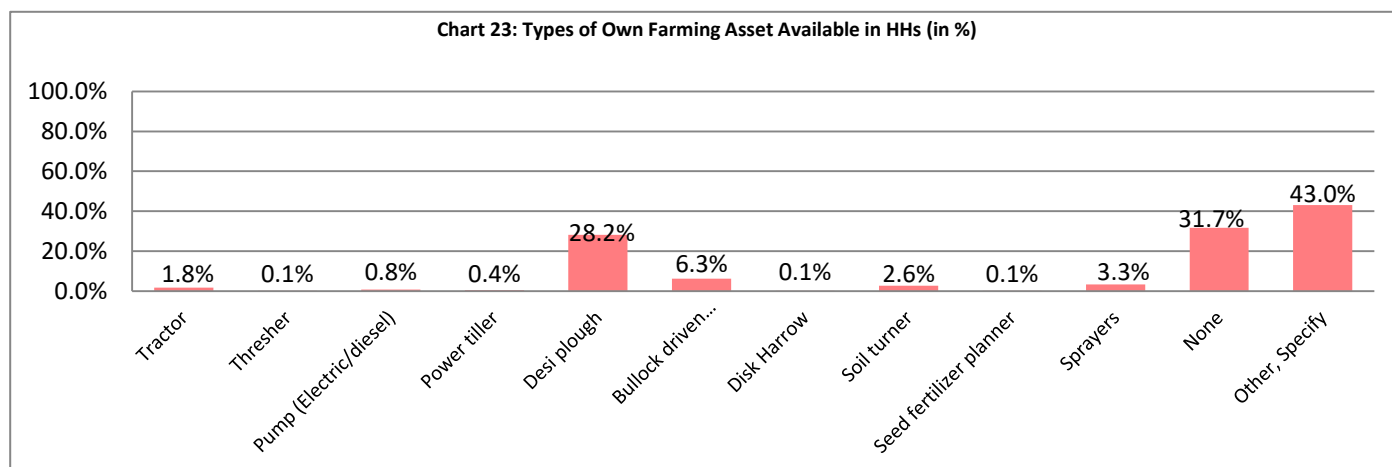
4.2.10. Involvement in cultivation

When asked about the cultivation of crops during last year from June 2023 to May 2024, out of 797 maximum respondents (87%) said yes while the rest 13% said no which is shown in chart 24. Mostly respondents from M. Rampur (87.5%) block said to have cultivated crops during June 2023 to May 2024 as compared to Gudvella (86.4%) and Paikamal (86.9%) block.

Chart 24: Proportion of HHs Involved in Cultivation (in %)

- 13% No
- 87% Yes
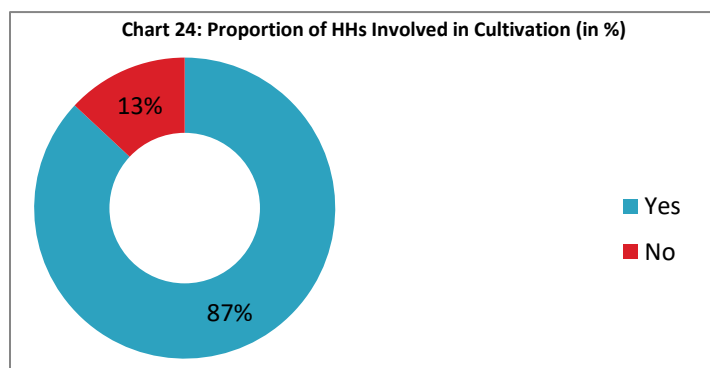
4.2.11. Availability of irrigation

Out of the 693 households who cultivated their plots during the period from June 2023 to May 2024, only 10.5% reported having irrigated their land as shown in chart 25. Among the blocks, Gudvella had the highest percentage of households with irrigated plots at 14.3%, followed by M. Rampur at 12.4%. Paikmal had the lowest percentage, with only 5.3% of households reporting irrigation. The majority of households, 89.5%, did not irrigate any of their plots during this period.

Chart 25: Proportion of HHs Irrigated land (in %)

- 10.5% Yes
- 89.5% No
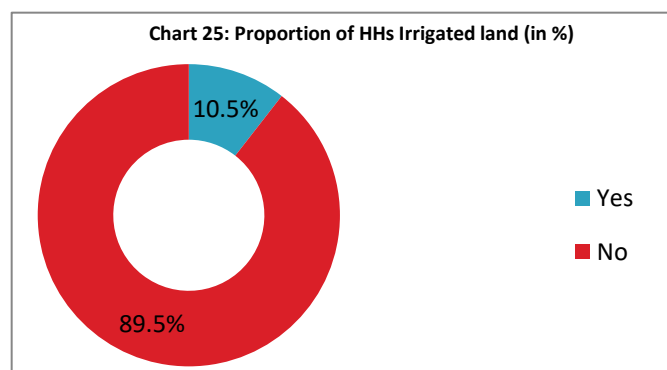
4.2.12. Main source of irrigations

Out of the 693 households that cultivated land from June 2023 to May 2024, only 10.5% reported having irrigated their plots. Among these, charts 26 shows that 38.4% of households used canal irrigation as their main source, making it the most common method. Lift irrigation was the second most utilized source, reported by 31.5% of households. Electric pumps were used as a medium of irrigation by 12.3% of the respondents, while streams accounted for 5.5%. Tube wells and open wells were the least common, with only 2.7% and 1.4% of households using them, respectively. Additionally, 11.0% of households reported using other unspecified methods of irrigation. This data highlights the reliance on traditional and government-supported irrigation methods like canals and lift irrigation, while more modern techniques such as electric pumps were less commonly employed.

Chart 26: Types of Main Source of Irrigation method used by HHs (in %)

Lift Irrigation	Tube well	Electric Pump	Canal	Open Well	Stream	Other (Specify)
31.5%	2.7%	12.3%	38.4%	1.4%	5.5%	11.0%

The significant percentage of households without irrigation (89.5%) underscores the challenges in accessing water resources for agriculture in the surveyed areas.
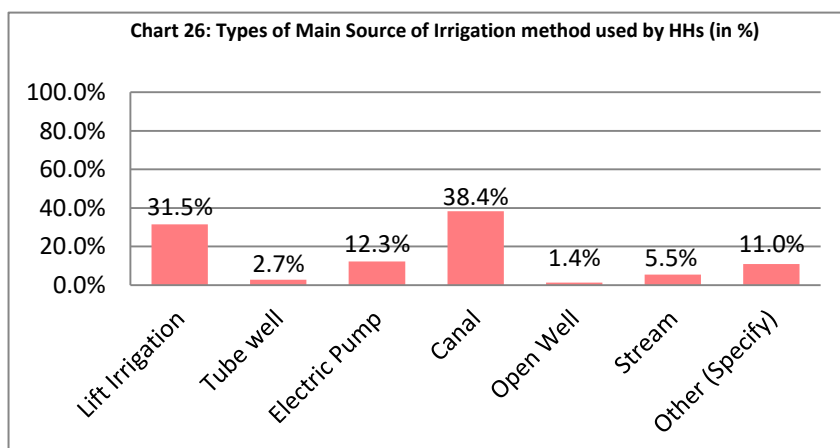
4.2.13. Public irrigation facilities

From the survey data, it was evident that public irrigation facilities played a significant role in the irrigation practices of households across the surveyed blocks. The majority of respondents who used canals, 96.4%, relied on public irrigation facilities, making canals the most utilized source of public irrigation. Similarly, lift irrigation was also predominantly supported by public infrastructure, with 91.3% of those using lift irrigation relying on public facilities. For those using electric pumps, public irrigation was less common, with only 22.2% of users depending on public facilities. Additionally, a small number of respondents utilized public facilities for irrigation from streams (25%) and tube wells (33.3%) as shown in chart 27.

Chart 27: HHs Utilizing Different Types of Public Irrigation Methods (in %)
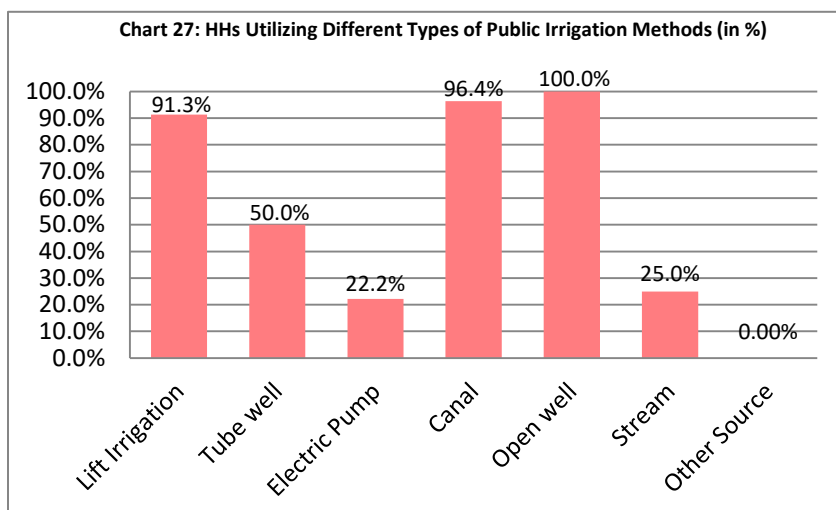
In terms of the duration of water availability from these public facilities, it varied across different sources. Canal water was available for an average of two months, while lift irrigation through public sources provided water for around three months on average. Public electric pumps offered water for an average of five months. The area of land irrigated by these public facilities also varied, with canal irrigation covering an average of 1.52 acres, lift irrigation covering 1.76 acres, and public electric pumps covering around 1 acre.

This data underscores the importance of public irrigation infrastructure in supporting agriculture, particularly in the case of canals and lift irrigation, which were essential for a significant portion of the population engaged in farming.

4.2.14. Private irrigation facilities

The survey revealed that private irrigation facilities also played a crucial role in the irrigation practices of some households across the surveyed blocks, though to a lesser extent compared to public facilities. Among those using electric pumps, a significant portion—77.8%—relied on private irrigation facilities. Lift irrigation was also used privately by 8.7% of respondents who adopted this method which is shown in chart 28. In the case of tube wells, private ownership was more prominent, with 66.7% of users depending on private irrigation facilities. Private irrigation was the sole method for those using open wells and other sources, with 100% reliance on private facilities in these categories.

Chart 28: HHs Utilizing Different Types of Private Irrigation Methods (in %)
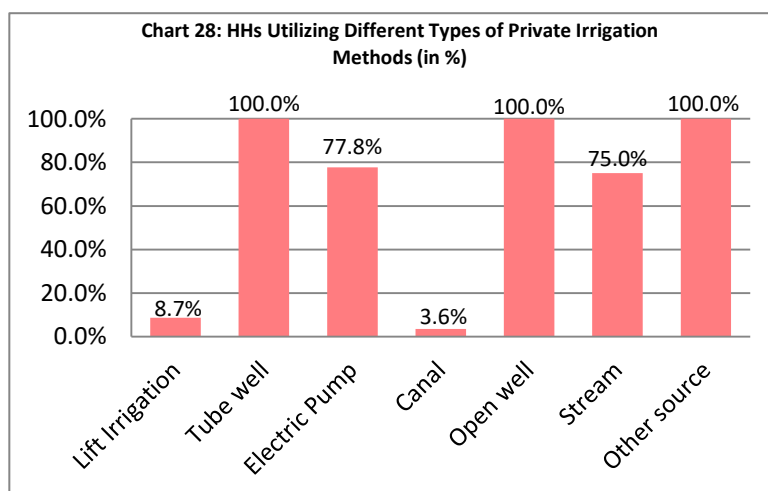
In terms of the duration of water availability, private irrigation facilities generally offered consistent access. For example, private electric pumps provided water for an average of three months, while lift irrigation through private sources also sustained irrigation for around three months. The area irrigated by these private facilities varied, with

private electric pumps irrigating an average of 1.43 acres, private lift irrigation covering 1.76 acres, and other private sources covering 1.12 acres on average.'

