DISSERTATION

ON

"A PRAGMATIC ASSESSMENT OF AGRICULTURAL STATUS: A CASE STUDY FROM CHANPI VILLAGE, PURBA MEDINIPUR, WEST BENGAL"

M.Sc. SEMESTER-IV EXAMINATION 2023

SUBJECT- GEOGRAPHY

PAPER: GEO496 **UNIT: GEO496.2**

SUBMITTED BY

SWARNALI KHANRA

ROLL- PG/VUEGG19/GEO-IVS NO: -009
REG.NO-1261760 of 2018-19

SUPERVISED BY

MR. PRANAY SANTRA

ASSISTANT PROFESSOR
DEPT.OF GEOGRAPHY

HALDIA GOVERNMENT COLLEGE

VIDYASAGAR UNIVERSITY

HALDIA GOVERNMENT COLLEGE

DEPERTMENT OF GEOGRAPHY (UG & PG)

Debhog, Purba Medinipur

CERTIFICATE

This is to certify that **MS. SWARNALI KHANRA**, Roll- **PG/VUEGG19/GEO-IVS** No. - **009** has prepared a dissertation work on "***A Pragmatic Assessment of Agricultural Status: A Case Study From Chanpi Village, Purba Medinipur, West Bengal***" under my guidance and supervision for M.Sc. Semester-IV, Examination in Geography, 2023 as a partial fulfilment of the curriculum of Vidyasagar university in geography paper 496.2.It is further certified that this is her original work and no part of this work has been submitted elsewhere before for the awardment of any degree.

21.8.2023

Signature of the Supervisor
Assistant Professor
Dept. of Geography
Haldia Government College

Assistant Professor, WBES
Department of Geography
Haldia Government College
Debhog-721657

CHAPTER-I

INTRODUCTION

1.0 Introduction:

Agriculture plays an important role in the Indian economy. More than 70% of rural households are dependent on agriculture. Agriculture is an important sector of the Indian economy as it contributes about 17% to the total GDP and provides employment to about 58% of the population. Indian agriculture has registered impressive growth over the past few decades. Chanpi is a large village located in Mahishadal Block of Purba Medinipur district, West Bengal. Bengali is the common language of people living in Chanpi village. In the area, the predominance of people of these two religions, Hindu and Islamic, can be observed mainly. According to the constitution of India and the Panchayati Raj ACT, Chanpi village is governed by a sarpanch (village head) who is the elected representative of the village. As Chanpi is a village area there is not much to see here but the Mahishadal block is well known for the Mahishadal Raj Bari (palace) complex and the Rath Yatra festival. The Rath Yatra attracts a large number of people and lasts for about a month. Mahishadal Raj Bari is a wonderful weekend destination in Kolkata. Especially for history enthusiast. The historic Mahishadal Raj place is also called phulbagh palace. The structure was built in 1857 and is currently dilapidated. Built in Bengals well known “Navaratna” OR “Nine Ratna” style, the entire palace resembles a European setting. It is uncommon in rural areas of West Bengal. People living here face some problems like lack of proper electricity, network problem, banking problem etc. some people move abroad for work. But there are primary and secondary schools starting from ICDS. There are infrastructural benefits like health centre, post office etc.

1.1 Objectives:

The main objectives of field study are to find out a hidden, undiscovered truth. Different the objectives are:

- Assess the physical background of the study area.
- The aim of the study is to clarify the demographic characteristics of the study area.
- The study attempts to examine the basic amenities available in the study area.
- Determine the relationship between economic status and social status of the study area.
- To understand the cropping patterns of the study area.
- Analysis the agricultural production of the study area.
- The study seeks to examine the agricultural expenditure of the study area.

1.2 Importance of the Study

The justification of the study will help to identify the problems and prospects of agricultural status in household hevel.it is very pertinent to observe the role of farmer in agricultural development in study area.it is expected that the study would investigate the relation between socio-economic condition and agricultural status.it is also hoped that the study would be able to identify the factors affecting in agriculture at household level.finaly the outcomes of the study would be helpful to the policy makers for formulating project to address the problems.

1.3 About Chanpi Village:

Chanpi is a large village in Mahishadal Subdivision of Purba Medinipur district. Tamluk and Mahishadal are the district and sub district and sub district headquarters of Chanpi village respectively. As per 2009 stats, Lakshya-II is the Gram Panchayet of Chanpi village.

The total geographical area of village is 360.68 hectares. Chanpi has a total population of 5,237. Peoples, out of which male population is 2,751 while female population is 2,486. Literacy rate of Chanpi village is 74.15% out of which 78.30% males and 69.55% females are literate. There are about 1,128 houses in Chanpi village Schedule Caste (SC) constitutes 9.13% of total population in Chanpi village. The village Chanpi currently doesn't have any Schedule Tribe (ST) population.

In Chanpi village out of total population, 1798 were engaged in work activities. 66.13% of workers describe their work as main work (Employment or Earning more than 6 Months) while 33.87% were involved in Marginal activity providing livelihood for less than 6 months of 1798 workers engaged in main work, 298 were cultivators (owner or co- owner) while 347 were Agricultural Labourer.

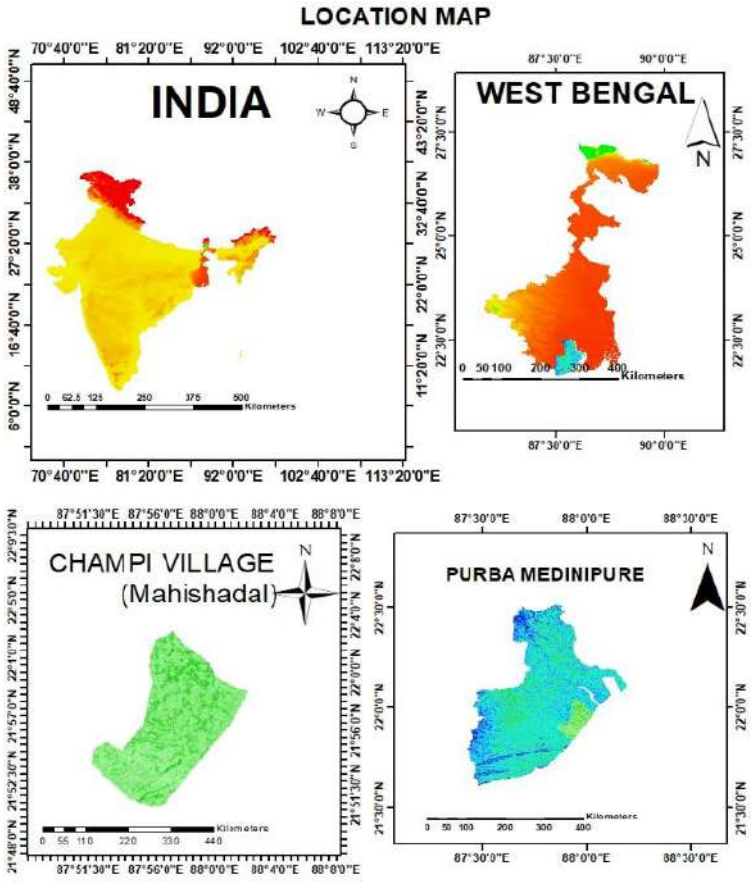


Fig No: 1.1 Location map of study area

1.4 Land use and Land cover Change:

Generally, land cover is what covers the earth's surface (e.g.-grasslands) and land use describes how the land is used(e.g.- agricultural land).The following table shows the changing land use land cover map(LULC)of Chanpi (Mahishadal)from 2000 to 2022 and provide information to help users understand the current landscape. No change in agricultural land and drainage pattern was observed in Chanpi village during the last 22 years. The percentage of fallow land was decreasing from 2000(18.73%) to 2022(8.87%) due to improved fertilizers and irrigation systems. As a result, vegetation cover has increased by 17.5%. Settlements decreased by 7.76% in 2022 compared to 2000 which may be due to net migration or declining fertility rates.

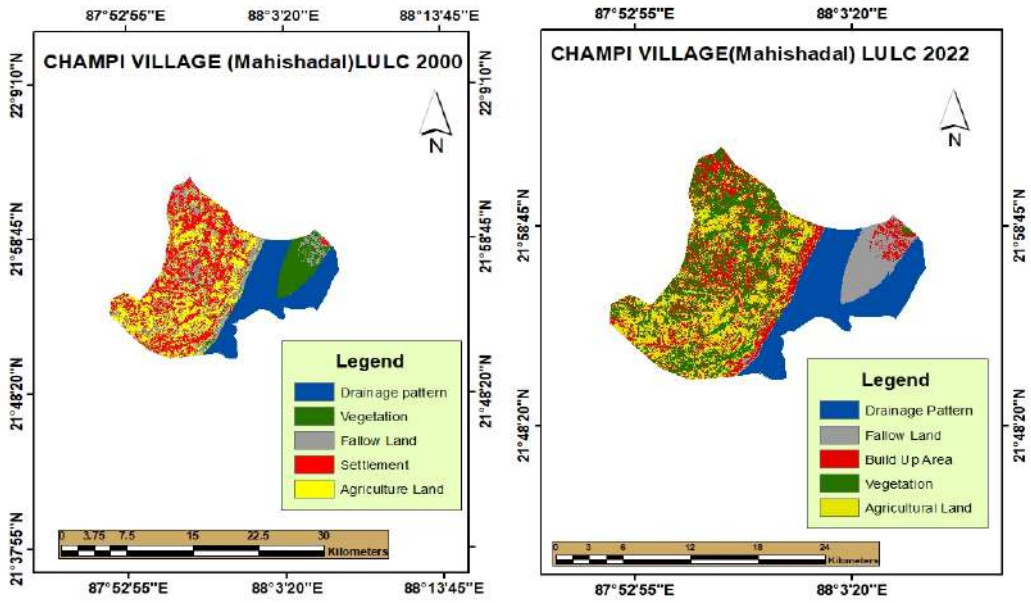


Fig No: 1.2 LULC Map (2000 &2022)

Table No:1.0 Land Use Land Cover			
LULC	Area in %		Change in %
	2000	2022	
Agricultural Land	23.01	23.01	0
Drainage Pattern	22.96	22.96	0
Fallow Land	18.73	8.87	-9.86
Settlement	26.4	18.73	-7.67
Vegetation	8.9	26.4	17.5
Source: Landsat-4&5, TM C2L2			

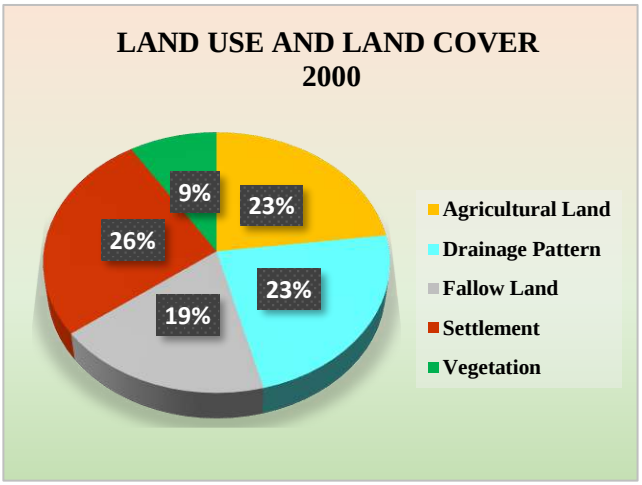


Fig No: 1.3 LULC Map 2000

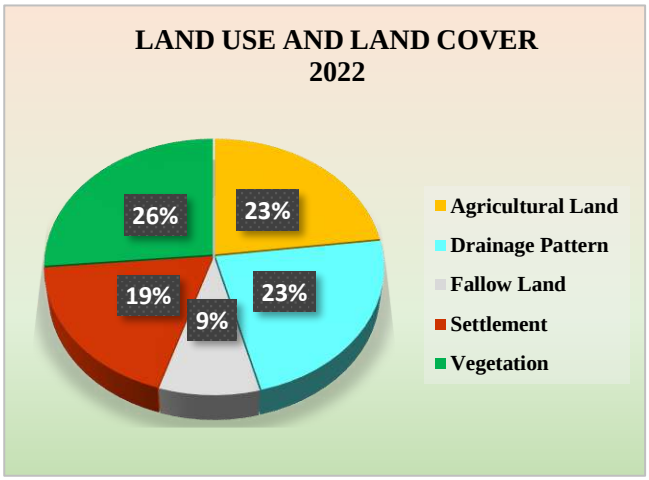


Fig No: 1.4 LULC Map 2022

Chapter -II

Literature Review

Adak.s, Adhikari.k, Brahmachari.k, in 2016 studied about the effect of Fly Ash on crop coverage around coal-fired thermal; power plant in Rural India. Fly Ash coming out from Kolaghat thermal power plant, West Bengal, India affects the crop coverage in the surrounding area. They used field survey, soil survey staff and Assistant Director of agriculture Assistance. Due to fly ash emission from power plant adjacent to KTPP of Kolaghat Block Thermal Power Station; vegetation and in addition to reducing rice production, they focus on fly ash causing changes in soil properties that inhibit nutrient availability.

Das.Pk, Kunar.T, Bandopadhyay.S 2021: Studied impact assessment of cyclone Amphan on agriculture in parts of West Bengal, the cyclone caused extensive damage to field crops and uprooted trees with adverse effects on water and energy. BY studying 2019 Landsat 8 OLI images and NDVI Profiles derived from multi-temporal Landsat images, it was estimated that the cyclone damaged mature permanent crops at highest risk.

Khatun.M, Garai.S, Sharma, Singh.R, Tiwari.S and Mujbar.SK carried out flood mapping and damage assessment due to super cyclone YAS in 2022 in Purbamedinipur, West Bengal, India using Google Earth Engine. Because tropical cyclones from in the Bay of Bengal cause short-term heavy rains, stroms and climate change has increased the occurrence of cyclones in the Indian Ocean in recent days. They canalyzed flood damage using pre- cyclone. Sentinel-1 SAR data, ESRI 2020 land cover data. Floods have caused the most damage to land, agriculture and vegetation respectively in Purbamedinipur.

Maity.SK in 2021 studied about explores agricultural adaptation against climate change in Agra Subdivision of East Medinipur. Irregular rainfall, climate change, severe flooding, prolonged drought, recurring tropical cyclones, tidal surges and saltwater inflows pose serious threats to farmers in Agra. Floods cause significant damage to various types of seasonal rice, wet season plants and trees, winter crops. But, potential deviation from established rice monocultures based on chemical dependence and inefficient use of natural resources is critical to achieving sustainable agricultural adaptation.

Ojha.A, and Chakraborty. A, in 2018 studied agricultural impact of brackish water in coastal blocks Of East Medinipur district, adverse impact on productivity due to rapid growth of brackish water ponds and erosion and runoff of brackish water near agricultural land. Using multi- temporal satellite and GIS techniques, the general profile of respondents, socio-economic status, agricultural conditions including effects of salinity, remedial measures and noticeable changes in soil acidity and soil PH were focused on.

Singh.RK, Biradar.C, Sarker.A, Dogra.A and Rizvi.J in 2021 focused on mapping the pulse area on rice yield using multi-criteria spatial decision making to eliminate waterlogging, diversify winter crops, diversify crops to accelerate agricultural intensification and assess the suitability of pulses in current research. They focused on actual production i.e. major lentil planting area using AHP (Analytical Hierarchy Process) based on MVA (Multi criteria evaluation) technique.

Chapter –III

Data Sources and Methodology

3.1 Sources of Data

For any study, the database stands as one of the most crucial tools. The collection of this database necessitates the utilization of primary and secondary data sources. The study, in this case, relies on diverse sets of primary and secondary data

3.1.1 Secondary Data Source:

- ❖ To understand the chronological development of the study area literature review have been done from different books, articles, research papers and web pages.
- ❖ Physical background of the study area has been studied from different articles and web pages.
- ❖ To understand the demographic background of the study area secondary data have been collected from Primary Census Abstract, 2011 and District Census Handbook, 2011.

Table No: 3.1 Data Sources

SL NO	DATA	YEAR	SOURCES
1	**CHANPI VILLAGE BOUNDARY**	2022	**Chanpi Gran Panchyat**
3	**LAND USE LAND COVER**	2000	Landsat-4&5, TM C2L2 Spatial resolution 28.5 m.
4	**LAND USE LAND COVER**	2022	Landsat-8&9, OLI C2L2 Spatial resolution 30 m.

3.1.2 Primary Data Source:

- ❖ Intensive door to door survey has been carried out covering total 80 household at Chanpi Village in Purba Medinipur District.

3.2 Methodology:

Objective-wise methodology of field report are-

1. **Assess the physical back ground of the study area.**

The methods of data collection are

a. Georeferencing
b. Digitization
c. LULC Mapping

2. **The study aims to clarify the demographic characteristics of the study area.**

The methods of data collection are

a. Primary data collection through questionnaire.
b. Secondary data collection from census handbook.
c. Cartographic and statistical methods.

3.**The study seeks to examine the basic amenities available in the study area.**

The methods of data collection are

a. Primary data collection through questionnaire.
b. Secondary data collection from different website, book, journal and articles.
c. Cartographic and statistical methods for data analysis.

4. **Determine the relationship between economic conditions and socioeconomic status.**

The methods of data collection are

a. Primary data collection through questionnaire.
b. Secondary data collection from different website, book, journal and articles.
c. Cartographic and statistical methods for data analysis.
d. Modified Kuppuswamy scale of socio-economic status.

3.3 Objective-wise methodology of field report-

Table No: 3.2 Objective-wise methodology			
Objectives	**Methods**	**Data Type**	**Data Sources**
Assess the physical back ground of the study area	Georeferencing Digitization LULC Mapping	secondary data	Landsat-4&5, TM C2L2 Spatial resolution 28.5 m. Landsat-8&9, OLI C2L2 Spatial resolution 30 m.
The study aims to clarify the demographic characteristics of the study area	Cartographic and statistical methods.	Primary and secondary data	Households, Website etc.
The study seeks to examine the basic amenities available in the study area.	Cartographic and statistical methods.	Primary and secondary data	Households, Website etc.
Determine the relationship between economic condition and social status.	Cartographic and statistical methods, Modified Kupuswamy scale of socio-economic status.	Primary and secondary data	Households, Website etc.
To understand the cropping pattern of the study area.	Cropping intensity	Primary data	Households Survey
Studying the pattern of expenditure in agriculture.	Agricultural Orientation Index (AOI)	Primary and secondary data	Households Survey

❖ House-Hold Survey

We collect primary data through intensive door to door household survey with the help of structured questionnaire.

To fulfill the objectives of the study, data on socio-economic factors (level of education, Occupation, income, expenditure pattern of the family, building types and household assets etc.) were collected from Chanpi Village at Purba Medinipur District.

❖ Cartographic and Statistical analysis

- We have compiled all the primary and secondary data and tabulate the data to prepare master table. After that analyzed data for preparation of diagrams and subsequent analysis.

- Statistical analysis has been done. We have drawn some cartograms by suitable cartographic techniques.
- Map of Study area has been done by Arc- GIS 10.3 software.
- Land use Land cover map has been done from Google Earth Image.

❖ Sex ratio

The **sex ratio** is the ratio of females to males in a population. Sex ratio has been carried out by using this formula

$$\text{Sex Ratio} = \frac{\textbf{Female Population}}{\textbf{Male Population}} \times 1000$$

❖ Literacy rate

Literacy rate is defined by the percentage of the population of a given age group that can read and write. Literacy rate has been calculated by following formula

$$\text{Literacy rate} = \frac{\textbf{No.of Literate Population}}{\textbf{Total Population}} \times 100$$

❖ Decadal growth rate

To find out the percentage of total population growth in a decade (2001-2011) of the study area Decadal growth rate has been calculate. Using the following formula

$$DGR = \left(\frac{P_n - P_o}{P_o} \right) * 100$$

DGR = Decadal Growth Rate in %
P_n = Population now
P_o = Population originally
P_n and P_o are ten years apart

❖ Dependency Ratio:

The dependency ratio is a measure of the number of dependents aged zero to 14 and over the age of 65, compared with the total population aged 15 to 64. This demographic indicator gives insight into the number of people of non-working age, compared with the number of those of working age. The dependency ratio has been calculated using the following formula.

Dependency Ratio = [(Total Number of Children under age 14) + (Total Number of Senior Citizens above age 65)] / Total Number of People from the age group of 15 to 65 *100

Engle's Ratio:

Engle's Ratio shows Relationship between Family Income and family Food Expenditure. It is calculated by dividing the percentage change in the quantity of demand by the percentage change in consumers' income. When a family's income increases, the expenditures on food for that family typically rise as well, which indicates a positive relationship between consumers' income and the demand for food.

Modified Kupuswamy Scale 2021

The modified Kupuswamy scale is commonly used to measure SES in urban and rural areas. This scale was formulated by Kupuswamy in 1976 and has a composite score that includes household income per month along with education and occupation of the household head, giving a score of 3–29. The socio economic status of the study area is calculated on the basis Of Kupuswamy Scale 2021.

Table No:3.3 Modified Kupuswamy scale 2021

Education of head		Occupation of head of Family		Monthly Family Income	
Level of Education	**Score**	**Occupations**	**Score**	**Income Ranges (Rs.)**	**Score**
Profession	7	Legislators	10	>123,322	12
Graduate	6	Professionals	9	61633-123321	10
Intermediate or diploma	5	Technicians	8	46129-61622	6
HS Certificate	4	Clerks	7	30831-46128	4
Middle school certificate	3	Skilled workers	6	18497-30830	3
Primary school certificate	2	Agricultural worker	5	6175-18469	2
Illiterate	1	Trade worker	4	<6174	1
		Mechanics	3		
		Elementary occupation	2		
		Unemployed	1		

Source: https://www.ijfcm.org/

Agriculture Orientation Index (AOI):

The Agriculture Orientation Index (AOI) for Household Expenditures is defined as the agriculture share of household Expenditure, divided by the agriculture value added share of GDP, where Agriculture refers to the agriculture, forestry, fishing and hunting sector

AOI= Agriculture Share of household Expenditure/Agriculture Value Added Share Of GDP.

❖ Scatter Diagram:

A scatter plot is a graph that represents the relationship between two variables in a data-set. It represents data points on a two-dimensional plane. The independent variable is plotted on the X-axis, while the dependent variable is plotted on the Y-axis. These plots are often called scatter diagrams. Scatter diagrams are used to show relationships between two variables or to identify patterns in data.

Cropping Intensity:

It refers to raising of several crops from the same field during one agricultural year; it can be expressed through a formula**.**

Cropping Intensity = Gross Cropped Area/Net Sown Area x 100

Software use

ArcGIS: It is a geographic information system (GIS) for working with maps and geographic information. It is used for creating and using maps, compiling geographic data, analysing mapped information, sharing, and discovering geographic information, using maps and geographic information in a range of applications, and managing geographic information in a database.

❖ Ms-Excel:

We have compiled all the primary and secondary data and tabulate the data to prepare master table with MS-Excel. For the interpretation of data and subsequent analysis we have prepared different diagrams with the help of MS-Excel software.

Photo Plate No: 1 Household Survey

CHAPTER-IV

Demographic Background

4.0 Demographic Profile:

Demography is the statistical study of populations, especially humans. It's examine and measures the aspects and dynamics of populations; it can cover entire societies or groups defined by criteria such as education, nationality, religion, and ethnicity. Educational institutions usually treat demography as a field of sociology, though there are a number of independent demography departments. These methods have primarily been developed to study human populations, but are extended to a variety of areas where researchers want to know how populations of social actors can change across time through processes of birth, death, and migration. In the context of human biological populations, demographic analysis uses administrative records to develop an independent estimate of the population. As a rule, in the same country and at the same period, the size of an urban community is much larger than that of a rural community. In other words, urbanity and size of a community are positively correlated. Density of population in urban areas is greater. Urbanity and density are positively correlated. So far as urban community is concerned, greater importance is attached to the individual than to the family. Nuclear families are more popular in urban areas.

4.1 Trends of Population:

Chanpi is a large village located in Mahishadal block of East Medinipur district of West Bengal. The table shows the population growth and development trends of the study area from 2001 to the current 2011 census. A total of 803 families live in the study area and as per 2001 census the population of the study area is 4523 including 2299 males and 2224 females. According to the 2011 census of India, there are 1128 households in the study area. 2751 males and 2486 females out of a population of 5237. The average sex ratio of the study area is 904 which is lower than the 2001 sex ratio of 967 due to prenatal sex determination, social norms, infant and maternal mortality and lack of women education and empowerment. The study area has grown by 714 in the last year which represents a decadal growth rate of 15.79 %. According to 2001 census, the population density of the study area is 1253 sq. km which increased to 1451 sq.km in 2011 which is higher than the average population density of East Medinipur district (1100 sq.km) due to the availability of suitable land for agriculture, sufficient water etc. in the study area.

Table No: 4.1 Trends of Population

Year	Area in sq.km	Population density (sq.km)	Male	Female	Total Population	Sex Ratio	Absolute Increase	Decadal Growth Rate (%)	No. Of Households
2001	3.61	1253	2299	2224	4523	967	_	_	803
2011	3.61	1451	2751	2486	5237	904	714	15.79	1,128

Source: Census of India, 2011

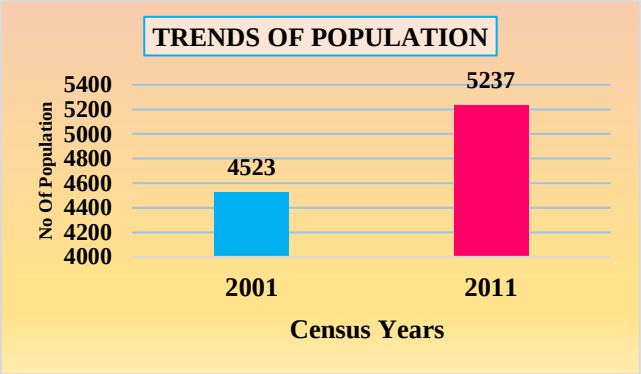


Fig No: 4.1 Trends of Population

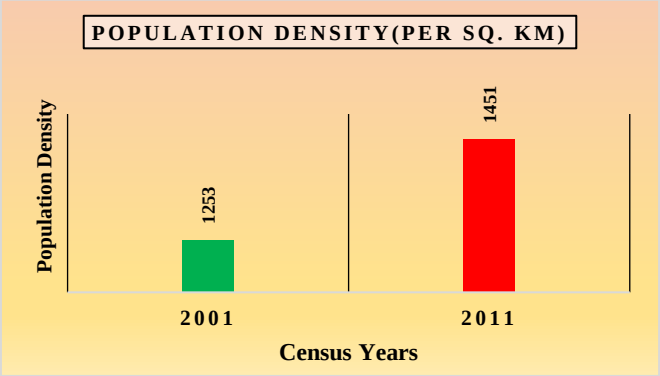


Fig No: 4.2 Population Density

4.2 Gender Composition:

Gender composition reflects the character of fertility, mortality and migration of a given population. The gender composition of human populations is one of the basic demographic characteristics; as changes in sexual structure largely reflects the underlying socio-economic and cultural patterns of society in various ways. As per 2011 census, the study area has a total population of 5237 with 2751 adult males per 2486 and a sex ratio of 904 per 1000 males, i.e., is lower than Purba Medinipur district of 938.

Table No:4.2 Gender Composition

Gender Composition	2001	2011
Total Population	4523	5,237
Male Population	2299	2,751
Male Ratio	51	53
Female Population	2224	2,486
Female Ratio	49	47
Gender Ratio	967	904

Source: Census Of India, 2011

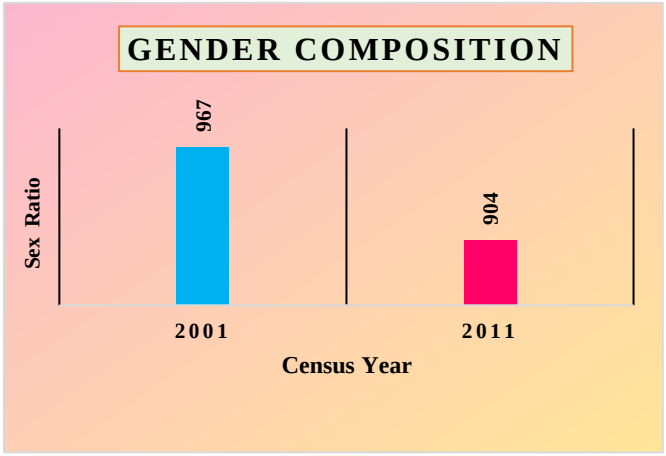


Fig No:4.3 Sex Ratio

4.3 Child Sex Ratio:

In India, child sex ratio is defined as the number of females per thousand males in a human population aged 0-6 years. As per 2011 census, total child population in the study area is 640 where male child population is 348 and female child population is 292. Thus, the child sex ratio is 839 which is lower than Purba Medinipur district average (946).

Table No:4.3 Child Sex Ratio

Child Population	Total Child Population	Male	Female	Child Sex Ratio
No Of Child Population	640	348	292	839

Source: Census of India, 2011

4.4 Age Composition:

In population studies, age distribution (also known as age composition) refers to the proportionate numbers of people in various age groups in a population. It is common in demography to split the population into three broad age groups: children and young adolescents (under 15 years old) the working age population (15-59 years) and the elderly population (60 years and older). The household survey data on age, reveals that 67% of the population in the study area is in the range of 15-59years. 23% of the population in the study area is in the range of 0-14 years. Least amount of population (11%) belongs to old groups i.e., above 59 years.

Table No:4.4 Age-sex Composition

Age Groups(yrs.)	Male		Female	
	Number	**%**	**Number**	**%**
0-14	**46**	**21**	**50**	**23**
15-59	**141**	**64**	**147**	**67**
>59	**32**	**15**	**24**	**11**

Source: Field Survey 2023

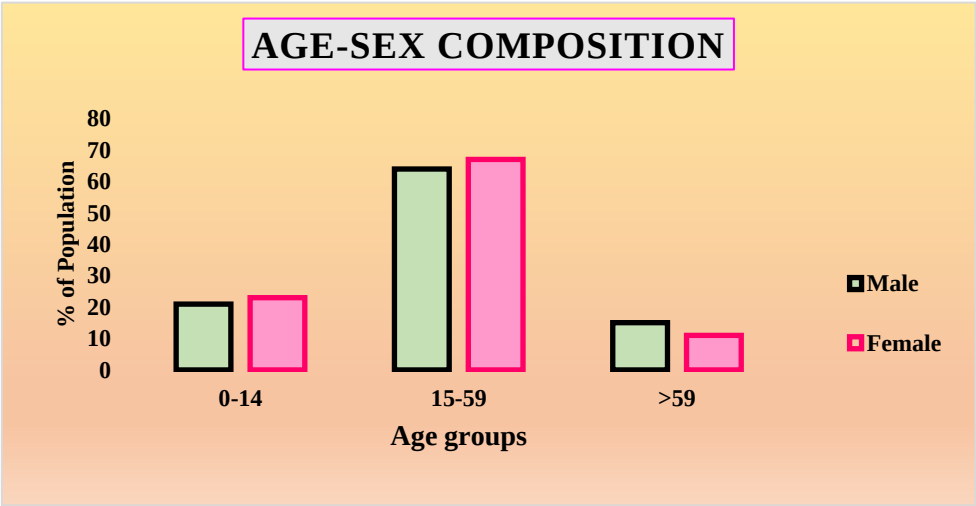


Fig No:4.4 Age-Sex Composition

4.5 Dependency Ratio:

The dependency ratio is a measure of the number of dependents aged 0-14 and over 59 compared to the total population aged 15-59. This population index compares the number of people of non- working age. The number of working age population in the study area is not evenly distributed according to their age groups. Most of the population is concentrated in the middle –aged or working age group, i.e., 15-59 years. Which is about 65.45%. The dependent population is about 34.55%, which is further classified into two groups' viz., young age group (21.82%) and old age group (12.73%). Hence, the dependency ratio of the study area is about 52.78%. That is 52 non- working population dependents on 100 working population.

Table No: 4.5 Dependency Ratio

Age Groups (years)	No of Population	Dependent Population	Independent Population	Dependency Ratio (%)
0-14	96	152	288	52.78
15-59	288			
>59	56			

Source: Field Survey 2023

4.6 Median Age:

Median age is the index that divides the entire population numerically into two equal age groups, one younger than that age and one older than that age. It is only indicator associated with the age distribution of the population. In the study area median age of the population are 48 years. Which indicates a change in the age distribution of the population, not necessarily a decline in the number of children. As the aging population increases, so will the labour.