These findings highlight that while public irrigation infrastructure is predominant, a notable portion of households rely on privately owned facilities to meet their irrigation needs, particularly for electric pumps and tube wells. This reliance on private facilities suggests a degree of resourcefulness among farmers, who use a mix of public and private solutions to ensure water availability for their crops.

4.2.15. Types of land holding

The table 2 shows a total mean of 2.12 respondents holding their own land areawith a minimum of 0.01 and maximum 11 while mean of 1.68 respondents land area was taken on Lease/ Share/ Mortgage (Minimum= 20 and Maximum= 8) and mean of 1.33 respondents land leased out area (Minimum= 1 and Maximum= 2). We found that Paikamal block have the highest mean with 2.77 of own land area and highest mean with 1.88 of land area was taken on Lease/ Share/ Mortgage in Gudvella block while the same is moderately low in Paikamal block. Similarly mean of land leased out area was 2 in M. Rampur block which is the higest and with a equal mean of 1 in Gudvella and Paikamal block.

Table 2: Table of Land Holdings

Types of land holding	Blocks	Mean	Minimum	Maximum	Sum	Valid N
Owned land area	Gudvella	1.84	.05	11.00	402.01	218
	M.Rampur	1.73	.01	8.00	377.84	219
	Paikmal	2.77	.10	10.00	626.22	226
	Total	**2.12**	**.01**	**11.00**	**1406.07**	**663**
Land Area taken on Lease/ Share/Mortgage/Others	Gudvella	1.88	.50	6.00	24.50	13
	M.Rampur	.97	.20	2.00	9.70	10
	Paikmal	1.85	.30	8.00	48.04	26
	Total	**1.68**	**.20**	**8.00**	**82.24**	**49**
Land Leased Out Area	Gudvella	1.00	1.00	1.00	1.00	1
	M.Rampur	2.00	2.00	2.00	2.00	1
	Paikmal	1.00	1.00	1.00	1.00	1
	Total	**1.33**	**1.00**	**2.00**	**4.00**	**3**

Chart 29 reflects that a fair majority (68.5%) of the respondents was Small farmer possessing land less than2.5 acres, while 21.8% were the marginal farmers having land between 2.5-5 acres and 8.5% were semi-medium farmers having 5-10 acres. Only 1.2% ofthe respondents were medium farmers holding land between 10-25 acres. There were no respondents who were found to be Big farmers holding land more than 25 acres.

Chart 29: Distribtion of farmers by landholding size (in %)
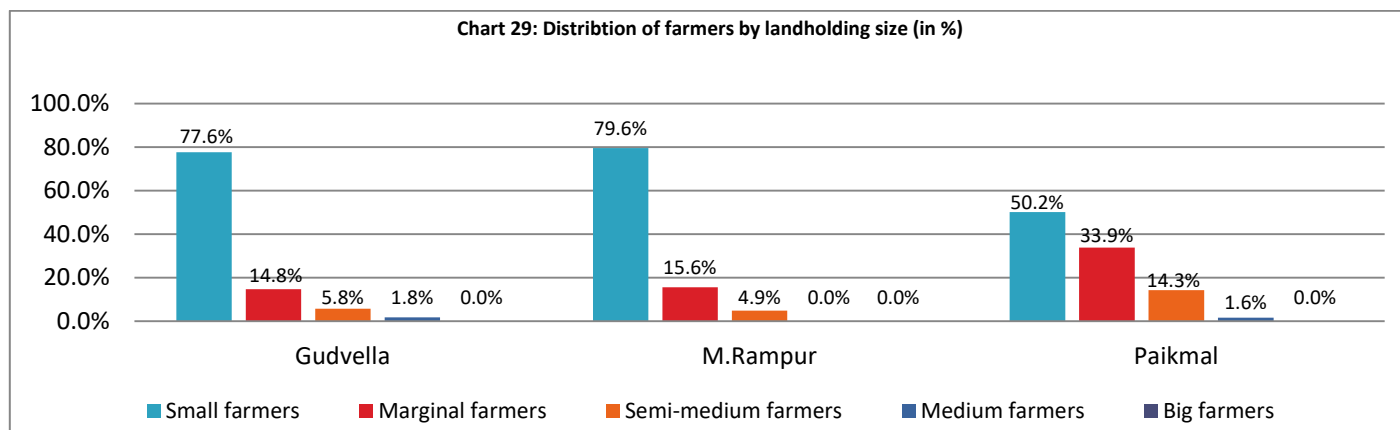
4.2.16. Crop types during Kharif season

In contrast, the Kharif season saw a significantly higher participation rate, with 86.8% of the households reporting crop cultivation. **Rice** was overwhelmingly the most cultivated crop during this season, with 98.7% of households growing it, highlighting its staple role in the region's agriculture as shown in chart 30. Other crops such as **Black Gram** (7.9%) and **Green Gram** (7.7%) were also prominent, but to a much lesser extent compared to Rice. Additionally, **Cotton** was cultivated by 6.9% of the households, while other crops like **Tomato, Brinjal, and Green Leaf** had smaller cultivation rates. This data indicates that the Kharif season is a critical

period for agricultural activities in the surveyed blocks, with Rice being the predominant crop, supporting the food security of these households.
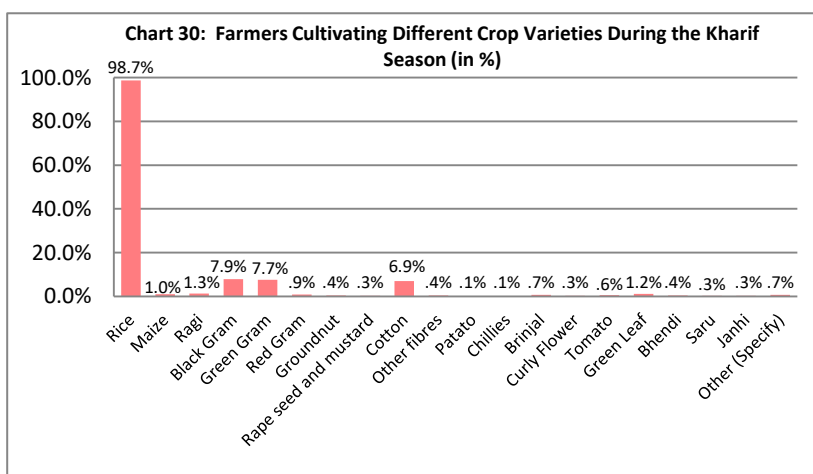
4.2.17. Crop types during Rabi season

From the surveyed households, only 6% reported cultivating crops during the Rabi season. Chart 31 reveals that the most commonly cultivated crop during this season was **Green Gram**, reported by 62.5% of the households that participated in Rabi cultivation. **Black Gram** followed with 25% of households cultivating it. Other crops such as **Ragi, Chillies, Brinjal, and Tomato** were also cultivated, though in smaller proportions, each contributing

to around 2% to 13% of the cases. This data suggests that a limited number of households engage in Rabi cultivation, focusing primarily on legumes like Green Gram and Black Gram, which are staple crops in the region during this season.

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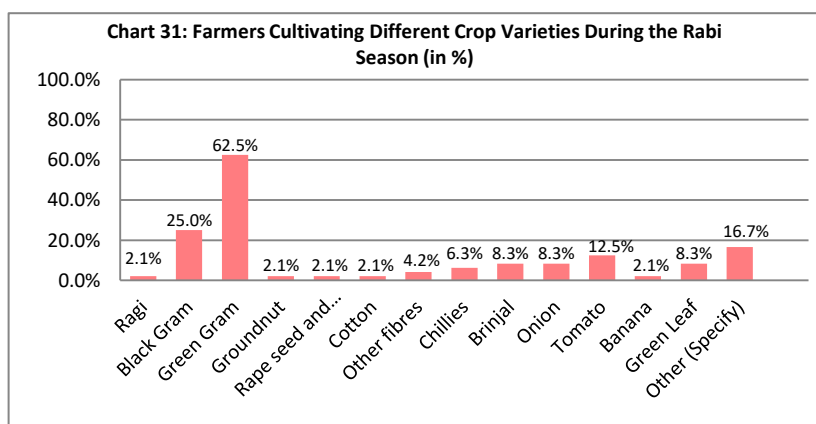
4.2.18. Crop types during Summer season

During the summer season, agricultural activities were considerably less prevalent, with only 3.6% of households reporting crop cultivation. This indicates that summer farming is a minor component of the agricultural cycle in the surveyed blocks. Despite the lower overall participation, **rice** remained the most commonly cultivated crop, with 60% of the respondents growing it, representing 62.1% of the cases as shown in chart 32. The preference for rice even during the summer underscores its importance as a staple crop in the region.

Apart from rice, **Green Gram** was the second most cultivated crop, accounting for 20% of the summer crops, reflecting the adaptability of this legume to the summer climate and its role in providing both food and income. Other crops such as **Groundnut**, **Cotton**, and **Green Leaf** were cultivated by smaller portions of the population, each representing 3.3% of the respondents. Additionally, 10% of households reported cultivating various other crops that were not specified in the primary categories, indicating a degree of diversification in summer farming practices, albeit on a small scale.

Chart 32: Farmers Cultivating Different Crop Varieties During the Summer Season (in %)
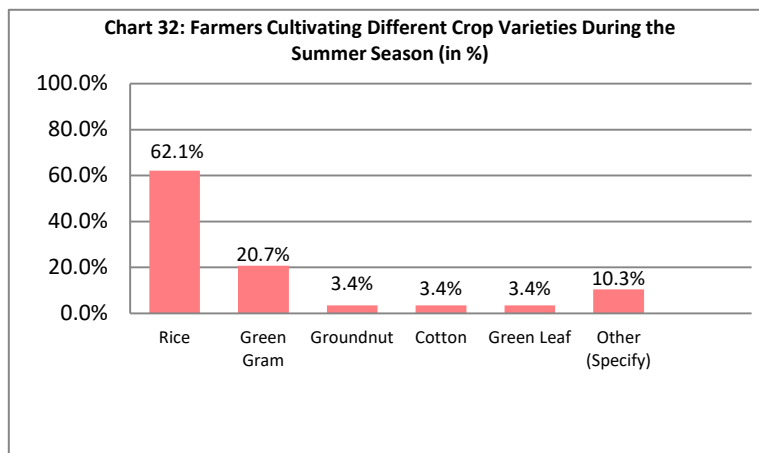
The data suggests that while summer farming is not as widespread as Kharif or Rabi cultivation, it plays a crucial role for the few households that engage in it, likely contributing to their food security and income during a season when agricultural activities are generally minimal. This reliance on a limited number of crops, especially rice, during the summer highlights the challenges of farming in this season, possibly due to water availability, soil conditions, and the need for crops that can withstand the harsher summer environment.