CHAPTER –V

Socio-economic status

5.0 Socio-economic profile:

Socioeconomic status (**SES**) is an economic and sociological combined total measure of a person's work experience and of an individual's or family's economic access to resources and social position in relation to others. When analysing a family's SES, the household income, level of education, and pattern of occupation are examined, as well as combined income, whereas for an individual's SES only their own attributes are assessed. Socioeconomic status is classified into three levels (high, middle, and low) to describe the three places a family or an individual may fall into. When placing a family or individual into one of these categories, any or all of the three variables (income, education, and occupation) can be assessed.

Education in higher socioeconomic families is typically stressed as much more important, both within the household as well as the local community. In poorer areas, where food, shelter and safety are major priority, education is typically considered as less important.

Additionally, low income and education have been shown to be strong predictors of a range of physical and mental health problems, including respiratory viruses, arthritis, coronary disease, and schizophrenia. These problems may be due to environmental conditions in their workplace, or, in the case of disabilities or mental illnesses, may be the entire cause of that person's social predicament to begin with.

5.1 Literacy Status:

According to the 2011 census, any person aged seven and above has the ability to read and write is considered literate. The total literate persons in study area were 3,883 out of which males were 2,154 and remaining 1,729 were female. Where literacy rate for male and female at 55.47% and 44.53% respectively. The gender gap in the study area is 10.94% as women in West Bengal are generally portrayed and most of them are trapped in both poverty and patriarchy.

Table No: 5.1 Literacy Status

Gender	Literate persons	Literacy rate (%)	Literacy gap (gender gap)
Male	**2154**	**55.47%**	**10.94%**
Female	**1729**	**44.53%**	

Source: Census of India.

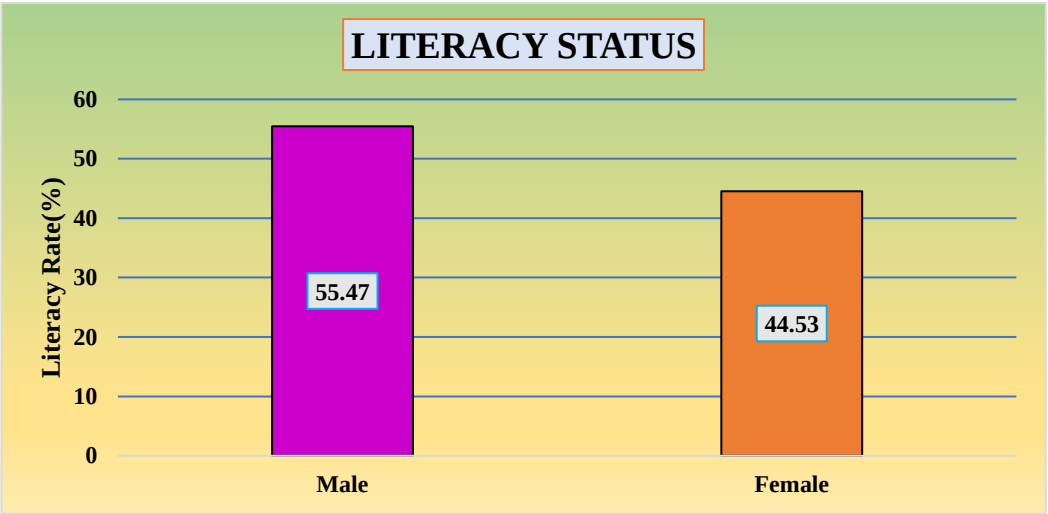


Fig No: 5.1 Literacy Status

5.2 Caste Composition:

Caste is a form of social stratification characterised by endogamy, hereditary transmission of a style of life**.** According to field survey overall population has been divided into the scheduled caste, scheduled tribes, OBC-A, OBC-B etc. It shows that majority of the population belongs to UR category which is around 83.75% and SC population is16.25%.

Table No: 5.2 Caste Composition		
Category	**Frequency**	**(%)**
General	67	83.75
SC	13	16.25
ST	0	0
OBC-B	0	0
Source: Field survey 2023		

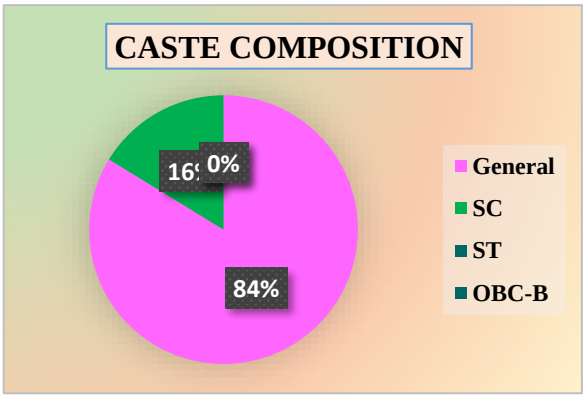


Fig No: 5.2 Caste Composition

5.3 Level of Education:

According to the field survey, a higher population (23.18%) in study area held a secondary education degree as their highest level of educational attainment compared with all other level of educational attainment. Specially 11.36% of adult in study area had a higher secondary degree, compare with 5.91% of adult who have bachelor's degree and 0.91% of adult had a post graduate degree,2.5% of adult had other higher degree. Around 56.14% of adult in study area had not completed high school.

Table No:5.3 Level of education		
Level of education	**Number**	**Percentage (%)**
Illiterate	54	**12.27**
Primary	93	**21.14**
Upper Primary	100	**22.73**
Secondary	102	**23.18**
Higher secondary	50	**11.36**
Graduate	26	**5.91**
Post-graduate	4	**0.91**
Other higher education	11	**2.5**
		Source: Field survey 2023

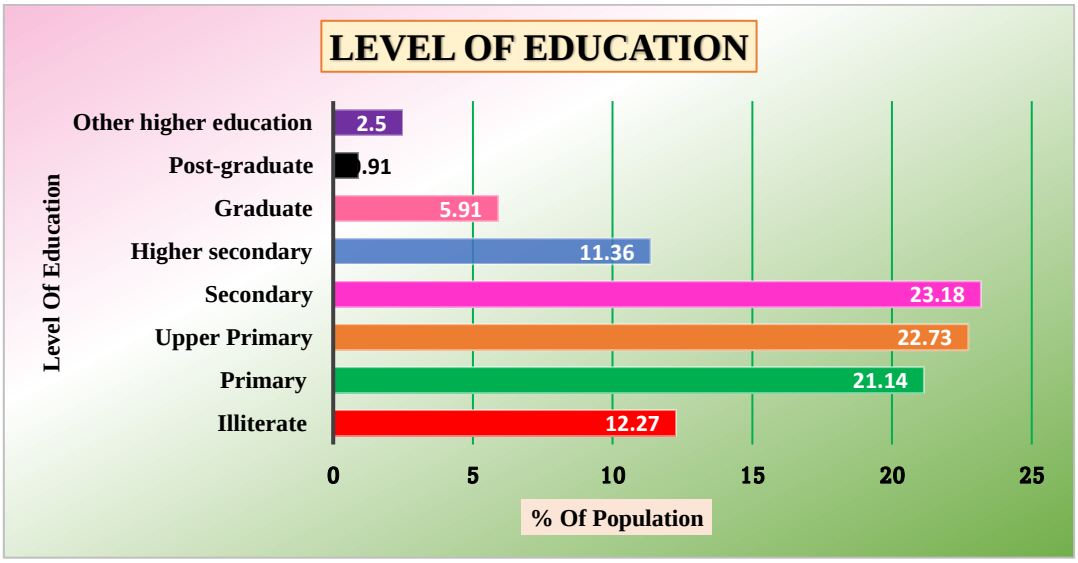


Fig No: 5.3 Level of Education

5.4 Education Status:

We can explain educational status based on how many people go to school, how many go to Anganwadi, how many go to college. According to the survey, most people go to school (19.09%) compared to college (2.05%). Again 4.09% people go to Anganwadi.

Table No:5.4 Education Status		
Education Status	**Number**	**Percentage**
Going to AWC	**18**	**4.09**
School	**84**	**19.09**
College	**9**	**2.05**
		Source: Field Survey 2023

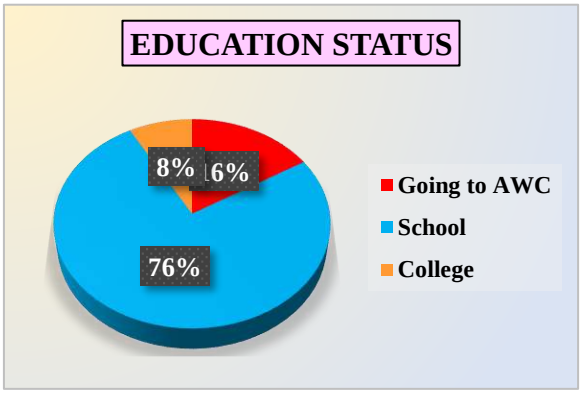


Fig No: 5.4 Education Status

Plate No: 2 Educational Institutions

5.5 Computer Literate:

Computer literacy helps enhance efficiency, workflow, and overall experience within the workplace. We can see that most of the people in the study area have not taken computer training because most of the people have education levels up to secondary level and are dependent on agriculture and unskilled labour. Only 7.88% people are computer literate.

Table No:5.5 Computer Literate		
Computer Literate	**Number**	**Percentage**
Yes	**26**	**7.88**
No	**304**	**92.12**
Source: Field Survey 2023		

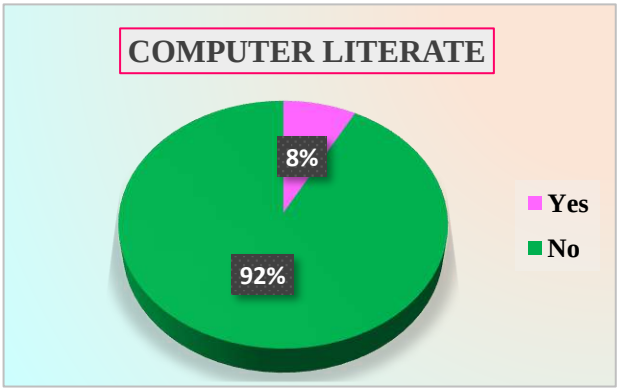


Fig No: 5.5 Computer Literacy

5.6 Marital Status:

Marital status is the legally defined marital state. There are several types of marital status: single, married, widowed, divorced, separated and, in certain cases, registered partnership. According field survey most of the people is married (82.73%) followed by the unmarried people is 13.64%, widow people are 4.55%.

Table No:5.6 Marital Status		
Marital Status	**Number**	**Percentage**
Married	273	82.73
Unmarried	45	13.64
Widow	15	4.55
Divorce	0	0
Source: Field Survey 2023		

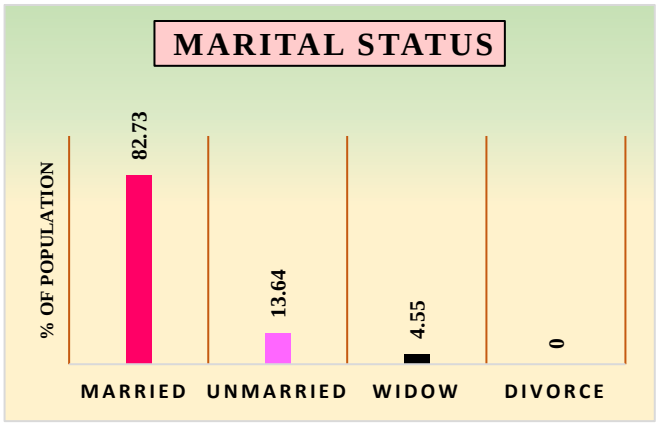


Fig No: 5.6 Marital Status

5.7 Aadhaar Card:

Aadhaar System provides single source offline/ online identity verification across the country for residents. 94.09% of people in the study area have Aadhaar card as very fast Aadhaar has spread in all spheres of life like opening bank account, getting PAN card , getting mobile number, applying for student scholarship, as a mandatory document for applying for passport, even PDS Aadhaar must also be linked with the ration card to avail the benefits. Again 5.91% people still don't have Aadhaar card.

Table No: 5.7 Aadhaar Card		
Aadhaar Card	**Number**	**Percentage**
YES	414	94.09
No	26	5.91
Source: Field Survey 2023		

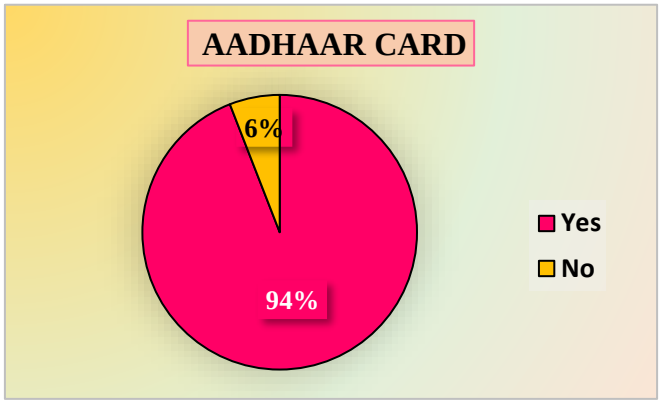


Fig No: 5.7 Aadhar Card

5.8 Self Help Group:

A Self –help group (SHG) is a financial intermediary committee usually composed of 12 to 25 local women between the ages of 18 and 50. According to the field survey, 52.98% of women have self-help groups thereby contributing to the expansion of their families and they can afford their children's education. Women are trained in any skill under this scheme so that they can afford their own expenses. 47.02% women are yet to become members of self-help group.

Table No:5.8 Self Help Group		
Self Help Group	**Number**	**Percentage**
Yes	**80**	**52.98**
No	**71**	**47.02**
Source: Field Survey 2023		

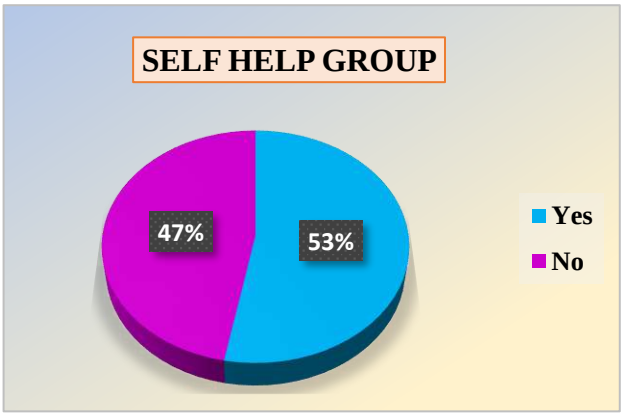


Fig No: 5.8 Self Help Group

5.9 Social Security Pension:

People can receive social security benefits based on their earnings record if they are age 62 or older, or are disabled or widowed and have sufficient work credit. 29.6% people of the study area get old age pension,20% people get widow pension and all disabled people get disability pension, 70.06?% people get other pension which includes Laxir Bhandar, retired pension. But 42.92% people did not get any social security pension benefits.

Table No:5.9 Social Security Pension		
Social Security Pension	**Number**	**Percentage**
Old Age Pension	16	29.6
Widow Pension	3	20
Disability Pension	3	100
Other Pension	103	70.06
No Pension	94	42.92
		Source: Field Survey 2023

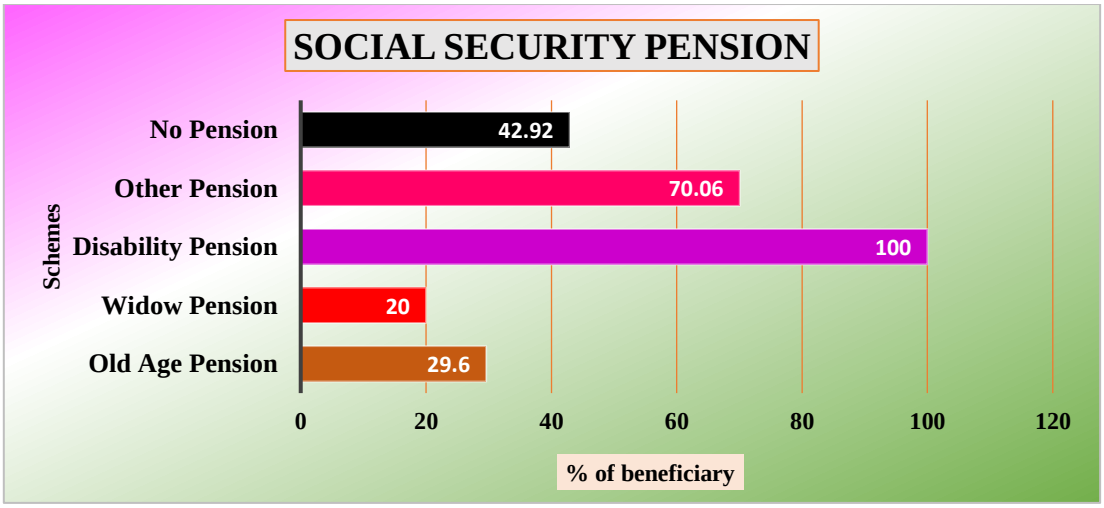


Fig No: 5.9 Social Security Pension

5.10 Beneficiary of Government Scheme:

For rural development, the Government of India has launched several schemes for rural people, among which the most prominent schemes in the study are Sukanya samriddhi Yojana with 8.75% of people, 61.25% of people with Kisan Credit Cards, 20% people got Swachh Bharat Mission Toilets, 55% people got the PM Ujjwala Yojana Gas, 18.75% people got the benefit of Pradhan Mantri Awas Yojana and 87.50% people got the benefit of PM Suraksha Bima Yojana.

Table No: 5.10 Beneficiary of Government Scheme		
Name Of Scheme	**Number**	**Percentage**
Sukanya Samriddhi Yojana	7	8.75
PM Suraksha Bima Yojana	70	87.5
Kisan Credit Card	49	61.25
Swachh Bharat Mission Toilet	16	20
PM Ujjwala Yojana	44	55
PM Awas Yojana	15	18.75
Source: Field Survey 2023		

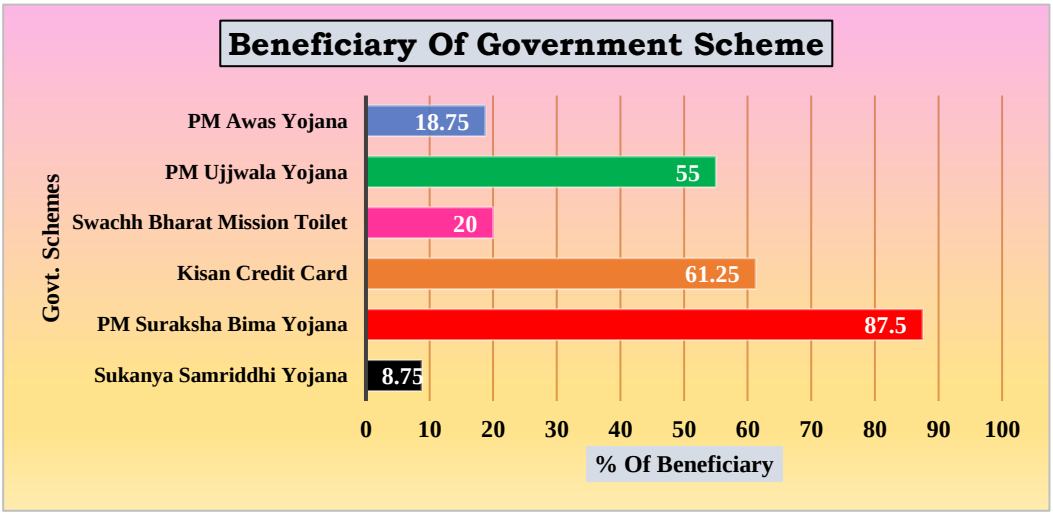


Fig No: 5.10 beneficiary of govt. schemes

5.11 Ownership of House:

The pattern of house ownership is nothing but the ownership of one or more rights, which is significantly observed in rural areas. According to field survey, each of the 80 households have their own house.

Table No. 5.11 Ownership of House		
Owner of house	**Number**	**Percentage**
Own	80	100
Rental	0	0
Source: Field survey 2022		

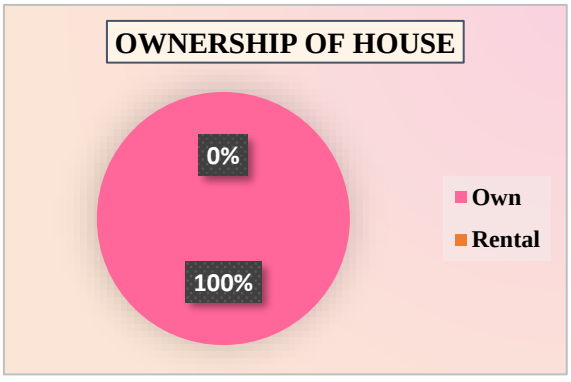


Fig No: 5.11 Ownership of House

5.12 Nature of House:

According to field survey 2.5 % household are kutcha and 97.5% household are Pucca. These houses are made up of substantial, hard-wearing materials including stones, bricks, and concrete. Pucca houses, including apartments and buildings, are designed to last for long periods. The multi-storied apartments are common in study area due to land cost and scarcity.

Table No: 5.12 Nature of House

Nature Of House	Number	Percentage
Kutcha	2	2.5
Pucca	78	97.5

Source: Field survey 2022

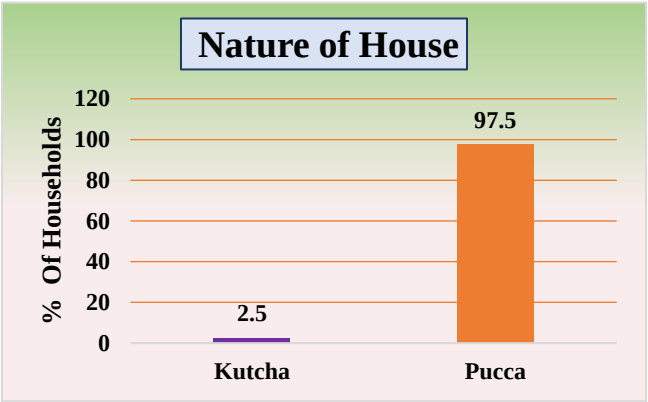


Fig No: 5.12 Nature of House

5.13 Cooking Fuel:

According to the field survey 31.25% households use LPG gas for cooking, 38.75% households use cow dung and firewood. On the other hand, 66.25% households use paddy straw and firewood. Since agriculture is preferred in rural areas, there is an abundance of paddy straw and wood which, when properly used, generates a lot of smoke. The present study found that women who use biomass fuel for cooking suffer from respiratory and other ailment. Furthermore, morbidity was observed to increase with increasing cooking duration.

Table No: 5.13 Cooking Fuel

Source of Cooking Fuel	Number	Percentage
LPG	25	31.25
Cow dung & Fuel Wood	31	38.75
Paddy Straw & Fuel Wood	53	66.25

Source: Field Survey 2023

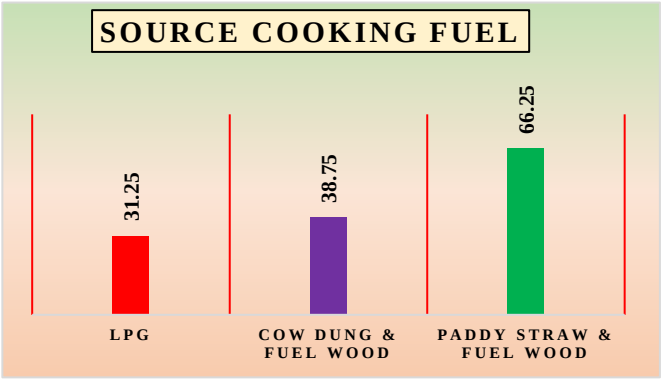


Fig No: 5.13 Cooking Fuel

Plate No: 3 Traditional Cooking Fuel

Plate No: 4 Housing Conditions

5.14 Poverty Status:

Poverty is a condition in which an individual or household lacks the financial resources to afford a basic minimum standard of living. According to field survey, out of the 80 household in the study area are 68.75% APL household and 31.25% BPL category belong in this area. According to the field survey 31.25% family belong in low level of poverty status, and there lifestyle also very low level.

Table No: 5.14 Poverty Status		
Poverty status	**Number**	**Percentage (%)**
APL	**55**	**68.75**
BPL	**25**	**31.25**
Source: Field survey 2022		

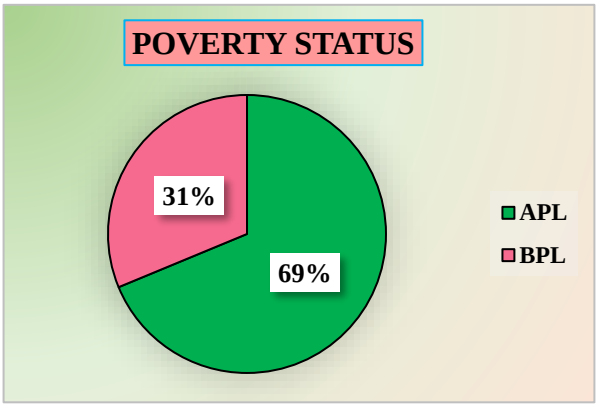


Fig No: 5.14 Poverty Status

5.15 Occupation Pattern:

The occupational structure of a nation refers to the percentage of its workforce employed in various economic ventures. The field survey in Chanpi also gives us data about the occupation. The shows that most of the people are engaged with other artesian (22.5%), about 4.55% people are engaged with trade, some are engaged in private (1.14%) and government (1.36%) sector and some are engaged in other sector like Animal Husbandry (2.5), pisciculture /poultry (1.36%), farming (5%) etc., Some of the people are engaged with skilled (2.27%) and unskilled worker (4.55%).

Table No: 5.15 Occupation Pattern		
Occupation pattern	**Number**	**Percentage (%)**
Farming on own Land	**22**	**5**
Animal Husbandry	**11**	**2.5**
Pisci-culture /poultry	**6**	**1.36**
Skilled wage worker	**10**	**2.27**
Unskilled wage worker	**20**	**4.55**
Salaried employment in government	**6**	**1.36**
salaried employment in privet sector	**5**	**1.14**
Trade	**20**	**4.55**
Other Artisian	**99**	**22.5**
Source: Field survey 2022		

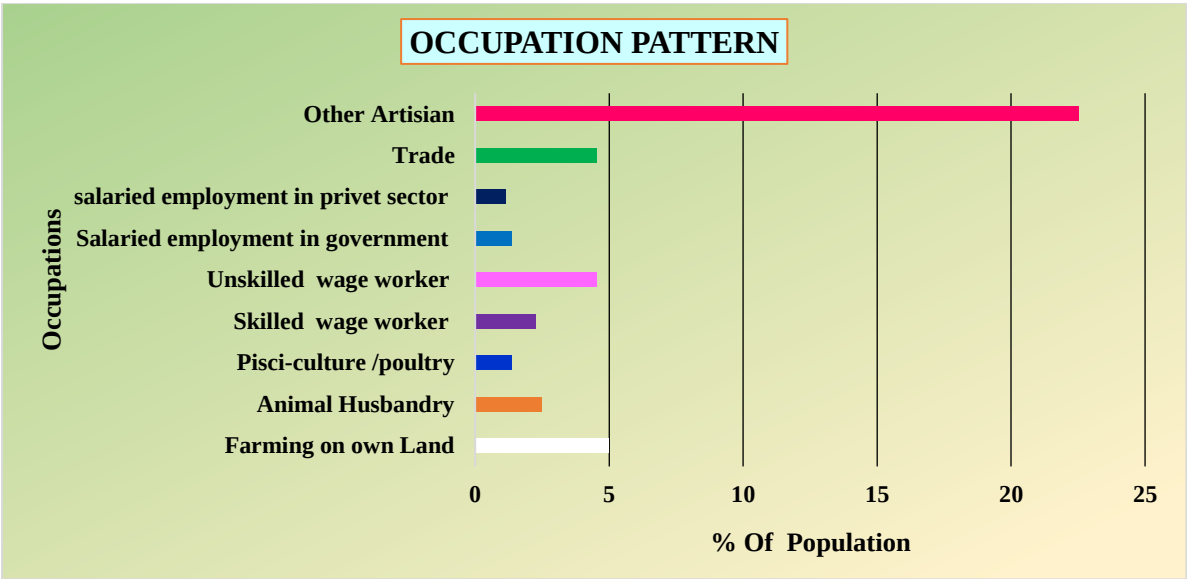


Fig No: 5.15 Occupation Pattern

5.16 Monthly Family Income:

According to field survey, 41.25% of households have a luxury standard of living and most of them belong to higher income cohorts (High- Middle and Rich). Only 7.5 per cent families have an income of less than Rs 20,000 per month i.e., Belong to the aspiring or lowest-income cohort. Also, the survey found that 93 per cent of households do some financial savings in the form of bank deposits, insurance etc.

Table No: 5.16 Monthly Family Income

Monthly family income (in rupees)	Number	Percentage
<5000	00	00
5000-10,000	6	7.50%
10,000-20,000	23	28.75%
20,000-30,000	18	22.5%
>30,000	33	41.25%

Source: Field Survey 2022

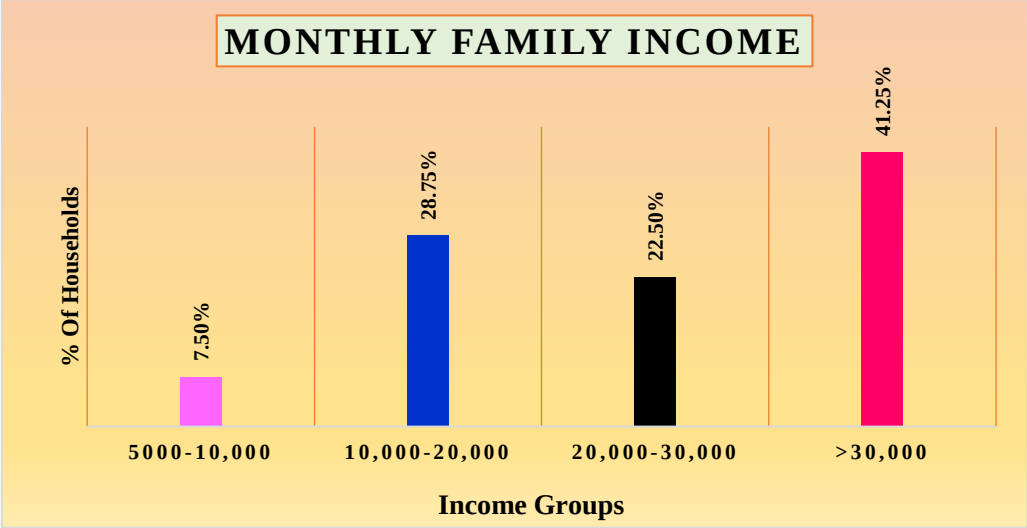


Fig No: 5.16 Family Income

5.17 Bank Account:

According to the field survey 78.86% of people in the study area have a bank account as those who are well educated and employed in a variety of private and public sector jobs will have bank accounts, but so will those who are not well educated but are employed in a variety of trades, unskilled wage workers and receive various types of social security pensions. They have bank accounts. The rest have no bank account which is 21.14%.

Table No: 5.17 Bank Account

Bank Account	Number	Percentage
Yes	347	78.86
No	93	21.14

Source: Field survey 2022

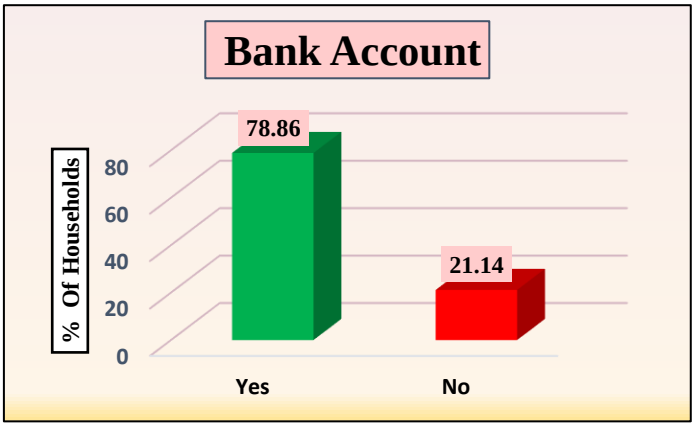


Fig No: 5.17 Bank Account

5.18 Monthly Family Expenditure:

Every family has some expenses in terms of food, medicine, clothing, education, television etc. Since the survey area is in rural areas, most of the people have a monthly family expenditure of less than 10,000, 35% of households have a monthly family expenditure of 10,000 to 30,000 and about 1.25% have a monthly family expenditure of 30,000 or more.