4.2.19. Agriculture input cost

Agricultural cost involves multiple components that are essential for successful crop production. These costs include expenses for seeds, fertilizers, organic manure, pesticides, labor, packaging, transport, tools, water, electricity, marketing, and other miscellaneous costs. Understanding these components and their associated expenses is crucial for assessing the economic viability of agricultural practices. Below is a detailed breakdown of these costs based on data collected from different blocks.

4.2.20. Seeds/plants cost

Table 3 shows the expenditure on seeds and plants is a significant part of agricultural costs. The mean cost for seeds and plants was ₹2,189, with a minimum of ₹50 and a maximum of ₹20,000. The total cost across all surveyed households amounted to ₹1,065,935. The cost varied across blocks, with Gudvella having a mean of ₹2,065, M. Rampur ₹1,651, and Paikmal ₹2,806.

Table 3: Cost of Seeds/Plants Used in Cultivation				
Mean	Minimum	Maximum	Sum	Valid N

Block Name & Code	Gudvella	2065	200	15000	338690	164
	M.Rampur	1651	50	20000	255915	155
	Paikmal	2806	200	15000	471330	168
	Total	2189	50	20000	1065935	487

4.2.21. Fertilizers

Fertilizers accounted for a considerable portion of the agricultural costs as shown in table 4. The mean expenditure on fertilizers was ₹2,694, with costs ranging from ₹48 to ₹50,000. The total expenditure across all respondents was ₹1,697,078. The mean cost in Gudvella was ₹2,310, in M. Rampur ₹1,922, and in Paikmal ₹3,691.

	Table 4: Cost of FertilizersUsed in Cultivation				
	Mean	Minimum	Maximum	Sum	Valid N
Block Name & Code Gudvella	2310	48	15000	503628	218
M.Rampur	1922	100	17000	355580	185
Paikmal	3691	220	50000	837870	227
Total	2694	48	50000	1697078	630

4.2.22. Organic manure

Table 5 displays that the cost of organic manure had a mean of ₹1,792, with expenses ranging between ₹300 and ₹6,000. The total cost reported was ₹139,750. The mean expenditure in Gudvella was ₹1,294, in M. Rampur ₹1,974, and in Paikmal ₹2,061.

	Table 5: Cost of Organic Manure Used in Cultivation				
	Mean	Minimum	Maximum	Sum	Valid N
Block Name & Code Gudvella	1294	400	4000	32350	25
M.Rampur	1974	300	6000	41450	21
Paikmal	2061	500	6000	65950	32
Total	1792	300	6000	139750	78

4.2.23. Pesticides

The average cost of pesticides as shown in table 6 was ₹988, with a minimum expenditure of ₹100 and a maximum of ₹20,000. The total cost was ₹515,731. Gudvella had a mean cost of ₹946, M. Rampur ₹747, and Paikmal ₹1,200.

	Table 6: Cost of Pesticides Used in Cultivation				
	Mean	Minimum	Maximum	Sum	Valid N
Block Name & Code Gudvella	946	100	20000	182600	193
M.Rampur	747	100	5000	101621	136
Paikmal	1200	100	8000	231510	193
Total	988	100	20000	515731	522

4.2.24. Labour

Table 7 shows the labor costs were one of the highest components, with an average expenditure of ₹4,463. The costs ranged from ₹100 to ₹100,000, with the total amounting to ₹1,843,340. Gudvella reported a mean cost of ₹4,626, M. Rampur ₹3,514, and Paikmal ₹5,234.

		Table 7: Cost of Labour Used in Cultivation				
		Mean	Minimum	Maximum	Sum	Valid N
Block Name & Code	Gudvella	4626	200	90400	693870	150
	M.Rampur	3514	100	20000	463850	132
	Paikmal	5234	800	100000	685620	131
	Total	4463	100	100000	1843340	413

4.2.25. Packaging costs

The mean packaging cost was ₹1,439, with expenses ranging from ₹150 to ₹10,000 as displayed in table 8. The total cost was ₹146,795. Gudvella had a mean cost of ₹1,154, M. Rampur ₹737, and Paikmal ₹2,491.

		Table 8: Cost of Packaging (incl. Payment to Labour) Used in Cultivation				
		Mean	Minimum	Maximum	Sum	Valid N
Block Name & Code	Gudvella	1154	160	6000	38070	33
	M.Rampur	737	150	2000	26525	36
	Paikmal	2491	200	10000	82200	33
	Total	1439	150	10000	146795	102

4.2.26. Transport costs

Table 9 displays the transporting goods incurred an average cost of ₹1,176, with a minimum of ₹50 and a maximum of ₹15,000. The total transport cost was ₹290,350. The mean costs were ₹1,092 in Gudvella, ₹1,090 in M. Rampur, and ₹1,306 in Paikmal.

		Table 9: Cost of Transport Used in Cultivation				
		Mean	Minimum	Maximum	Sum	Valid N
Block Name & Code	Gudvella	1092	150	12000	104850	96
	M.Rampur	1090	50	4500	58850	54
	Paikmal	1306	200	15000	126650	97
	Total	1176	50	15000	290350	247

4.2.27. Tools/equipment

The cost of tools and equipment had a mean of ₹3,173, with costs ranging from ₹200 to ₹26,000. The total expenditure was ₹1,288,320. The mean cost in Gudvella was ₹3,185, in M. Rampur ₹2,544, and in Paikmal ₹3,597 as displayed in table 10.

	Table 10: Cost of Tools/ Equipments Used in Cultivation				
		Mean	Minimum	Maximum	Sum	Valid N
Block Name & Code	Gudvella	3185	300	26000	426800	134
	M.Rampur	2544	200	21000	282360	111
	Paikmal	3597	500	24000	579160	161
	Total	3173	200	26000	1288320	406

4.2.28. Water costs

Table 11 shows that the water costs were relatively low, with a mean of ₹1,386, ranging between ₹56 and ₹4,000. The total expenditure on water was ₹33,256. Gudvella reported a mean cost of ₹1,489, M. Rampur ₹1,450, and Paikmal ₹767.

	Table 11: Cost of Water Used in Cultivation				
		Mean	Minimum	Maximum	Sum	Valid N
Block Name & Code	Gudvella	1489	56	4000	19356	13
	M.Rampur	1450	500	3500	11600	8
	Paikmal	767	150	2000	2300	3
	Total	1386	56	4000	33256	24

4.2.29. Electricity

Table 12 displays the electricity costs had a mean of ₹770, with expenditures ranging from ₹200 to ₹2,000. The total cost was ₹7,700. The mean costs were ₹1,060 in Gudvella, ₹475 in M. Rampur, and ₹500 in Paikmal.

	Table 12: Cost of Electricity Used in Cultivation				
		Mean	Minimum	Maximum	Sum	Valid N
Block Name & Code	Gudvella	1060	200	2000	5300	5
	M.Rampur	475	200	700	1900	4
	Paikmal	500	500	500	500	1
	Total	770	200	2000	7700	10

4.2.30. Marketing costs

In table 13, Marketing costs were relatively minimal, with a mean of ₹1,533 and a range of ₹250 to ₹8,400. The total marketing cost was ₹18,400. The mean cost in Gudvella was ₹3,275, in M. Rampur ₹517, and in Paikmal ₹1,100.

	Table 13: Cost On Sale / Marketing Used in Cultivation				
		Mean	Minimum	Maximum	Sum	Valid N
Block Name & Code	Gudvella	3275	600	8400	13100	4
	M.Rampur	517	250	1000	3100	6
	Paikmal	1100	1000	1200	2200	2
	Total	1533	250	8400	18400	12

4.2.31. Interest on loans

Interest on loans showed significant variation, with a mean of ₹14,448 and a range of ₹100 to ₹75,000 as shown in table 14. The total interest cost was ₹317,850.Gudvella had a mean cost of ₹16,915, M. Rampur ₹12,521, and Paikmal ₹5,150.

		Table 14: Cost of Interests on Loan (Bank, Moneylender, Mortgage-out, etc.) Used in Cultivation				
		Mean	Minimum	Maximum	Sum	Valid N
Block Name & Code	Gudvella	16915	200	75000	219900	13
	M.Rampur	12521	100	62000	87650	7
	Paikmal	5150	300	10000	10300	2
	Total	14448	100	75000	317850	22

4.2.32. Leasing/sharecropping costs

Tabel 15 displays the cost associated with leasing or sharecropping had a mean of ₹14,229, with expenses ranging from ₹2,000 to ₹50,000. The total cost was ₹99,600. Gudvella reported a mean cost of ₹11,867, M. Rampur ₹4,667, and Paikmal ₹50,000.

		Table 15: Cost for leasing-out/Share cropping-out Used in Cultivation				
		Mean	Minimum	Maximum	Sum	Valid N
Block Name & Code	Gudvella	11867	2500	30000	35600	3
	M.Rampur	4667	2000	10000	14000	3
	Paikmal	50000	50000	50000	50000	1
	Total	14229	2000	50000	99600	7

4.2.33. Other costs

Other miscellaneous costs averaged ₹2,040, with expenses ranging from ₹1,000 to ₹3,000 as displayed in table 16. The total cost was ₹10,200. M. Rampur had a mean cost of ₹2,233 and Paikmal ₹1,750.

		Table 16: Cost of Other (Specify) Used in Cultivation				
		Mean	Minimum	Maximum	Sum	Valid N
Block Name & Code	Gudvella					0
	M.Rampur	2233	1200	3000	6700	3
	Paikmal	1750	1000	2500	3500	2
	Total	2040	1000	3000	10200	5

4.2.34. Agricultural Income

The survey data on agricultural income across the blocks of Gudvella, M.Rampur, and Paikmal provides key insights into the economic conditions of the households involved in farming. The overall average agricultural income across the three blocks was ₹46,572, with notable variations between the blocks.

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In table 17 Paikmal reported the highest mean agricultural income at ₹59,684 per household, with a maximum income reaching ₹4,76,600. Gudvella had a mean agricultural income of ₹47,202, and a significant variation was observed, with the minimum income going as low as ₹-29,150, suggesting some households faced severe agricultural losses. M.Rampur reported the lowest average agricultural income at ₹31,670, with a minimum of ₹-4,350 and a maximum of ₹1,64,820.

In the survey, the households reported the negative agricultural income basically due to burdened interest on loans paying to banks, moneylenders, or having mortgaged their lands. This financial pressure contributed to their overall losses. Additionally, the survey revealed that many households were impacted by drought conditions, which severely affected crop production, further reducing agricultural incomes.

In total, the agricultural income across all blocks amounted to ₹3,22,74,279, underscoring the central role of agriculture in supporting household livelihoods. However, the data highlights significant income disparities, with some households struggling due to drought and financial burdens, emphasizing the need for interventions to mitigate these challenges and stabilize agricultural production.