Table No: 5.18 Monthly Family Expenditure		
Monthly family Expenditure (in rupees)	**Number**	**Percentage**
<5000	**0**	**0**
5000-10,000	**51**	**63.75**
10,000-20,000	**25**	**31.25**
20,000-30,000	**3**	**3.75**
>30,000	**1**	**1.25**
Source: Field Survey 2023		

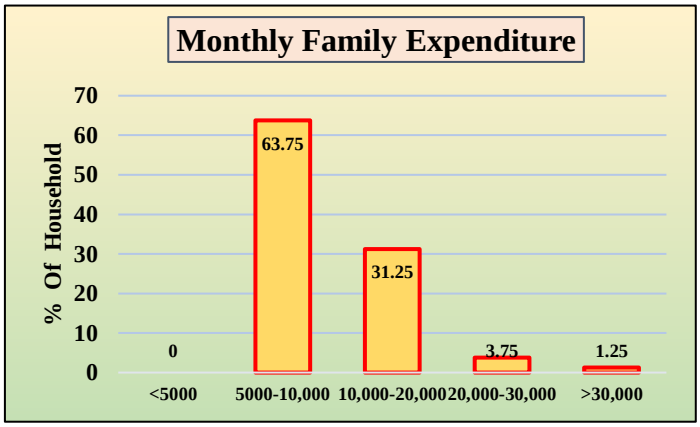


Fig No: 5.18 Monthly Expenditure

5.19 Expenditure Pattern:

Engle's Law is an economic theory put forth in 1857 by Ernst Engle, a German Statistician. In general, food demand analysis is presented in the literature which highlights food expenditure patterns in the study area. The table below shows that the Socio-Economic status of most households is moderate (56.25%) which indicates that food expenditure and savings are moderate. about 23.5% households is in poor condition due to their high food penetration and low savings. 13.75% households are in relatively good condition as their food expenditure is low to moderate and savings are moderate to high. Socio-Economic status of 6.25% household is good from here we can understand that saving is high due to low food expenditure.

Table No: 5.19 Engle Ratio & socio-economic conditions		
Socio Economic Status	**Range of Engle's Ratio**	**Percentage of Household**
Poor Condition	**<10**	**23.75**
Moderate	**10-20**	**56.25**
Relatively in better condition	**20-30**	**13.75**
Better Condition	**>30**	**6.25**
Source: Field Survey 2023		

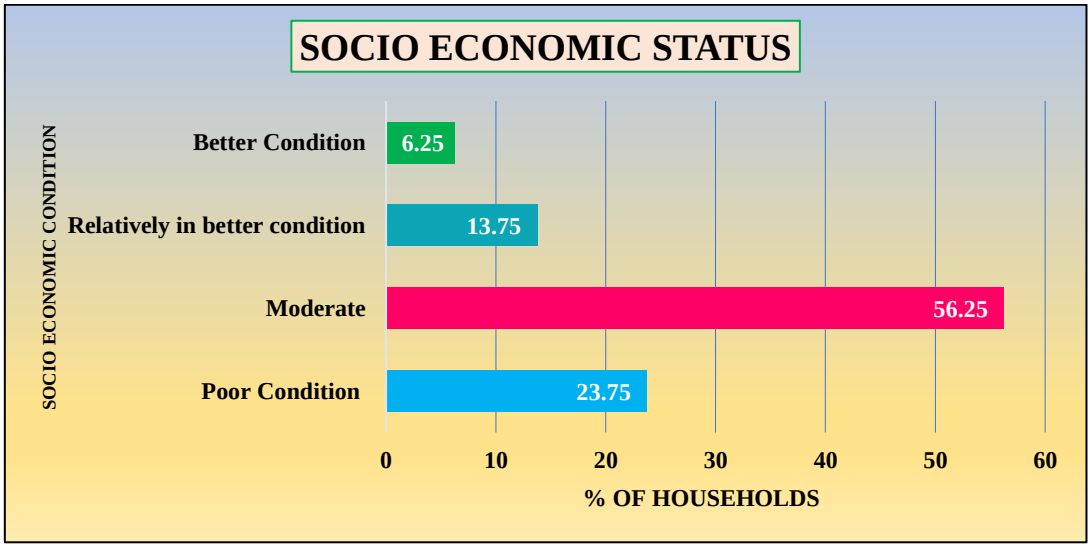


Fig No: 5.19 Socio Economic Conditions

5.20 Relationship between Income & Expenditure:

Income, expenditure, and savings are interrelated. Expenditure on various necessities is essential to increase the health status and welfare of the family. On the other hand, saving is essential for future use. Therefore, the level of correlation between income and expenditure is 0.90. Which reflex a strong and positive correlation between income and expenditure.

Table No: 5.20 Relationship between Income & Expenditure

No of the respondent	Range Of Income & Expenditure				
	<5000	5000-10000	10000-20000	20000-30000	>30000
Income Group	0	6	23	18	33
Expenditure	0	51	25	3	1

Source: Field Survey 2023

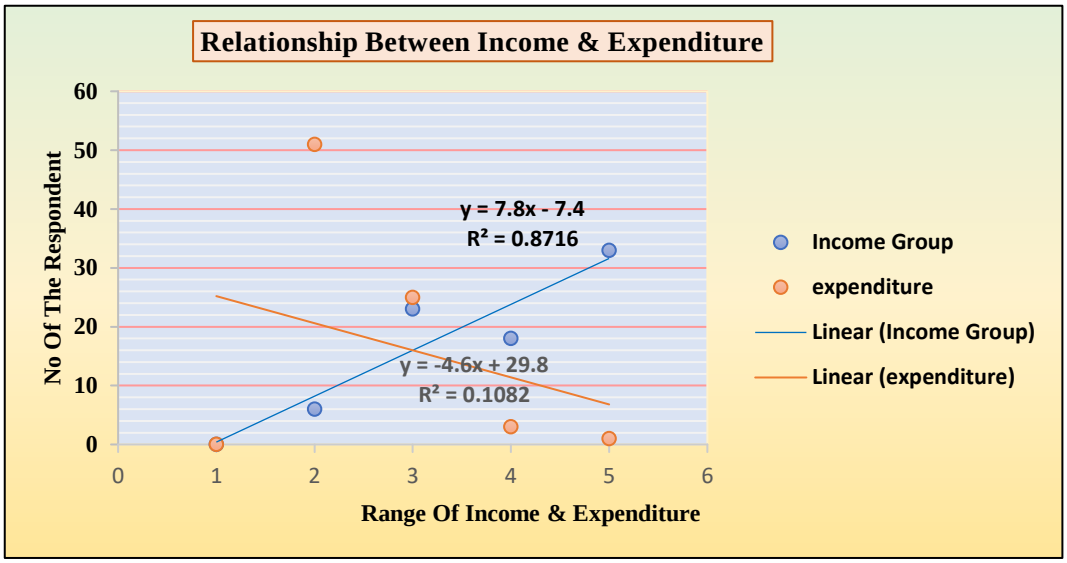
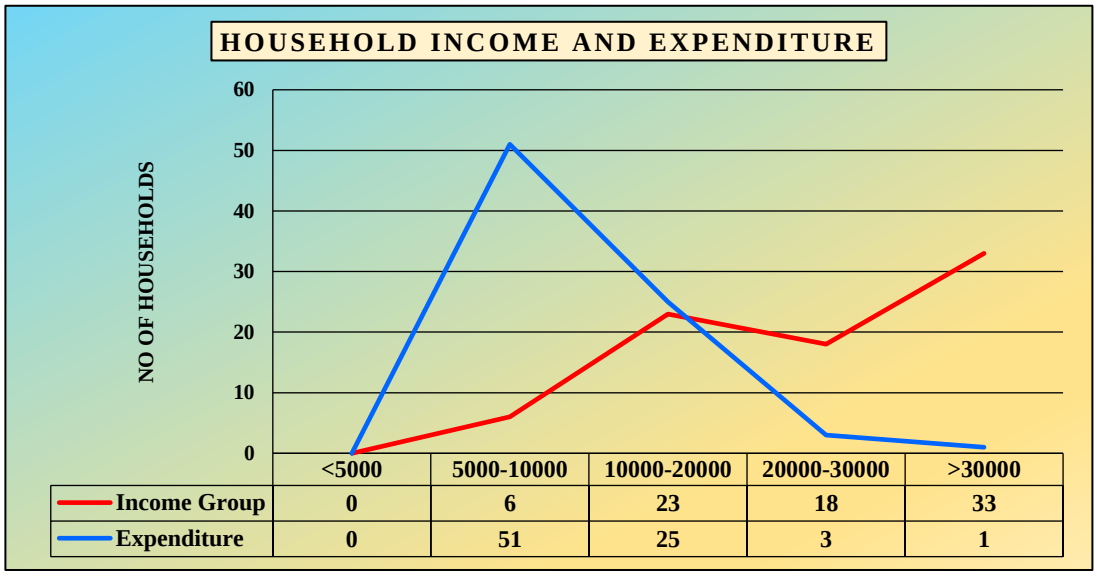


Fig No: 5.20 Relationship Between Income & Expenditure



	<5000	5000-10000	10000-20000	20000-30000	>30000
Income Group	0	6	23	18	33
Expenditure	0	51	25	3	1

Fig No: 5.21 Household Income & Expenditure

5.21 Socio Economic Status:

Socioeconomic status is a person's or group's position on the socioeconomic scale, measured by income, amount and type of education, type and prestige of occupation, place of residence, and in some societies or segments of society ethnic origin. usually measured in the Kuppwami region and measured in Kuppwami. Socio-economic status is generally described as low, medium, and high. We can see that in the study area 3.75% families are upper middle class and lower class 28.75% families are lower middle class so their economic status is good i.e., they are getting economic and social access. On the other hand, 63.75 percent people of upper and lower classes are also getting socio-economic benefits but relatively less. Again, 3.75% of households are of low socio-economic status, i.e. their socio-economic status generally has less access to financial, educational and social sectors. As a result, they are in poorer health and more likely to develop chronic health conditions and disabilities

Table No:5.21 Socio Economic Status (after Kupuswamy 2021)

Socio Economic Status	No of Households	% of Households
Upper	**-**	**-**
Upper Middle	**3**	**3.75**
Lower Middle	**23**	**28.75**
Upper Lower	**51**	**63.75**
Lower	**3**	**3.75**

Source. Field Survey 2023

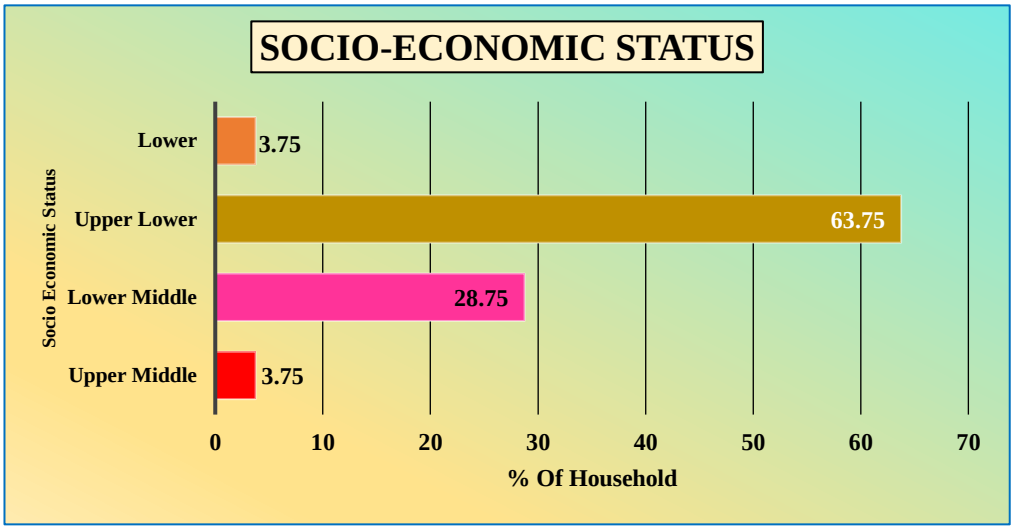


Fig No: 5.22 Socio-Economic Status

CHAPTER -VI

Agricultural Status

Agriculture serves as the backbone of the Indian economy. Its most important role in socio-economic field. Indian agriculture is a diverse and broad sector involving a large number of stakeholders. Moreover, India has experienced significant growth since independence Oilseed production (through yellow revolution), Milk (through the White Revolution), fish (through Blue Revolution), and fruits and vegetables (via The Golden Revolution). National Agricultural Role Research System (NARS) has become essential in view of all these important and successful developments.

India is a developing country. There is mostly intensive subsistence agriculture. Residents of our study area are mainly engaged in agriculture to meet their food needs. The main crop here is paddy. Mustard, pulse, battle nut is also cultivated here. In the study area, paddy is cultivated mainly as an adman crop, which is planted during the rainy season and harvested and threshed in early winter. Also, barrow paddy is cultivated

India has the largest and most institutionally complex agricultural research system in the world. An agricultural research greatly increased yields of important staple food crops and for many meant more food availability and trade opportunities. Yet many people in rural India still live in extreme poverty. Therefore, policymakers, donors and researchers are refocusing their priorities away from simply producing more food to ensure that agricultural research benefits the poor in particular. Research shows that measures of direct impact of new technologies on income and productivity.

Until recently, reducing poverty was a secondary goal of agricultural research. The primary focus was on increasing food supplies and reducing food prices, a strategy that successfully boosted the yields of important food staples. This was often good news for the poor, as increased productivity led to lower food prices and more jobs (both on and off the farm), cutting rural poverty significantly. However, benefits did not materialize for all poor people, and some indigent people were negatively impacted.

Past efforts focused on boosting food production in irrigated and high-potential areas, but many poor people do not live in those areas. And those who do live there lack the sets (such land, water, labour, and credit) needed to use new technologies. As a result, many of the poor could only benefit indirectly from technological change, and these benefits were often not sufficient to lift them out of poverty. To benefit the poor, future research should target the areas where the largest numbers of poor people live and respond to their vulnerabilities and livelihood strategies. At the same time, more emphasis should be placed on improving the productivity of the crops that the poor consume most

6.1 Type of Farmer:

India, being a developing country, agriculture is one of the main sources of income. Farmers are classified according to their land holdings. In the agricultural census, farmers are classified into five size categories namely: marginal, small, semi-medium, medium, and large. According to field survey 100% farmers belong to marginal category i.e., their land holding is up to 1 hectare.

Table No:6.1 Type of Farmer

Farmer Type	Range of the land (hectare)	No. of Population	Percentage
Marginal Farmer	<1	80	100
Small Farmer	1-2	0	0
Semi-medium Farmer	2-4	0	0
Medium Farmer	4-10	0	0
Large Farmer	>10	0	0

Source: Field Survey 2023

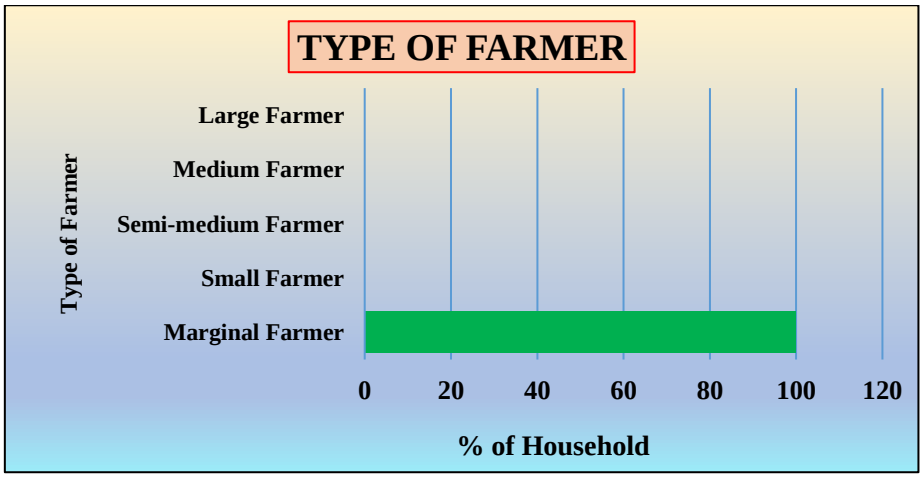


Fig No: 6.1 Type of Farmer

6.2 Size of land Holding:

According to the field survey, the land holding size is divided into three categories. Such as, less than 1 Bigha, 1-3 Bigha and more than 3 Bigha. We can see that majority of households (78.75%) have medium size of land. Whereas, 18.75% households have land holding size more than 3 bigha and only 2.5% family have very small land holdings less than 1 bigha.