Table 17: Agricultural Income by HHs						
		Mean	Minimum	Maximum	Sum	Valid N
s3.4. Block Name & Code	Gudvella	47202	-29150	349200	10526004	223
	M.Rampur	31670	-4350	164820	7125734	225
	Paikmal	59684	200	476600	14622541	245
	Total	46572	-29150	476600	32274279	693

4.2.35. Health

Health is a fundamental aspect of community well-being, and understanding the types of diseases that occur within a population provides valuable insight into the healthcare needs of that community. During the period from June 2023 to May 2024, a variety of both minor and major diseases were reported among the surveyed households, reflecting the diverse health challenges faced by the population as displayed in chart 42 and chart 43.

In chart 33, minor illnesses were seen to be widespread, with the most common being fever, which affected 77.8% of the cases, followed by common cold (71.9%) and cough (52.4%). Other minor ailments such as diarrhea (14.7%) and vomiting (14.7%) also contributed to the overall health burden. These conditions, while generally not severe, required medical attention and contributed to the frequency of healthcare visits within the community.

In contrast, major diseases posed more significant health risks and were less prevalent but had a profound impact on those affected. Chart 34 displays that malaria is the most frequently reported major illness, accounting for 54.7% of the major disease cases. Other serious conditions included blood pressure issues (17.5%), diabetes (6.1%), and heart disease (4.2%), which required more intensive treatment and monitoring. Tuberculosis and pneumonia, although less common, also represented critical health concerns that demanded attention and resources.

Chart 33: Types of Minor Illnesses Experienced by Households (in %)

Chart 34: Types of Major Illnesses Experienced by Households (in %)
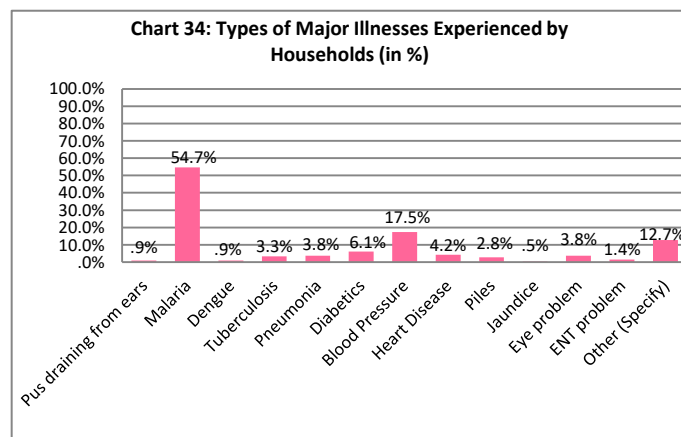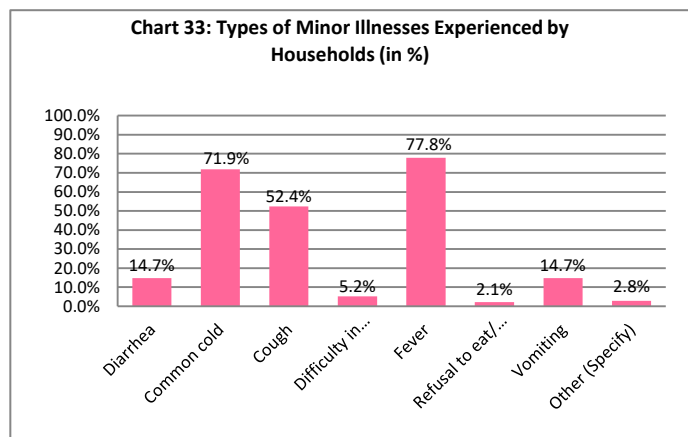
Minor diseases

During the study period from June 2023 to May 2024, minor illnesses were a common issue across the surveyed households. The data revealed that, on average, each affected family had around 2 members suffering from minor illnesses, with the number ranging from 1 to 8 individuals. The total number of health episodes for these minor illnesses varied between 1 and 13, with an average of 3 episodes per family. When it came to seeking medical help, the families reported visiting health facilities between 1 to 72 times, with an average of 5 visits per family, indicating a high frequency of healthcare utilization for minor ailments.

Major diseases

Major illnesses, though less frequent, presented significant health challenges during the same period. On average, each affected family had 1 member suffering from a major illness, with a range of 1 to 6 individuals. The number of health episodes due to these major illnesses ranged from 1 to 15, with an average of 2 episodes per family. The visits to health facilities were frequent, with families reporting between 1 to 20 visits, averaging 3 visits per family, underscoring the severe impact of these illnesses on the affected households and their dependency on healthcare services.

4.2.36. Access to credit

Chart 35 displays the proportion of access to credit from different sources. The loan data across Gudvella, M.Rampur, and Paikmal highlights distinct lending patterns and borrower behaviours, influenced by regional economic conditions. Gudvella stands out with the highest average loan amount of ₹127,500, ranging from ₹105,000 to ₹150,000, reflecting a robust borrowing capacity and possibly greater financial needs or investment opportunities in this block. M.Rampur, on the other hand, shows a much lower average loan amount of ₹7,500, with loans ranging from ₹5,000 to ₹10,000, indicating more conservative borrowing practices or limited financial access. Paikmal finds itself in the middle, with an average loan amount of ₹70,000, ranging between ₹40,000 and ₹100,000.

The loan period also varies significantly across these blocks, with Gudvella again leading with an average duration of 26 months, suggesting either more significant investments that require longer repayment periods or a different financial strategy. M.Rampur and Paikmal have shorter average loan periods of 11 and 9 months, respectively, which may indicate quicker loan turnover or smaller, short-term financial needs. Interestingly, none of the loans in any block required collateral, pointing to a preference or necessity for unsecured lending. The interest rates reflect the varying levels of risk or financial conditions in these blocks, with Gudvella's loans having a higher average monthly interest rate of 7%, compared to 3% in M.Rampur and just 1% in Paikmal. This suggests that Gudvella may be experiencing higher economic activity or inflation, necessitating higher interest rates.

Chart 35: Proportion of Access to Credit from Different Sources (in %)

Source	%
Cooperative societies...	9.2%
Commercial Banks/...	4.0%
Peripheral rural bank...	1.5%
Microfinance Institution	11.0%
Landlord Money Lenders	4.3%
Traders Shopkeepers	2.8%
Relatives & Friends	25.8%
SHG	44.8%
FPO/FPC	1.8%
Others (Specify)	1.8%
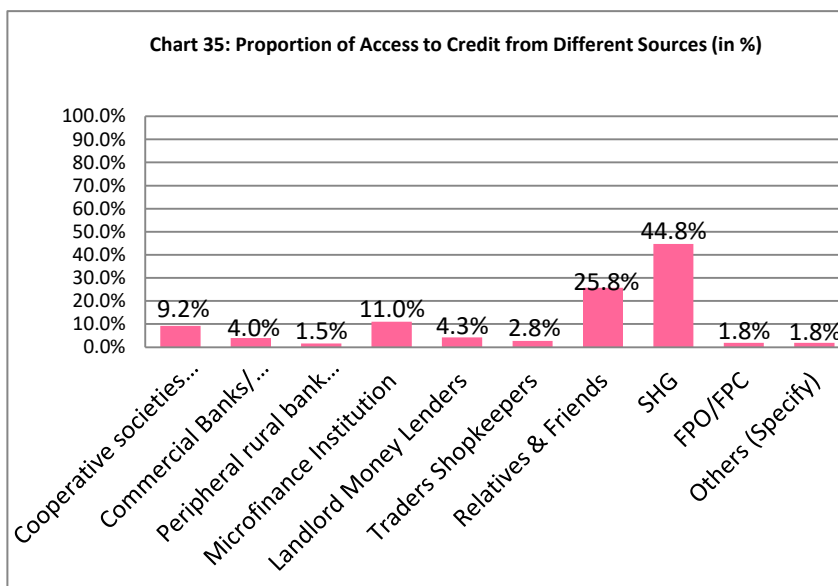
As of May 2024, the loan amount outstanding paints a clear picture of financial engagement in these blocks. Gudvella has a significantly higher average outstanding loan amount of ₹21,250, which aligns with its higher loan amounts and longer periods, possibly indicating larger or more complex financial commitments. In contrast, M.Rampur has a much lower outstanding average of ₹1,500, and Paikmal reports no outstanding loans, which could imply effective repayment or lower borrowing rates.

In summary, the loan data underscores the economic diversity within these blocks, with Gudvella exhibiting more aggressive borrowing behaviors and longer-term financial commitments, while M.Rampur and Paikmal display more conservative and short-term financial activities. These patterns are crucial for understanding the local economic dynamics and the role of lending in supporting regional development.

4.2.37. Entitlement

The data analysis in chart 36 reveals varying levels of household access to government schemes across different blocks. In Gudvella, M.Rampur, and Paikmal, a significant majority of households have been issued job cards under the MGNREGS program, with M.Rampur showing the highest access at 80.2%. However, when it comes to securing 100 days of employment, only about 53.5% of households across the blocks achieved this, with M.Rampur again leading.

The provision of PDS rice at subsidized rates has a high coverage, benefiting over 90% of households in all blocks. Assistance for building individual toilets and houses shows moderate uptake, with approximately 63.2% and 52.9% of households, respectively, receiving such benefits.

Health-related entitlements, particularly for pregnant or lactating mothers and children under 6 years, show lower coverage. Only around 22% of mothers received supplementary nutrition and health check-ups, while about 31% of households had children benefiting from similar services.

Financial inclusion through schemes like the Kissan Credit Card and revolving funds via SHGs shows moderate reach, with about 35% and 46.3% of households benefiting, respectively. Notably, around 63% of households have access to cooking gas connections, reflecting substantial coverage in this area.

In addition to these entitlements, the analysis highlights the reach of key health and life insurance schemes. The Biju Swasthya Kalyan Yojana (BSKY) card is held by a significant proportion of households, with 87.2% of households in Gudvella and 87.6% in Paikmal possessing the card, ensuring access to financial benefits for healthcare. However, fewer households have accessed the financial benefits associated with the BSKY, with only 17.4% in Gudvella and 14.5% in Paikmal. For life insurance schemes, the Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) and the Pradhan Mantri Suraksha Bima Yojana (PMSBY) have lower coverage, with only around 5% of households benefiting from PMJJBY and 11% from PMSBY across the blocks.

Focusing on agricultural support, the data indicates limited access to schemes that directly benefit agricultural activities. For instance, only 11.5% of households have taken advantage of agricultural insurance, while livestock insurance is even less prevalent, with just 1.8% of households covered. Access to subsidized seeds is also limited, with 5.5% of households benefiting, and market linkage support for selling produce is utilized by just 2.3%. These figures underscore a gap in the uptake of agricultural schemes, suggesting the need for enhanced outreach and support to ensure farmers fully benefit from these programs.

Chart 36: HHs Access to Various Government Schemes and Benefits (in %)
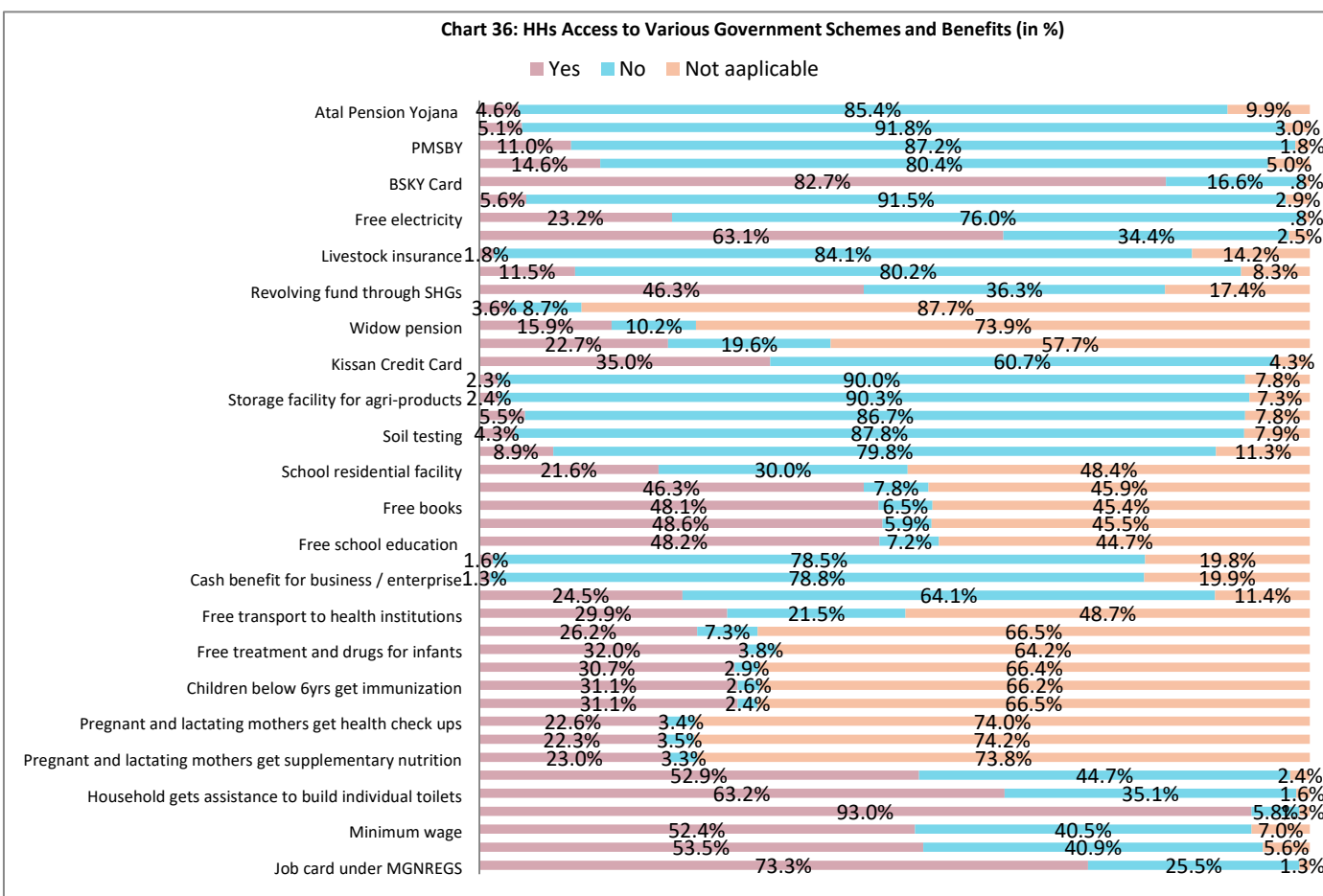
4.2.38. Own business

The data in chart 37 reveals insights into household business ownership and income across the blocks of Gudvella, M.Rampur, and Paikmal. Approximately 32.4% of households across the three blocks reported having some form of business, with Gudvella having the highest percentage at 44.8%. Chart 38 shows the most common types of businesses include poultry (35.8%), grocery shops (16.4%), and greengrocer's shops (10.4%).

Chart 37: Proportion of Households Engaged in their Own Business (in %)

In terms of income, table 19 reveals the mean total income of all three blocks was ₹68,505. However, Gudvella reported the highest mean income from business activities at ₹93,000. In contrast, M.Rampur had the lowest average income of ₹26,211 as shown in chart 48. Regarding expenditures as shown in table 18, the total mean variable expenditure for all businesses across the three blocks was ₹6,879. Gudvella again had the highest mean expenditure at ₹8,079, reflecting the higher scale of business activities in this block compared to M.Rampur and Paikmal. These figures highlight the diversity in business types and the economic activity generated from these businesses, contributing to household incomes in these regions.

Chart 38: HHs Owned Different Types of Business (in %)
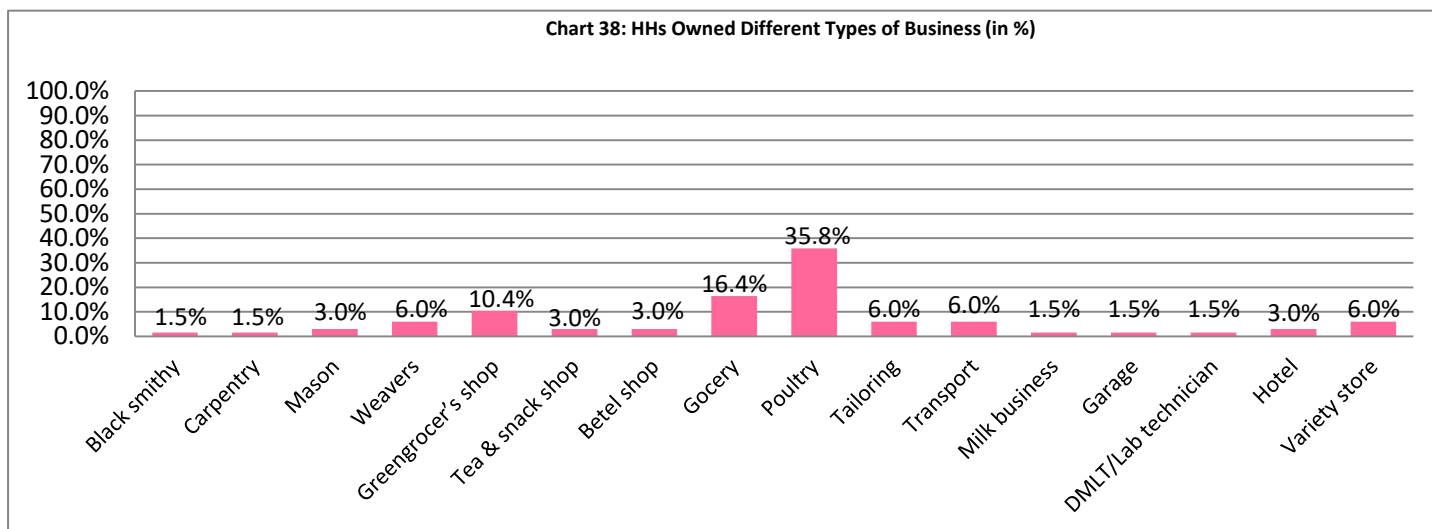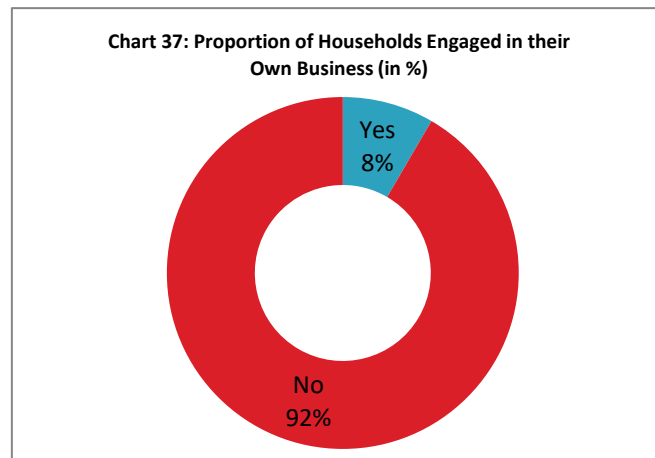
Table 18: Total variable expenditure for all business					
		Mean	Minimum	Maximum	Sum	Valid N
Block Name & Code	Gudvella	8079	750	26500	218120	27
	M.Rampur	4877	300	11000	63400	13
	Paikmal	6457	200	21000	96850	15
	Total	6879	200	26500	378370	55

Table 19: Total income from all the business					
	Mean	Minimum	Maximum	Sum	Valid N

Block Name & Code	Gudvella	93000	1500	380000	2790000	30
	M.Rampur	26211	1500	120000	471800	18
	Paikmal	69897	1500	450000	1328050	19
	Total	68505	1500	450000	4589850	67

4.2.39. Livestock

From the surveyed blocks, households involved in agriculture also engaged in livestock rearing. Across the blocks of Gudvella, M.Rampur, and Paikmal, approximately 52.4% of households were involved in livestock activities, with M.Rampur showing the highest involvement at 65.8% as shown in chart 39.

Regarding cattle, M.Rampur reported the highest mean number of cattle per household at 3, with a minimum of 1 and a maximum of 25 cattle. The average income per household from cattle was ₹12,625, with Paikmal reporting the highest mean income of ₹14,304. The expenditure averaged ₹2,937, with Paikmal again leading with a mean expenditure of ₹4,091. For goats, the overall mean number per household was 5, with Paikmal reporting the highest average at 7 goats per household. In sheep rearing, the average number was 7 per household, with Paikmal again leading with an average of 11 sheep. The combined average income for both goats and sheep

Chart 39: Proportion of HHs Engaged in Livestock Rearing (in %)

was ₹16,723, while the combined average expenditure was ₹3,003. Paikmal had the highest average income and expenditure figures among the blocks.In poultry rearing, M.Rampur had the highest mean income at ₹2,500 per household, with a mean expenditure of ₹844. Across all blocks, the mean number of poultry per household was 6, with an overall mean income of ₹2,411 and an average expenditure of ₹729 per household. The minimum number of poultry per household was 1, with a maximum of 50.
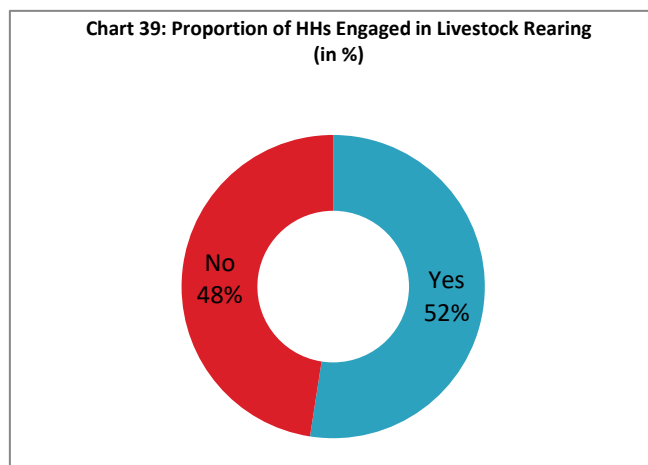
It was observed that some households reported having cattle, goats, or poultry but did not report any income or expenditure related to these livestock. This suggests that these households may be relying on a home-based feeding approach, utilizing the livestock primarily for subsistence rather than income generation. This pattern indicates a focus on household consumption rather than commercial purposes, which might explain the absence of financial transactions related to the livestock.