Table:6.2 Size of land Holding

Size of land Holding (Bigha)	No. of Household	Percentage (%)
<1	2	2.5
1-3	63	78.75
>3	15	18.75

Source: Field Survey 2023

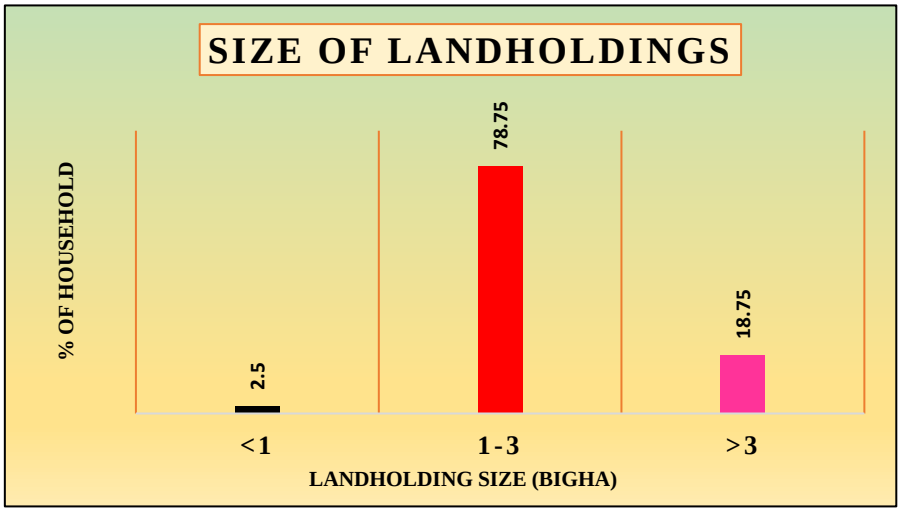


Fig No: 6.2 Size of land Holdings

6.3 Ownership of land:

Land ownership is generally defined by the access to a land title. Land title is a document that determines the ownership of land or an immovable property. Which is significantly observed in rural areas. According to the field survey 81.25% people have their own land but 17.5 % people have very marginal land so, sometimes they cultivate on leased land.

Table No:6.3 Ownership of Land

Ownership of Land	Number	Percentage
Own	65	81.25
Both own and leased land	14	17.5

Source: Field Survey 2023

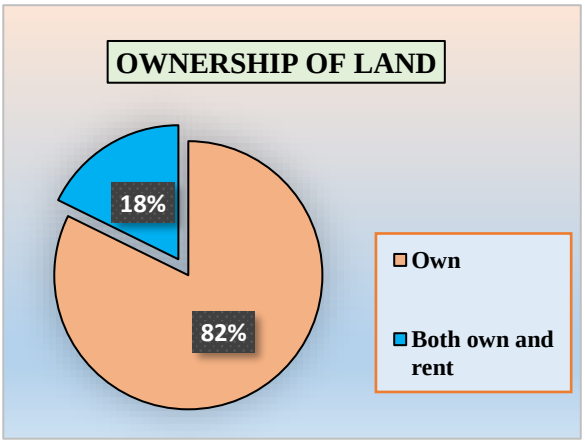


Fig No: 6.3 Ownership of land

6.4 Season wise cropping pattern:

There are three distinct crop seasons in India, namely kharif (June to early November), Rabi (November to March) and Zaid (March to June). In the study area 100% households cultivate paddy in Kharif season, about 81.25% households cultivate paddy in Zaid season and 13.75% households cultivate pulses and 12.5% households cultivate vegetables in Rabi season.

Table No:6.4 Season Wise Cropping Pattern						
Crops	Cropping Seasons					
	Kharif		Zaid		Rabi	
	Number	Percentage	Number	Percentage	Number	Percentage
Paddy	80	100	65	81.25	-	-
Pulses	-	-	-	-	11	13.75
Vegetables	-	-	-	-	10	12.5
Source: Field Survey 2023						

6.5 Cropping Intensity:

Cropping intensity is defined as the number of crops a farmer grows in a given agricultural year on the same field (Raut et al., 2011) and is another means for intensification of production from the same plot of land. Cropping intensity is likely to be important to monitor where the intervention affects the likelihood of irrigation or planting during short season rains. Cropping intensity is calculated by using the following formula.

$$\textit{Cropping Intensity} = \frac{Gross\ Cropped\ Area}{Net\ Shown\ Area}\ x\ 100$$

About 33.75% of households in the study area have very high cropping intensity i.e., above 175, which indicates that they cultivate different types of crops on the same land in a year, 13.75% households have high crop intensity which is 150% to 175%, 30% households have medium crop intensity (125% to 150%) and 22.5% households have low crop intensity i.e., below 125%.

Table No: 6.5 Cropping Intensity		
Cropping Intensity (%)	No. of Household	Percentage (%)
<125	18	22.5%
125-150	24	30%
150-175	11	13.75%
>175	27	33.75%
Source: Field Survey, 2023		

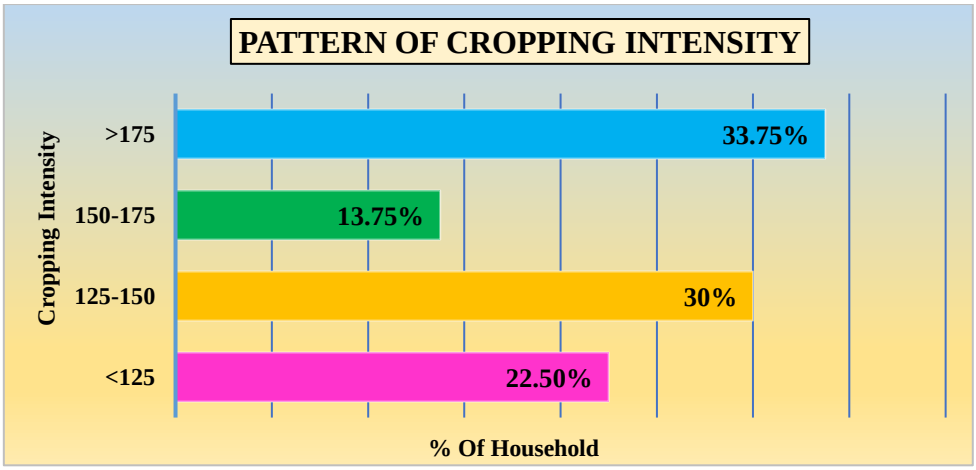


Fig No: 6.4 Cropping Intensity

6.6. Agricultural Equipment:

Survey data indicates that nowadays various types of modern agricultural machineries are used for farming activities. We can see that 40% household use paddy threshing machine, 62% household use Tulu pump, 98% people use spade, 100% people use sickle, 5 % people use power tiller and 1.25% people use breaking machine and tractor as agricultural implements.

Table No: 6.6 Use of Agricultural Equipment

Name of Equipment's	No. of Household	Percentage
Rice threshing Machine	32	40%
Tulu Pump	50	62.5%
Spade	79	98.75%
Sickle	80	100%
Power Tiller	4	5%
Rice Breaking Macine	1	1.25%
Tractor	1	1.25%

Source: Field Survey 2023

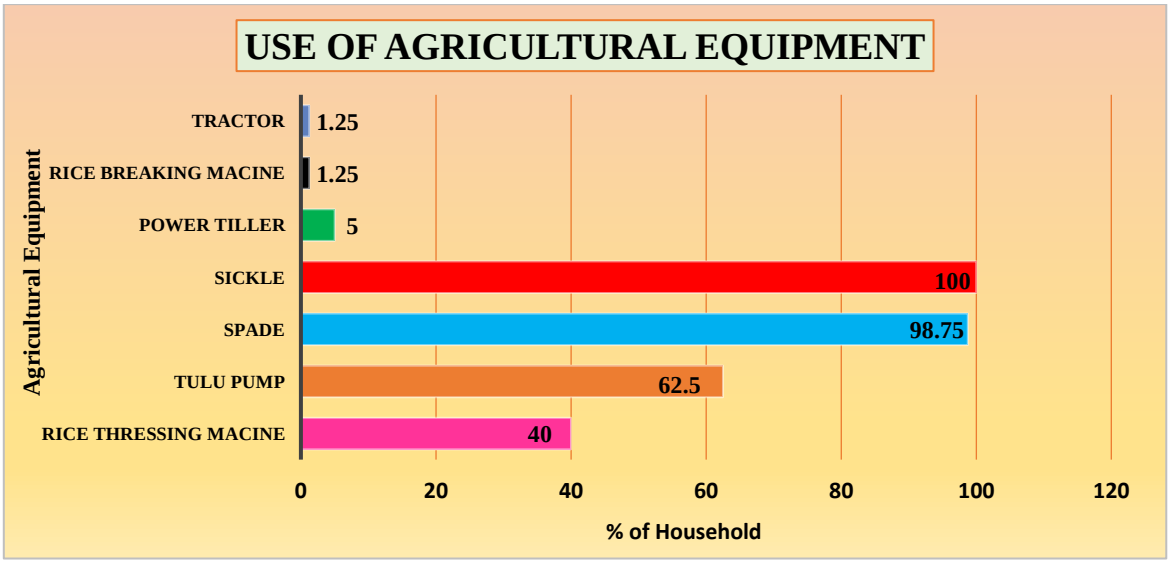


Fig No:6.5 Use of agricultural equipment

Photo Plate No: 5 Agricultural Field

Photo Plate No: 6 Irrigation System

Plate No: 7 HYV Paddy Seeds

Plate No: 8 Landholding size

6.7. Irrigation System:

Irrigation is the process of applying water to the crops artificially to fulfil their water requirements. Nutrients may also be provided to the crops through irrigation. The various sources of water for irrigation are wells, ponds, lakes, canals, tube-wells and even dams. Irrigation offers moisture required for growth and development, germination, and other related functions. Crops can also be supplied with nutrients through irrigation. Various sources of water for irrigation are wells, ponds, lakes, canals, tube wells and even dams. But about 85% households in the study area use canals as a source of irrigation for Zaid crop cultivation and 15% households use other methods for irrigation. Almost 100% of households depended on rainwater for Kharif crop cultivation.

Table No:6.7 Irrigation System

Source of Irrigation	No. of Household	Percentage (%)
Canals	68	85%
Others	12	15%

Source: Field Survey, 2023

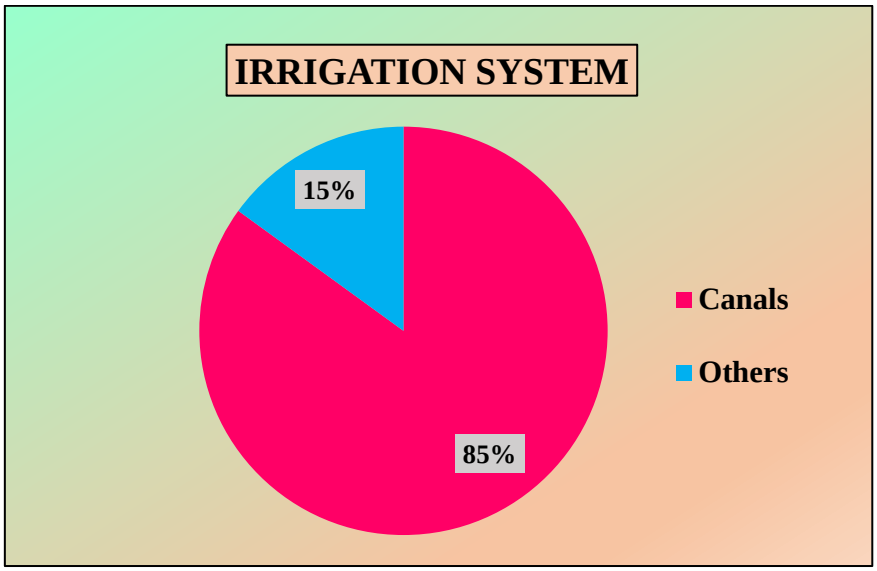


Fig No: 6.6 Irrigation System

6.8. Variety of HYV Seeds of Paddy (Kharif):

High yielding variety seeds (HYV) seeds are insect, disease resistant and have high yield potential. These seeds are of high quality and are a good option for crop surplus and healthy production. High yielding seeds are generally flood and drought resistant and produce better quality yields. According to the field survey farmers use different types of HYV seeds like Shyamoli, Santoshi, Dudheshwar etc. But most of the people use Dudheshwar about 35% and Santoshi, 12.5% people Shyamoli, 11.25% people Mohini, 2.5% people Saurabh and Paloi and 1.25% people Barsa cultivating rice.

Table No: 6.8 Variety of HYV Seeds of paddy (Kharif)		
Name of The Seeds (Kharif)	**No. of Household**	**Percentage**
Shyamoli	10	12.5
Satoshi	28	35
Borsha	1	1.25
Paloi	2	2.5
Saurabh	2	2.5
Mohini	9	11.25
Dudheshwar	28	35
		Source: Survey Field, 2023

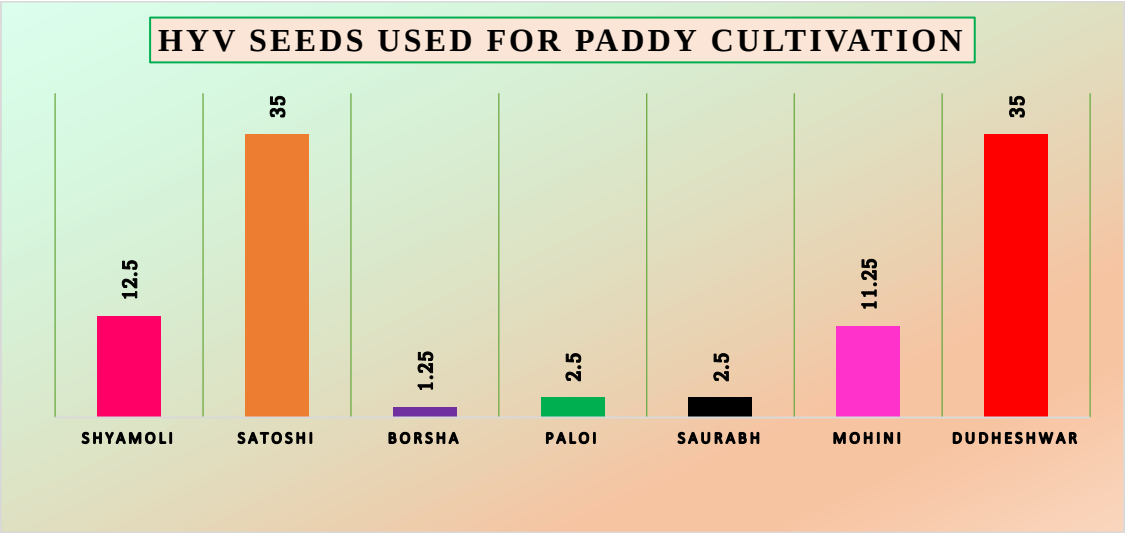


Fig No: 6.7 Variety of Paddy Seeds

6.9. Variety of HYV seeds of Paddy (Zaid):

Zaid is a short season during the summer months between the rabi and the kharif seasons. Apart from kharif crops, the survey data also provides data on Zaid crops used by farmers. It shows that 15% farmers use Shankar rice, 12% farmers use Vaishnavi rice, 6.25% farmers grow Ketki, 5% farmers grow Hazar-10 and 1.25% farmers grow Ishwar and Swarnashree.