4.2.40. NTFP collection

Chart 40 displays the involvement of the number of households in NTFP collection. From the surveyed blocks, 52.7% of households reported engaging in Non-Timber Forest Products (NTFP) collection and selling activities within the past year. The highest participation was observed in Paikmal, where 51.7% of households were involved, followed by M.Rampur at 31.9%. In terms of income, Paikmal also reported the highest average income from NTFP activities, with a mean of ₹6,116 per household, while Gudvella and M.Rampur reported

Chart 40: HHs involvement in NTFP Collection (in %)
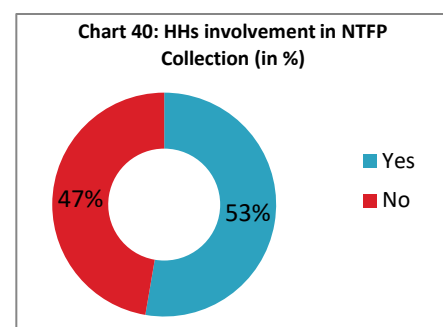
lower average incomes at ₹5,597 and ₹5,183, respectively.The overall mean income across all blocks was ₹5,766 per household, with individual incomes ranging from ₹150 to ₹30,000. Chart 41 displays the types of NTFP sold were diverse, including products like Mahula, Tendu leaf, and Tol, with Mahula being the most commonly sold product, reported by 64.3% of households engaged in NTFP activities. This data highlights the significant role of NTFP activities in the localeconomy, particularly in Paikmal, where it serves as a crucial income source for many households.

Chart 41: HHs involvement in Various Types of NTFP (in %)
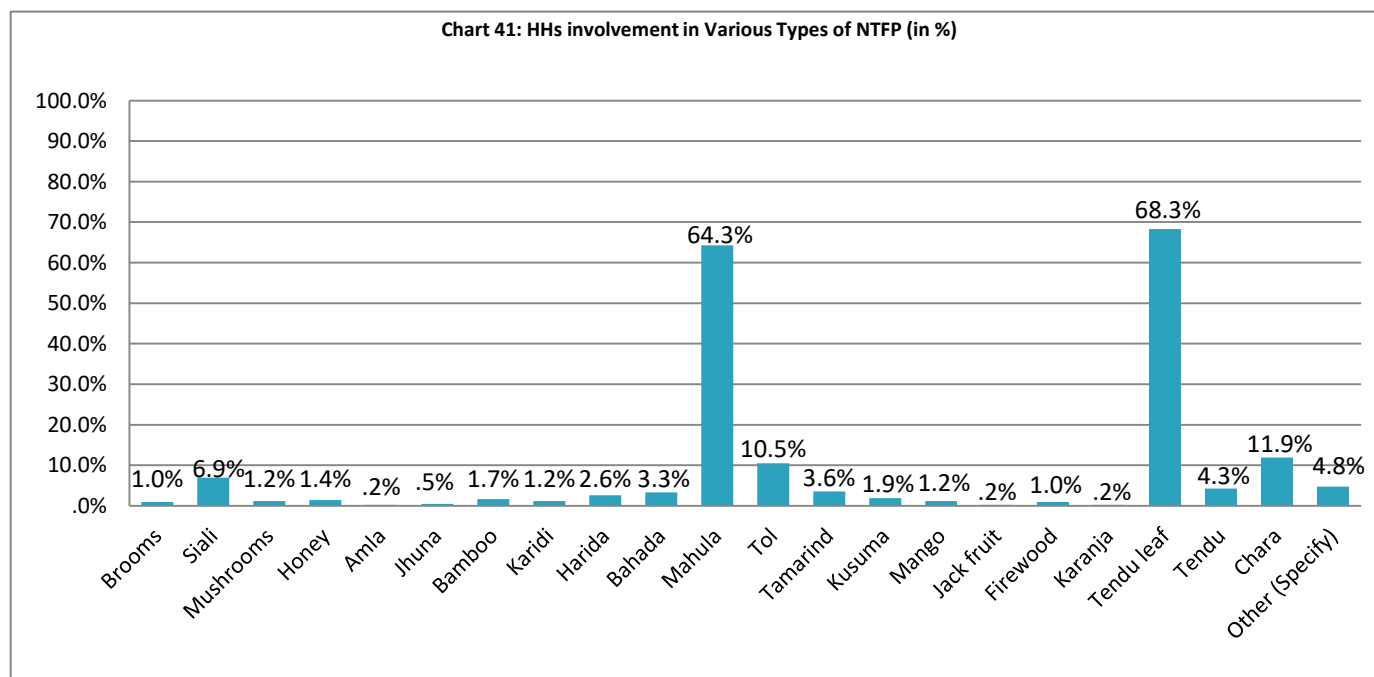
4.2.41. Movable productive assets

The data in chart 42 shows the percentage of households having their own movable assets. We found that 3.4% of households reported owning movable productive assets in the last year. Paikmal had the highest percentage of ownership at 5.7%, followed by Gudvella at 2.3%, and M.Rampur at 1.9%. The most commonly owned assets were ploughs, tractors, and spray pumps. Among these, ploughs were the most prevalent, with 40.7% of households that owned any movable productive assets reporting ownership of ploughs as shown in chart 43. The highest income from these assets was reported in Gudvella, with an average income of ₹10,667 per household, followed by Paikmal

Chart 42: Propotion of HHs Owning Movable Assets (in %)

at ₹9,419, and M.Rampur at ₹8,000. The overall mean income from movable productive assets across all blocks was ₹9,433 per household. This indicates that households with these assets could generate additional income, contributing to their overall economic well-being.

Chart 43: HHs Owning Differnet Types Movable Assets (in %)
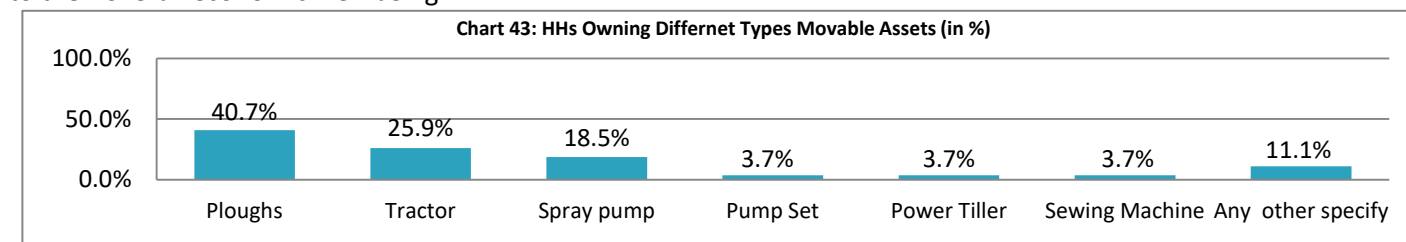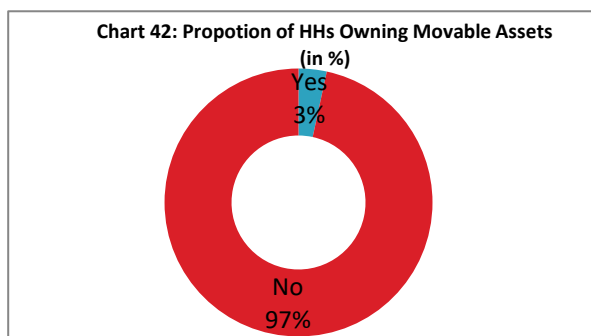
4.2.42. Migration

From the surveyed blocks, a considerable proportion of households reported that their family members had migrated out for work purposes as shown in chart 44. This data highlights the significance of migration as a livelihood strategy, particularly in M.Rampur, where both male and female migrants contribute notably to household incomes. From the surveyed blocks, 32.4% of households reported that family members had migrated out for work. M.Rampur had the highest percentage of households with migrating members at 35.7%, followed by Gudvella at 33.3%, and Paikmal at 31.0%. On average, male members migrated for approximately 158 days across all blocks, with Paikmal having the highest mean of 172 days and M.Rampur the lowest at 142 days. The average income from male migration was ₹63,285 per household, with M.Rampur reporting the highest average income at ₹65,145.

Chart 44: Proportion of HHs Members Involved in Migration (in %)
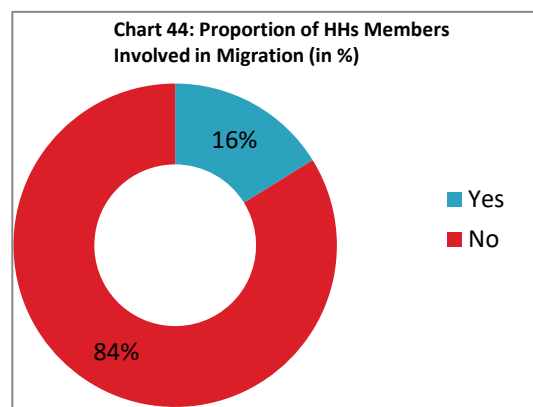
For female migration, which was significantly less common, the number of days spent away and the income generated were lower in comparison to males. Female members migrated for total number of days migrated averaged 161 days across the blocks, with Paikmal leading at 170 days and M.Rampur at the lowest with 110 days. The income generated by female migrants averaged ₹59,489 per household, with M.Rampur again reporting the highest mean income at ₹64,000.

In this analysis, migration refers to family members who leave the village to work on a contractual basis for a limited period, excluding those who are salaried employees. This pattern of migration indicates that temporary and seasonal work opportunities play a significant role in supplementing household incomes in these regions.

4.2.43. Other source income

Chart 45: Alternative Sources of Household Income (in %)
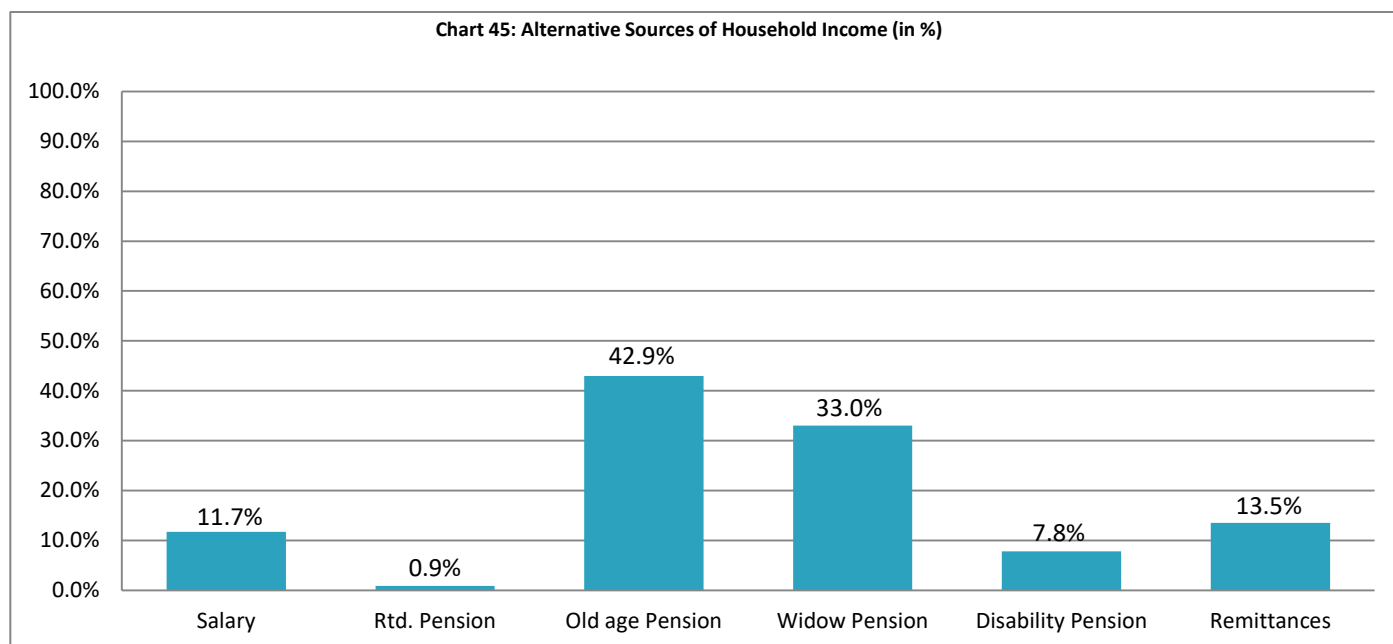
4.2.44. Salary income

From the surveyed data, salary income was reported by 11.7% of households. Gudvella had the highest average annual salary income at ₹186,333 per household, with incomes ranging from ₹60,000 to ₹600,000. Paikmal followed with an average of ₹166,182, while M.Rampur reported the lowest average salary income at ₹81,100. Across all blocks, the overall mean salary income was ₹153,667 per household.

4.2.45. Retirement pension income

Retirement pension income was the least reported source, with only three households across the blocks. Gudvella had the highest reported income from retirement pensions, with a consistent ₹260,000 annually, followed by M.Rampur at ₹150,000 and Paikmal at ₹144,000. The overall mean income from retirement pensions across the blocks was ₹184,667 per household.

4.2.46. Old age pension income

Old age pension income was the most common among the surveyed households, with 42.9% reporting this source of income. The average income from old age pensions varied, with Gudvella reporting the highest average at ₹13,785, followed by Paikmal at ₹9,922, and M.Rampur at ₹9,291. The overall mean income from old age pensions across all blocks was ₹10,808 per household.

4.2.47. Widow pension income

Widow pension income was reported by 33.0% of households. The average annual income from widow pensions was uniform across all blocks, with each reporting ₹6,000 per household. This indicates that widow pension amounts are standardized, contributing a steady source of income for the beneficiaries.

4.2.48. Disability pension income

Disability pension income was reported by 7.8% of households. Paikmal had the highest average income from disability pensions at ₹9,711 per household, followed by Gudvella at ₹9,350, and M.Rampur at ₹6,956. The overall mean income from disability pensions across all blocks was ₹8,646 per household.

4.2.49. Remittances income

Remittances were reported by 13.5% of households, making it a significant income source for some families. M.Rampur had the highest average annual remittance income at ₹50,357, followed by Paikmal at ₹38,636 and Gudvella at ₹35,250. The overall mean income from remittances across the blocks was ₹40,778 per household, with individual remittance incomes ranging from ₹4,000 to ₹140,000.

4.2.50. Net income of HHs

The data on household net income across three blocks—Gudvella, M.Rampur, and Paikmal—reveals some important trends. On average, households in Paikmal reported the highest mean income at ₹168,885, followed by M.Rampur with a mean income of ₹152,935, and Gudvella with the lowest at ₹136,517. In terms of income range, the minimum income recorded was ₹5,250 in Gudvella, while the maximum income reached as high as ₹19,122,250 in Paikmal. The overall sum of income was highest in Paikmal, contributing ₹47,456,801 to the total income across the blocks, followed by M.Rampur with ₹39,151,274, and Gudvella with ₹35,221,399.

These figures indicate that while Gudvella has the lowest average and median incomes, Paikmal exhibits the highest income variability, with the widest gap between the minimum and maximum incomes. This suggests that Paikmal has a more diverse economic structure, with households experiencing varying degrees of economic success. The overall mean income across all blocks is ₹153,245, indicating a moderately high level of income diversity across the region.

Table 20: HHs Net Income		Mean	Minimum	Maximum	Sum	Valid N
s3.4. Block Name & Code	Gudvella	136517	5250	899490	35221399	258
	M.Rampur	152935	8800	9764650	39151274	256
	Paikmal	168885	12750	1912250	47456801	281
	Total	153245	5250	9764650	121829474	795

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5. Analysis of NITI Aayog Indicators

The NITI Aayog indicators for the aspirational blocks of Balangir, Kalahandi, and Bargarh districts were obtained from the NITI Aayog website and utilized as secondary data for this analysis.

Gudvella block in Balangir district presents a mixed performance across the NITI Aayog indicators. The transition rate for boys from Upper Primary to Secondary is 86.2%, slightly below the project average of 89.33%. For girls, the transition rate is particularly concerning at 23.6%, well below the project average of 38.7%, highlighting the need for targeted interventions to support girls' education at this critical juncture. However, once girls reach secondary education, they are more likely to advance to higher secondary, with a commendable transition rate of 90%, surpassing both the project average and the rates in other blocks. In terms of school infrastructure, Gudvella excels in maintaining a favourable pupil-teacher ratio, with 61.7% of elementary schools achieving a ratio of less than 30, above the project average of 55.3%. However, the availability of adequate girls' toilets is a significant concern, with only 13.8% of schools meeting this requirement. The percentage of trained teachers is also low, with only 13.9% being TET qualified, slightly above the average but still insufficient. Academically, Gudvella's performance is mixed, with only 15.2% of boys and 30% of girls achieving 60% and above in Class 10. In higher secondary education, 21% of boys scored above 60%, indicating a slight improvement but underscoring the need for focused academic support. In the agricultural sector, Gudvella stands out by achieving 100% of its target in forming Farmer Producer Organizations (FPOs), demonstrating strong organizational and developmental efforts.

In the Empowerment sector, Gudvella shows strong engagement with women's self-help groups (SHGs), which are active in various community development activities. The block's efforts to empower women economically and socially have shown positive outcomes, particularly in the participation of women in decision-making processes within the community.

In the Health & Nutrition sector, Gudvella faces challenges, with lower rates of institutional deliveries and immunization coverage compared to the project averages. Malnutrition remains a significant issue, with a need for enhanced interventions to improve child nutrition and overall health outcomes. The block's health infrastructure is also an area that requires attention, particularly in improving access to quality healthcare services for women and children.

In Kalahandi district, M. Rampur block shows strong performance in educational transitions, especially for boys, with 96.3% transitioning from Upper Primary to Secondary, well above the project average. However, the transition rate for girls at this level is 42.3%, which, while higher than Gudvella, still indicates a need for improvement. The transition rate for girls from Secondary to Higher Secondary is robust at 86.8%, reflecting a commitment to continuing girls' education beyond secondary school. The pupil-teacher ratio in M. Rampur is balanced, with 57.5% of schools maintaining a ratio of less than 30, close to the project average. However, the availability of adequate girls' toilets remains a concern, with only 16.1% of schools properly equipped. The percentage of TET-qualified teachers is similar to Gudvella, at 13.7%, highlighting the need for enhanced teacher training programs. Academically, M. Rampur's performance is lower, with only 12.3% of boys and 45% of girls achieving 60% and above in Class 10. The percentage of boys scoring above 60% in higher secondary increases by 32%, showing some improvement but highlighting the ongoing challenges in academic excellence. In agriculture, M. Rampur has achieved 88% of its target for FPO formation, slightly behind other blocks, suggesting some barriers in fully realizing its agricultural development goals.

In Empowerment, M. Rampur has made strides in increasing the participation of women in SHGs and other community organizations. These efforts have led to improved livelihoods for women and greater involvement in local governance. However, there is still room for growth in terms of scaling these initiatives and ensuring broader impact across the block.

In Health & Nutrition, M. Rampur shows a mixed performance. While there is a relatively high rate of institutional deliveries, the coverage of key health services, such as immunization and antenatal care, remains below the desired levels. Malnutrition, particularly among children under five, is a critical issue that requires more focused intervention. The block's health facilities need enhancement, with particular emphasis on improving maternal and child health services.

Paikmal block in Bargarh district stands out as a leader in several NITI Aayog indicators. It reports a high transition rate for boys from Upper Primary to Secondary at 93.2% and a strong rate for girls at 50.2%, both surpassing project averages. The transition rate for girls from Secondary to Higher Secondary, at 70.5%, while lower than in Gudvella and M. Rampur, remains noteworthy and reflects ongoing efforts to keep girls in school. However, Paikmal lags in school infrastructure, with only 46.8% of schools maintaining a favourable pupil-teacher ratio, below the project average. The situation is similar for school sanitation, with only 11.2% of schools having adequate girls' toilets, the lowest among the three blocks. On a positive note, Paikmal leads in the percentage of TET-qualified teachers, with 17.6%, although more trained educators are still needed. Academically, Paikmal outperforms the other blocks, with 24.5% of boys and 52% of girls scoring 60% and above in Class 10. This positive trend continues in higher secondary, where 57% of boys achieve similar results, marking Paikmal as a block with strong academic outcomes. In agriculture, Paikmal, like Gudvella, has achieved 100% of its target in forming FPOs, demonstrating successful implementation of agricultural initiatives and positioning it as a potential model for other regions.

In the Empowerment category, Paikmal has made significant progress, particularly in the active involvement of women in SHGs and local governance. These groups have been instrumental in driving community-based initiatives, which have positively impacted the socio-economic conditions of women in the block.

In Health & Nutrition, Paikmal performs better than the other blocks, with higher rates of institutional deliveries and immunization coverage. However, challenges remain, particularly in addressing malnutrition and ensuring consistent access to quality healthcare. The block's health infrastructure is relatively better, but further improvements are needed to sustain and enhance health outcomes for women and children.

Overall, the analysis of NITI Aayog indicators across Gudvella, M. Rampur, and Paikmal blocks reveals a diverse performance landscape, with each block exhibiting distinct strengths and challenges. Paikmal leads in academic achievement, agricultural development, and health & nutrition outcomes, indicating a strong foundation in these areas, but it must address critical gaps in school infrastructure and teacher training. M. Rampur excels in facilitating educational transitions and empowering women but faces challenges in academic performance, health services, and school facilities. Gudvella, while showing potential in advancing girls' education from secondary to higher secondary levels and achieving agricultural targets, encounters significant hurdles in earlier educational transitions, infrastructure, health, and academic support. These findings underscore the need for targeted, block-specific interventions to enhance development and ensure equitable progress across the region.