Table No: 6.9 Variety of Seeds of Paddy (Zaid)		
Name of the HYV Seeds (Zaid)	**No. of Household**	**Percentage (%)**
Shankar	42	15
Vaishnavi	10	12.5
Ketki	5	6.25
Hazar-10	4	5
Ishwar	1	1.25
Swarnashree	1	1.25
		Source: Field Survey 2023

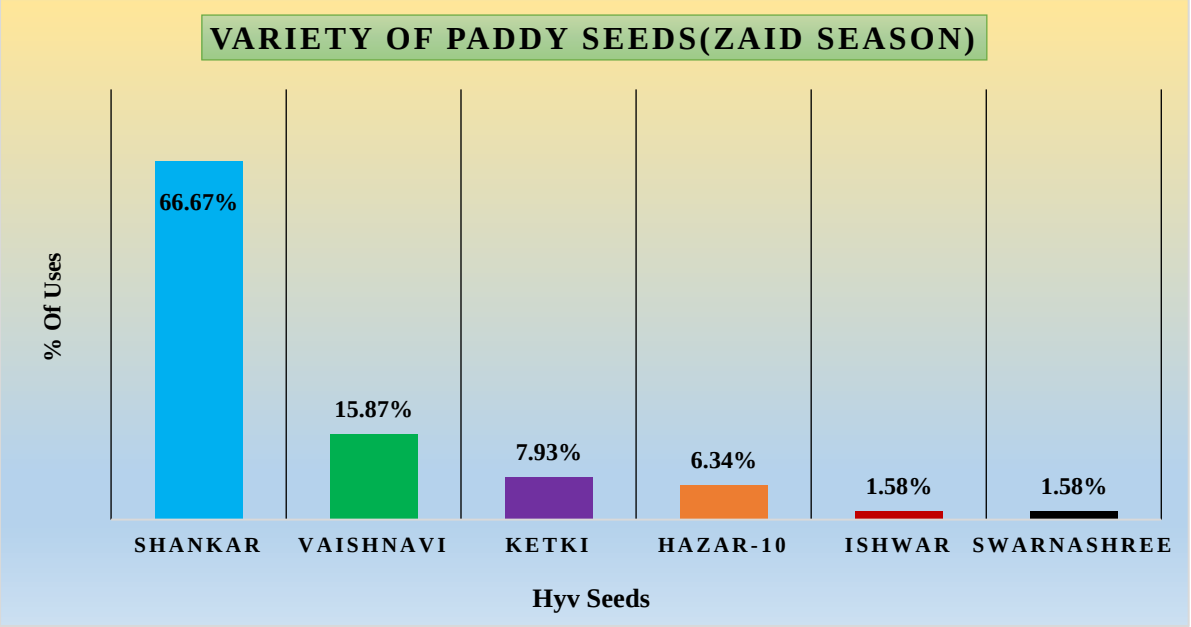


Fig No:6.8 Variety of Paddy Seeds

6.10. Fertilizer Used:

Fertilizers are additional substances provided to increase crop production. It is used by farmers every day to increase crop yield. These fertilizers contain essential plant nutrients including nitrogen, potassium and phosphorus. Fertilizers are applied to the soil to replace nutrients. Which is essential for plant growth after decay. However, most people in the study area used chemical fertilizers. About 86.25% use chemical fertilizers for farming and 13.5% use organic fertilizers.

Table No:6.10 Application of Fertilizer

Name of Fertilizer	No. of Household	Percentage (%)
Chemical Fertilizer	69	86.25
Bio and Chemical (Both)	11	13.75

Source: Field Survey, 2023

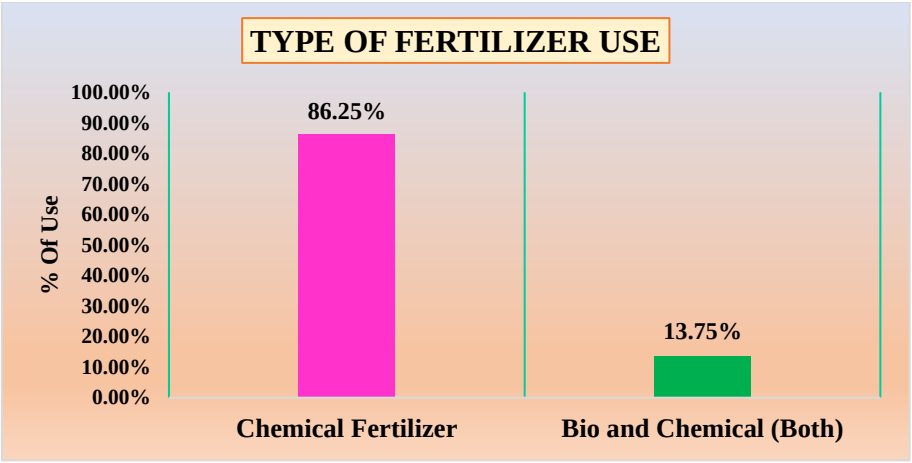


Fig No: 6.9 Type of Fertilizer use

Plate No: 9 Paddy Thresher Machine

Plate No: 10 Power Tiller

6.11. Name of the Major Fertilizer:

Chemical fertilisers contain nutrients for crop growth. Chemical fertilizers, such as Urea, DAP, Super phosphate are used to maintain Nitrogen, Phosphorus and Potassium deficiencies in the soil. We observe that 100% household like to use Urea. Also, 67.5% household use DAP, 42.5%, 40%, 23.75%, 3.75% people use calcium, potassium, **10/26,** super phosphate respectively in the study area. On the other hand, many people (23.75%) use manure as organic fertilizer.

Table No: 6.11 Name of The Fertilizer		
Name of Fertilizer	**No. of Household**	**Percentage(%)**
Urea	80	100
DAP	54	67.5
Calcium	34	42.5
Potassium	32	40
10/26	19	23.75
Super Phosphate	3	3.75
Organic Manures	19	23.75
		Source: Field Survey, 2023

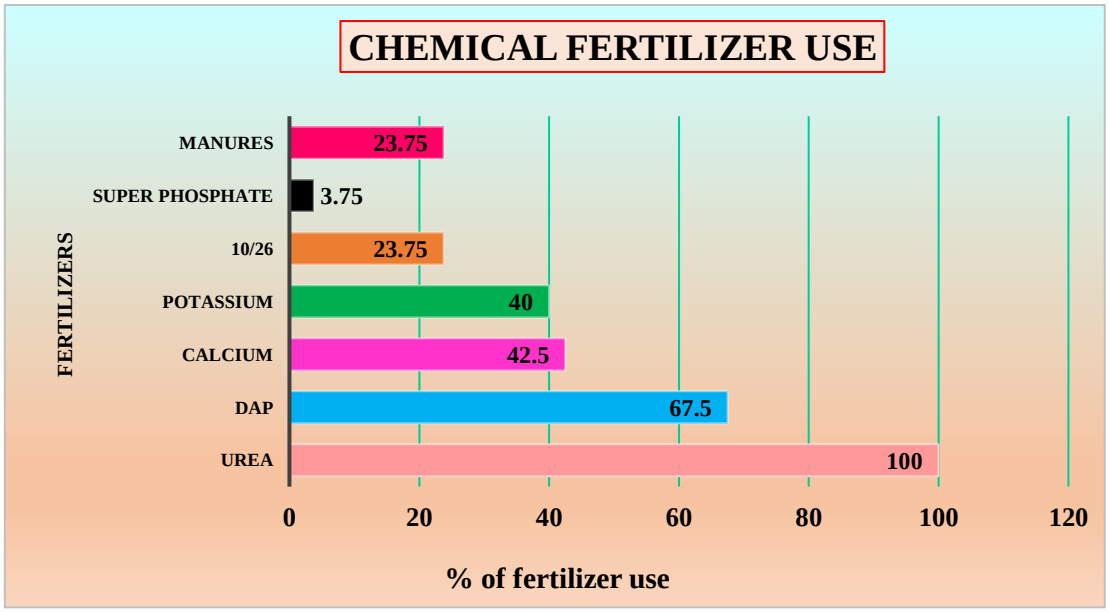


Fig No:6.10 Chemical fertilizer use

6.12. Amount of Fertilizer (kg/Bigha):

The value of Urea in manure is high (30kg) which shows that it helps in maintaining proper green growth of plants and also helps in photosynthesis process. On the other hand, use of calcium (10kg) and potassium (20kg) which help to neutralize the acidity of the soil and maintain the growth of roots, and size of the plant. The rest of the people use DAP and **10/26** about 20 kg fertilizer per Bigha in showing to growing season.

Table No: 6.12 Amount of Fertilizer	
Name Of Fertilizer	Amount Fertilizer (kg/Bigha)
Urea	30
Calcium	10
Potassium	20
DAP	20
10/26	20
Source: Field Survey, 2023	

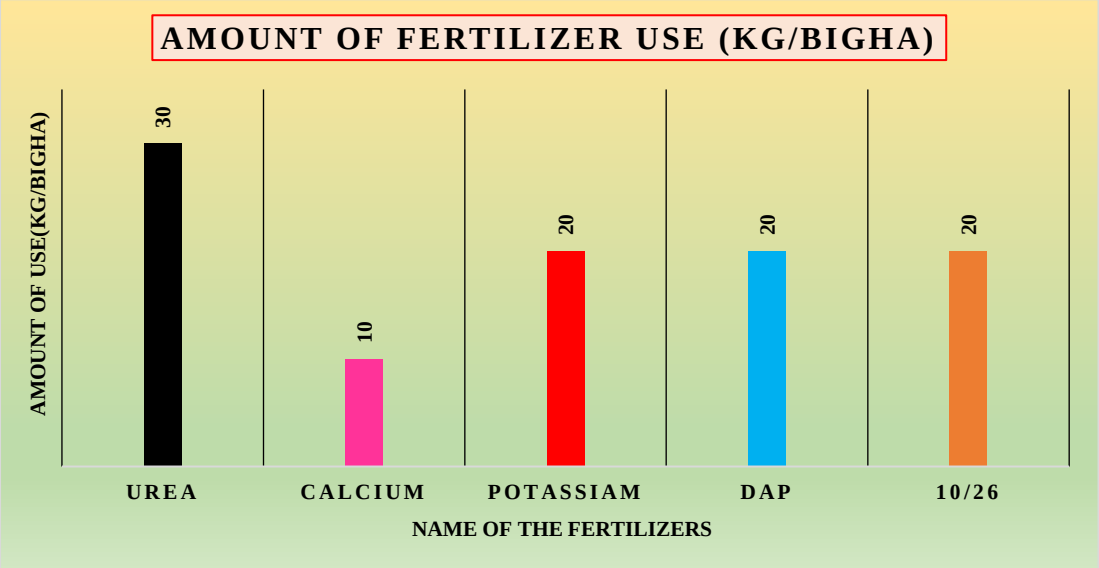


Fig No: 6.11 Amount of fertilizer use (kg/ Bigha)

6.13. Crops Disease (Paddy):

Paddy cultivation sometimes effected by various type of crop diseases which ultimately disrupt the growth and production. Following table shows that root rot disease in paddy cultivation is high (50%). This disease attacks the roots of plants growing in wet soil caused by overwatering, poor drainage or seed fungus. The second occurring crop disease is Dhosa (41.25%). In spite of this there are also another type of diseases namely insect disease (37.5%), which separates the roots and leaves from different parts of the plant and Burn (23.75%) which inhibits cell formation of a rice plants.

Table No: 6.13 Crops Disease (Paddy)		
Name of disease	**No. of Household**	**Percentage**
Insect Disease	30	37.5
Root Rot	40	50
Burn	19	23.75
Dhosa	33	41.25
Source: Field Survey, 2023		

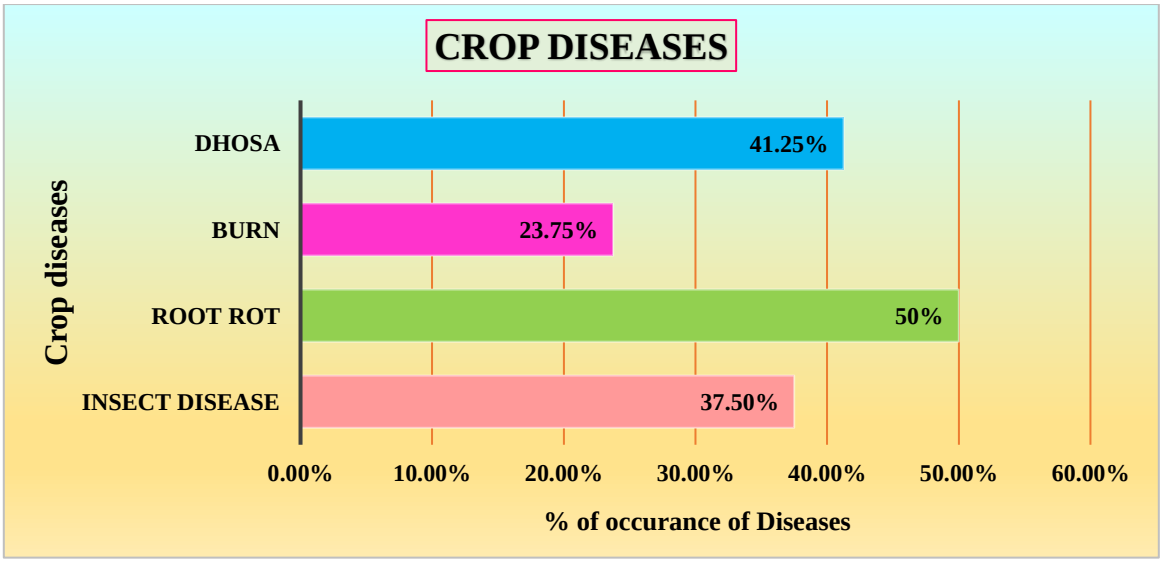


Fig No: 6.12 Crop Diseases

6.14. Agricultural Expenditure:

Agriculture plays a major role in the economy and is considered the backbone of the economic system for developing countries. The agriculture sector is only one of the expenditure categories among the various functions of household. Therefore, to improve this system, farmers must spend a lot of money on cultivation, irrigation, purpose of seeds etc. As most of farmers, their agricultural expenditure is between Rs. -5000 to Rs. -10000(47.5%), 28.75% of farmers have agricultural expenditure below Rs. -5000, 17.5% of farmers have agricultural expenditure between Rs. -10000- Rs. -20000, 3.75% of farmers have agricultural expenditure between Rs. -20000- Rs. -30000. Since very few people in the study area have large land holdings, so, very few i.e., 2.5% of the farmers have agricultural expenditure of more than Rs. -30000.

Table No: 6.14 Agricultural Expenditure

Agricultural Expenditure (Rs.)	Number	Percentage (%)
<5000	23	28.75
5000-10000	38	47.5
10000-20000	14	17.5
20000-30000	3	3.75
>30000	2	2.5

Source: Field Survey, 2023

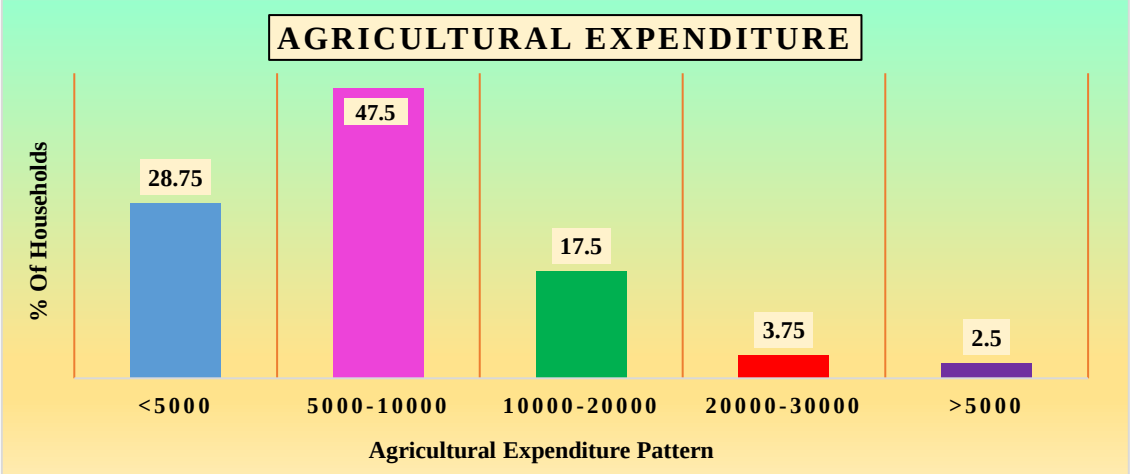


Fig No: 6.13 Agricultural Expenditure

6.15. Agricultural Orientation Index (AOI):

The Agriculture Orientation Index (AOI) is defined as the **Agriculture Share of Government Expenditures, divided by the Agriculture Share of GDP,** where Agriculture means to the agriculture, forestry, fishing, and hunting sector etc. The AOI is a currency-free index, calculated as the ratio of these two shares. This index will **measure progress towards SDG Target 2.a.(Zero hunger).** An Agriculture Orientation Index **(AOI) greater than 1 reflects a higher orientation towards the agriculture sector**, which receives a higher share of spending relative to its contribution to economic value-added. **An AOI less than 1 reflects a lower orientation to agriculture,** while an AOI equal to 1 reflects neutrality in a orientation to the agriculture sector.About 86.54% of the households in the study area register AOI value greater than 1 which reflects that their expenditure on agriculture is high but output is low. Only 13.46% households have AOI value less than 1 which reflects that **lower orientation to agriculture**. It can be due to good soil quality or good quality fertilizer use and HYV seeds etc.