Niti Aayog Indicators	Theme	NITI Aayog Indicators for Aspirational Block	Block			
			Gudvella	M. Rampur	Paikmal	Average (Project wise)
Education	Education					
	1	Percentage of boys transitioned from Upper Primary to Secondary level	86.20%	91.60%	90.20%	89.33%
	2	Percentage of girls transitioned from Upper Primary to Secondary level	76.20%	96.30%	93.20%	88.57%
	3	Percentage of boys transitioned from Secondary to Higher Secondary Level	23.60%	42.30%	50.20%	38.70%
	4	Percentage of girls transitioned from Secondary to Higher Secondary Level	33.30%	35.80%	43.70%	37.60%
	5	Percentage of elementary schools having Pupil Teacher Ratio (PTR) less than equal to 30	90%	86.80%	70.50%	82.43%
	6	Percentage of schools having adequate no. of girls' toilet facilities	61.70%	57.50%	46.80%	55.33%
	7	Percentage of schools having trained teachers for teaching child with special needs (CwSN)	13.80%	16.10%	11.20%	13.70%
	8	Percentage of boys with 60% and above marks in Class X board exam	13.90%	13.70%	17.60%	15.07%
	9	Percentage of girls with 60% and above marks in Class X board exam	15.20%	12.30%	24.50%	17.33%
	10	Percentage of boys with 60% and above marks in Class XII board exam	30%	45%	52%	42.33%
	11	Percentage of girls with 60% and above marks in Class XII board exam	21%	32%	57%	36.67%
Agri & Allied Services	Empower ment					
	12	Percentage of FPOs formed in the block against total sanctioned	100%	100%	100%	100.00%
	13	Percentage of beneficiaries under PM Kisan with land details and Abuja Environmental Protection Board (AEPB) Seeded against total no. of beneficiaries with land details seeded	100%	88%	100%	96.00%
	14	Percentage of Soil Health Cards generated against soil sample collection target	0%	100%	114%	71.33%
	15	Percentage of Animal Vaccinated with Bovine Vaccination (FMD)	90.00%	94.00%	90.00%	91.33%
Basic Infra	16	Percentage of Gram Panchayats with BharatNet	100%	100%	100%	100.00%
	17	Percentage of Gram Panchayats with Live BharatNet connection	0%	0%	0%	0.00%
	18	Percentage of Households (HHs) constructed under PMAY-G	71%	64%	80%	71.67%
Social Development	19	No. of banking touch points (bank branch/BC/IPPB centre) located in the block	58%	74%	110%	80.67%
	20	Percentage of Gram Panchayats with atleast 250 beneficiaries digitally certified under PM Digital Saksharata Abhiyaan	100%	90%	59%	83.00%
	21	Total number of eligible Households (HHs) added to SHGs	7693	19502	18510	15235
	22	Percentage of SHGs that have received Revolving Fund	31%	57.00%	3.00%	30.33%
	Environm ent					
Agri & Allied Services	23	Stage of Ground Water Extraction (%)	52%	40%	40%	44%
Drinking Water & Sanitation	24	Percentage of households with tap	35%	31%	43%	36%
Health & Nutrition		Health & Nutrition				

Niti Aayog Indicators	Theme	NITI Aayog Indicators for Aspirational Block	Block			Average (Project wise)
			Gudvella	M. Rampur	Paikmal	
	25	Percentage of pregnant women registered for (ANC) within first trimester	98.20%	94.60%	89.10%	94%
	26	Percentage of institutional deliveries against total reported deliveries	100%	77.70%	99.50%	92%
	27	Percentage of low-birth weight babies (less than 2500g)	32.90%	15.40%	21.30%	23%
	28	Percentage of Tuberculosis (TB) cases treated successfully against TB cases notified a year ago.	Not Available	Not Available	Not Available	
	29	Percentage of National Quality Assurance Standards (NQAS) certified facilities in Block	0%	0%	0%	0%
	30	Percentage of person screened for Hypertension against targeted population in the Block	86.80%	70.30%	69%	75%
	31	Percentage of person screened for Diabetes against targeted population	90.30%	8.70%	18.80%	39%
	32	Percentage of pregnant women taking Supplementary Nutrition under the ICDS programme regularly	10.80%	10.50%	17.10%	13%
	33	Percentage of children from 6 months to 6 years taking Supplementary Nutrition under the ICDS programme regularly	15%	15.50%	16.80%	16%
	34	Measurement efficiency of children enrolled at Anganwadi Centres	81.50%	86.50%	57.80%	75%
	35	Percentage of children under 5 years with Severe Acute Malnutrition (SAM)	2.20%	2.50%	1.30%	2%
	36	Percentage of children under 5 years with Moderate Acute Malnutrition (MAM)	4.60%	4.70%	2.60%	4%
	37	Percentage of operational Anganwadis Centres with functional toilets	27.50%	58.80%	33.60%	40%
	38	Percentage of operational Anganwadis Centres with drinking water facilities	35%	32%	40.80%	36%
	39	Percentage of villages declared open Defecation Free (ODF)	34%	39%	25%	33%

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6. STUDY RECOMMENDATION AND CONCLUSION

6.1. Recommendations

This section outlines proposed recommendations aimed at addressing key challenges and optimizing opportunities within the surveyed blocks of Gudvella, M.Rampur, and Paikmal. These recommendations are informed by the socioeconomic dynamics observed during the research.

6.1.1. Business and Livelihood Development

- **Support for Poultry and Agriculture-Based Enterprises**: Poultry, grocery, and greengrocer businesses were prevalent, especially in Gudvella. It is recommended that targeted training programs in financial management, business expansion, and operational cost reduction be implemented to bolster productivity and profitability for small-scale entrepreneurs.

- **Micro-Credit Facilities for Small Enterprises:** To promote financial inclusion, particularly in M.Rampur where business incomes are lower, the expansion of access to micro-finance institutions (MFIs) and Self-Help Group (SHG)-linked bank credit is necessary. This can enable businesses to scale, improving both profitability and household incomes.

- **Promotion of Value-Added NTFP Collection:** In Paikmal, where many households are engaged in Non-Timber Forest Product (NTFP) collection, capacity-building programs aimed at processing and packaging products such as Mahula and Tendu leaves should be prioritized. This can open new markets and enhance household incomes.

6.1.2. Livestock and Agricultural Productivity

- **Livestock Management Training**: With high livestock ownership across all blocks, particularly in Paikmal, the introduction of training programs focused on livestock health management, modern husbandry techniques, and fodder optimization would enhance productivity. Special attention should be given to M.Rampur, where cattle rearing income remains low.

- **Promotion of Integrated Livestock Farming**: Encouraging a diversified approach to livestock farming, including cattle, goats, and poultry, with strong market linkages, would allow households to increase income from livestock assets. This would also transition subsistence-level farming to more profitable endeavors.

- **Access to Veterinary Services**: Increasing the availability of veterinary healthcare services and insurance schemes for livestock is critical in areas like M.Rampur, where losses due to livestock diseases are prevalent.

6.1.3. Education and Skill Development

- **Improvement of Transition Rates for Girls**: The low transition rate for girls, especially in Gudvella, indicates an urgent need for gender-responsive educational initiatives. Community-based interventions should focus on retaining girls in school and increasing awareness of the long-term value of education.

- **Enhancement of School Infrastructure**: There is a need to prioritize infrastructural improvements, particularly in Paikmal, where indicators such as the availability of girls' toilets and trained special needs educators are weaker. Upgrading these facilities can improve educational outcomes.

- **Expansion of Vocational Training**: Migration-reliant households could benefit from vocational training tailored to industries relevant to migrant workers, such as construction and hospitality. Such training could facilitate access to higher-paying jobs and better working conditions outside the region.

6.1.4. Health and Nutrition Improvement

- **Targeted Health Interventions**: Focused health interventions are necessary in both Gudvella and M.Rampur to address critical issues such as low rates of institutional deliveries, immunizations, and maternal and child nutrition. Awareness campaigns and healthcare drives should be part of the intervention.

- **Improvement of Healthcare Infrastructure**: To overcome healthcare access challenges, especially for vulnerable populations, mobile health clinics and telemedicine services should be introduced to ensure regular healthcare check-ups, with particular attention to women and children.

- **Community-Based Nutrition Programs**: Given the prevalence of malnutrition, it is recommended to expand community nutrition programs, such as Anganwadi centers, to address child malnutrition in M.Rampur and Gudvella.

6.1.5. Migration and Remittances

- **Formalization of Migration Support Systems**: Migration represents a significant livelihood source, particularly in M.Rampur. Establishing migration resource centers to provide formal documentation, employment contracts, and health insurance would improve the security and profitability of migration.

- **Optimizing Remittances for Local Development**: Remittance-receiving households should be incentivized to invest remittances in local businesses or community projects. Financial literacy programs tailored to migrants and their families can help them manage their resources more effectively.

6.1.6. Empowerment and Gender Inclusion

- **Scaling SHG Programs**: Self-Help Groups (SHGs) have proven successful in economic empowerment. Expanding SHG programs with an emphasis on entrepreneurial training, access to credit, and leadership development would foster economic independence for women across the blocks.

- **Gender-Based Economic Interventions**: In M.Rampur, efforts should focus on creating inclusive community programs aimed at enhancing female participation in economic activities, particularly in migration and local businesses. Linkages between SHGs and local businesses, as well as Farmer Producer Organizations (FPOs), would further enhance economic inclusion.

6.1.7. Agricultural and Allied Services

- **Strengthening Farmer Producer Organizations (FPOs)**: Paikmal and Gudvella have made significant progress in forming FPOs, but further support is needed in providing access to agricultural inputs, technology, and markets. Strengthening linkages between FPOs and government schemes, input suppliers, and markets will enhance agricultural productivity.

- **Climate-Resilient Farming Practices**: The introduction of climate-resilient agricultural practices, including drought-resistant crops and modern irrigation techniques, is essential to ensure the sustainability of agricultural activities in the face of changing climatic conditions.

6.1.8. Pension and Social Welfare Schemes

- **Enhancing Awareness of Pension Schemes**: Pension schemes, particularly for old age and disability, represent a crucial income source. Awareness campaigns should be initiated to ensure broader coverage of these schemes, particularly for vulnerable populations.

- **Linking Pensions with Financial Services**: Linking pension beneficiaries to banking services can improve financial inclusion, allowing households to access savings and credit facilities, and better manage their finances.

6.2. Conclusion

The socioeconomic dynamics of Gudvella, M.Rampur, and Paikmal reveal a range of developmental disparities and opportunities for targeted interventions. Paikmal demonstrates strengths in agricultural development and educational outcomes, while M.Rampur exhibits potential for growth through migration and business-led livelihoods. Gudvella shows promise in agricultural and business activities but faces considerable challenges in education and health.

6.2.1. Key Insights:

- **Economic Disparities**: Economic inequality is evident across the blocks, with Paikmal displaying a more diverse economic base. M.Rampur remains economically disadvantaged, particularly in terms of business and livestock income, which calls for improved financial inclusion and market access.

- **Gender Gaps in Education**: The low educational transition rates for girls, especially in Gudvella, necessitate immediate gender-sensitive interventions. Addressing infrastructure deficiencies and societal norms surrounding girls' education is critical to long-term social development.

- **Health and Nutrition Gaps**: M.Rampur and Gudvella face significant health infrastructure deficits, compounded by malnutrition and low immunization rates. Strengthening health systems and promoting improved nutrition practices are vital for enhancing well-being in these areas.

- **Migration as a Livelihood Strategy:** Migration serves as a key livelihood strategy, particularly in M.Rampur. Formalizing migration processes and enhancing support for migrant workers will contribute to improved income security and economic stability.

- **Agricultural and Livestock Development:** Agriculture remains a central economic activity, with livestock rearing playing a significant role. Promoting market access, productivity enhancements, and modern farming techniques will be crucial in improving income levels across all blocks.

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