Table No: 6.15 Agricultural Orientation Index	
Range of AOI	**Percentage of Households**
More than 1	**13.46**
Less than 1	**86.54**
	Source: Field Survey 2023

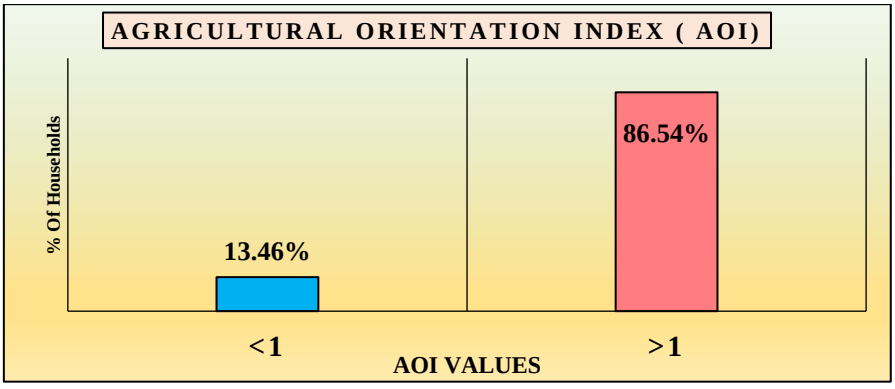


Fig No: 6.14 Agricultural Orientation Index

6.16. Livestock Population:

Livestock is a term used to refer to domesticated animals raised in an agricultural setting. It is used to produce commodities such as food fibre, fertilizer and labour. The most common livestock around the world are cattle, sheep, goats, pig and other domestic animals. We found that about 43.75% of the people in the study area keep cows as domestic animals. Besides cows, 38.75% people rear calves, 6.25% poultry, 5% ducks and 2.5% birds.

Table No: 6.16 Live Stock Population

Name of Live Stock	Number	Percentage
Cows	35	43.75
Calves	31	38.75
Goats	5	6.25
Poultry	19	23.75
Ducks	4	5.0
Birds	2	2.5

Source: Field Survey 2023

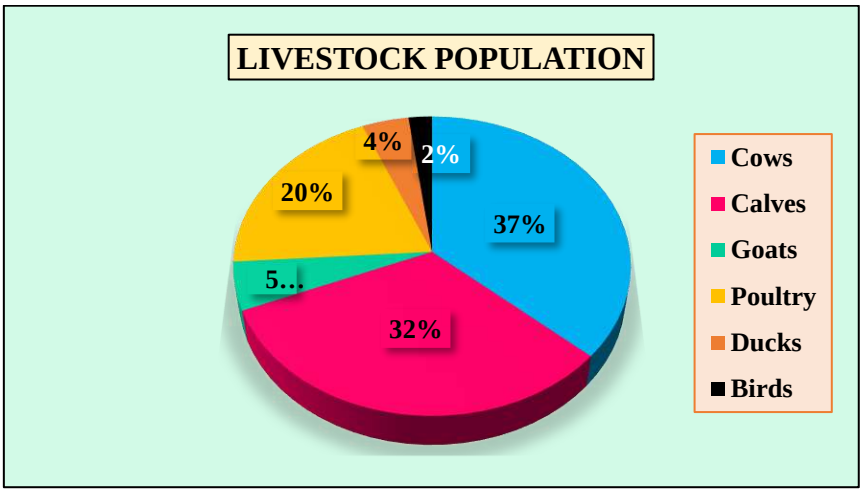


Fig No: 6.15 Livestock Population

Chapter-VII

Basic Amenities & Household Assets

7.1 Source of Drinking Water:

Water Sources can include: Surface water (for example, a lake, river or reservoir) ground water (for example, an aquifer). About 80 households or 100% households in the study area have access to safe drinking water. Thus, the study area successfully achieved universal (100%) potable water supply for households. Drinking water is the main source, a basic human need. According to the field survey, 80 households in the study area, ground water comes to the house mainly through pipes which are within about 2 km, yet 91.25% use hand pumps as a source of drinking water which are within about 100 to 500 meters. Again 2.5% households have open well, while 6.25% households have submersible.

Table No:7.1 Source of Drinking Water

Sources	Household (%)
Piped Water at Home	100
Hand Pump	91.25
Open Well	2.5
Any Other Source	6.25

Source: Field Survey 2023

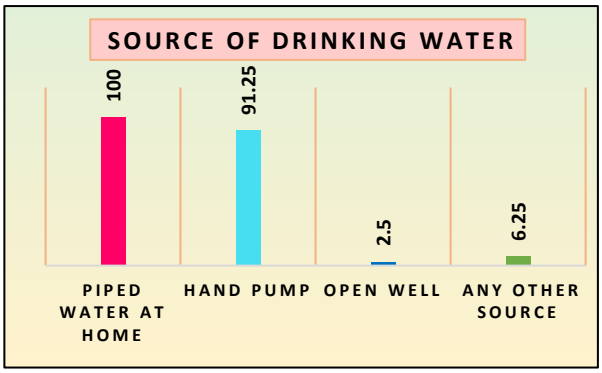


Fig No: 7.1 Source of Drinking Water

Plate No: 11 Sources of Drinking Water

7.2 Electrification Status:

WBSEDCL provided electricity connection to all the non- electrified households in the study area with all households (80) having electricity connection for the electrification of all households in the study area. Thus, the study area has successfully achieved universal household electrification. Each house has about 20 hours of electricity, but several houses have inverters so they have 24 hours of electricity.

Table No: 7.2 Electrification Status	
Electrification	**Household (%)**
Yes	**100**
No	**0**
Source: Field Survey 2023	

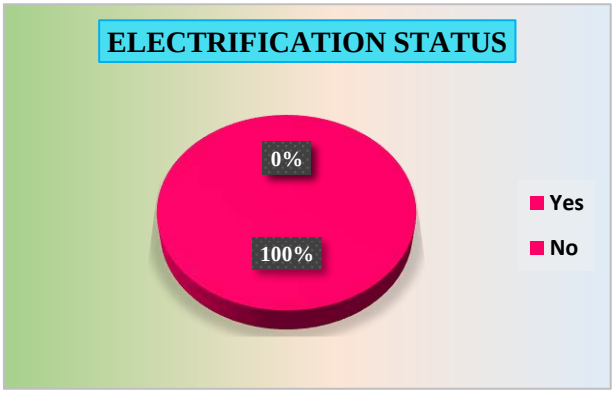


Fig No:7.2 Electrification Status

7.3 Waste Collection System:

Waste collection is a part of the waste management process. It is the transfer of solid waste from the point of use and disposal to the point of treatment in the landfill. But according to the field survey, no waste collection system could be observed in 80 houses i.e. 100% of the houses in the study area. As a result, the people of the study area are likely to be affected by various diseases caused by decaying lightning.

7.4 Toilet Facilities:

Proper sanitation facilities (for example, toilets and latrines) improve health because they allow people to dispose of their waste properly, prevent pollution of their environment, and reduce risks to themselves and their neighbours. 100% of the houses in the study area have private toilets, judging from this, it can be seen that the people of the study area are quite conscious about their health.

Table No: 7.3 Toilet Facilities	
Received Toilet	**Household (%)**
Yes	**100**
No	**0**
Source: Field Survey 2023	

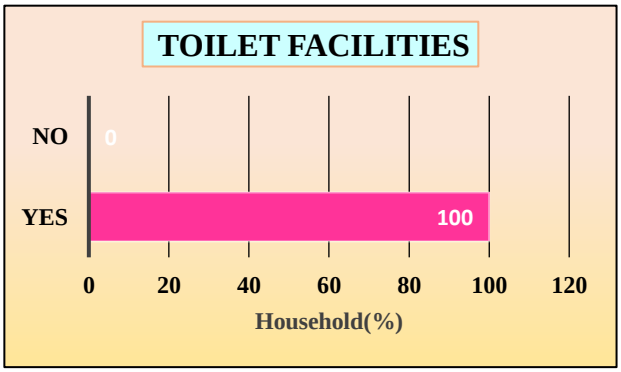


Fig No: 7.3 Toilet Facilities

7.5 Job Card:

According to the field survey 56.97% of households have job cards so, all those households are guaranteed 100 days of wage employment per year. Also, families who have job cards but do not work for 100 days can grow betel leaf, banana tree, guava tree lemon tree etc. and are paid some amount for planting trees. However, 43.03% of households do not have job cards. So, they do not get all these benefits.

Table No:7.4 Job Card		
Job Card	**Number**	**Percentage**
Yes	**188**	**56.97**
No	**142**	**43.03**
Source: Field Survey 2023		

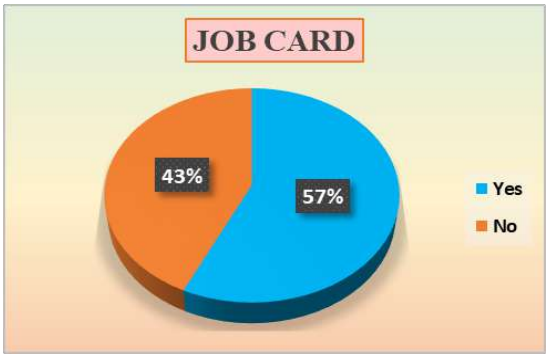


Fig No:7.4 Job Card

7.6 Basic Amenities in Village:

According to the field survey, the area of the study area is about 901 acres and the following service sectors are present: a total of 6 educational institutions including five primary schools and one higher secondary school, health center 1 where health services are available about four to five days a week including free medicines, playground 5, post office 1, railway station 1 which is about two kilometres away, community hall 1 and bus stop 3 which is about 1 kilometre away from the study area.

Table No:7.5 Basic Amenities	
Amenities	**No**
Educational Institution	**06**
Health centre	**01**
Post office	**01**
Play ground	**05**
Community hall	**01**
Source: Field Survey 2023	

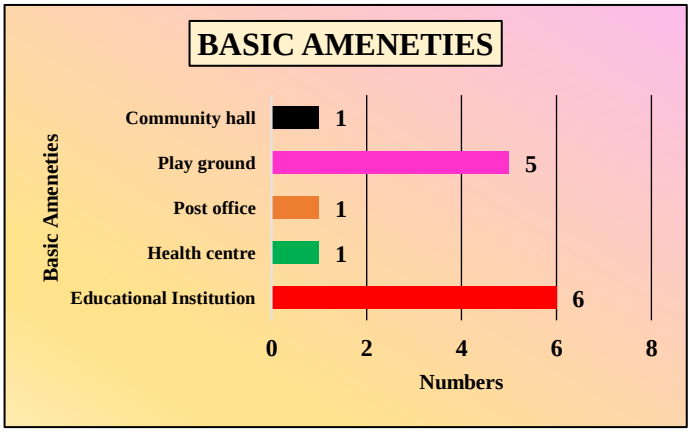


Fig No: 7.5 Basic Amenities

Plate No: 12 MGNREGA Programme activity

Plate No: 13 Village Connectivity

7.7 Village Connectivity:

Connectivity refers to the density of connections and directness of links in a road or road network. A well-connected network has many short links, numerous intersections, and minimal dead-ends. About 28.57 percent of the roads in the study area are unpaved and 71.43 percent are paved. Road construction was completed between 2019 and 2020 under the Pradhan Mantri Gram Sadak Yojana scheme in the study area. Here is the mode of transport **'Toto'** which is often found.

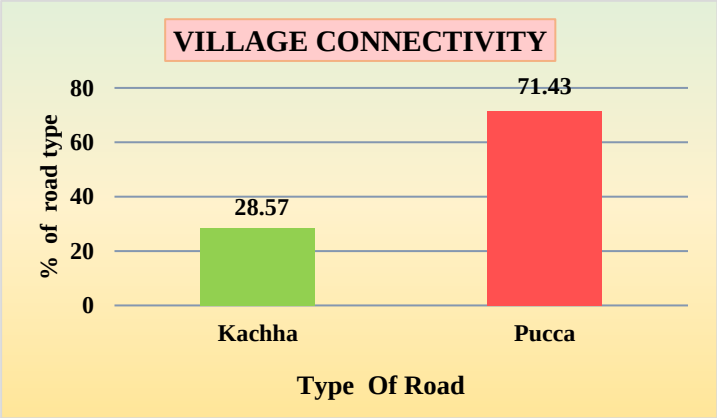


Fig No: 7.6 Type of Roads

7.8 Electricity Requirement in Gram Panchayet:

The Panchayet office located in the study area has several types of electrical equipment that work for about 5 hours. Among them are air conditioners (3), desert coolers (1), and fans (10) and 12 LED bulbs. LED bulbs are energy-efficient, long-lasting and emit less heat, which can save energy and improve lighting quality. As a result, the current is also consumed less

Table No: 7.6 Electricity Requirement	
Electrical equipment	**Number**
LED -Blub	**12**
Fan	**10**
Desert Cooler	**1**
Air Conditioner	**3**
Source: Field Survey 2023	

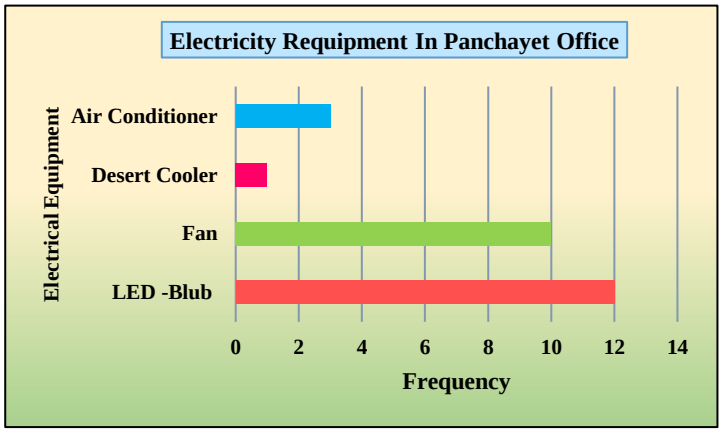


Fig No: 7.7 Electricity equipment in Panchayet Office

CHAPTER –VIII

Major Findings and Conclusion

8.1 Major Finding:

- Looking at the land use land cover map, we observe a decrease in fallow land percentage from 18.73% in 2000 to 8.87% in 2022 due to improved fertilizer and drainage systems.
- Population trends have shown an increase from 4523 in the 2001 census year to 5237 in the 2011 census year. The population density of the study area was 1253 sq.km in 2001, which rose to 1451 sq.km in 2011
- The study area's sex ratio is 904 females per 1000 males, and the child sex ratio is 839.
- The age composition data reveals a high percentage of adult population (60%) and a smaller percentage of the elderly population (15.2%).
- The median age of the population in the study area is 48 years.
- A substantial gender gap exists in literacy rates in the study area, with a difference of 10.94%.
- Survey data indicate that the majority of people (23.18%) are educated up to the secondary level.
- The study area's poverty status is relatively good, with 68.75% of households holding APL cards and the remaining 31.25% holding BPL cards.
- Many people in the study area are engaged in mechanical jobs, with a monthly family income around 30 thousand.
- All households in the study area are classified as marginal farmers, with 78.75% holding land between 1-3 Bigha, and 81.25% owning their own land.
- The survey highlights that every household in the study area cultivates paddy as kharif crop, while 81.25% cultivate Zaid crops.
- Rainwater is the primary source of irrigation for kharif crop cultivation, with 85% of households using canals for Zaid crop irrigation.
- Chemical fertilizers are used by about 86.25% of households for farming, while 13.5% use organic fertilizers.
- Around 47.5% of families spend 5 to 10 thousand rupees on cultivation.
- A significant portion (86.54%) of households in the study area falls within the less than 1 range of AOI, indicating a strong focus on the agriculture sector.
- Approximately 33.75% of households exhibit very high cropping intensity (above 175), cultivating various crops on the same land within a year.
- According to the field survey, farmers use different types of HYV seeds like Shyamoli, Santoshi, Dudheshwar for kharif paddy, and Shankar, Vaishnavi, Swarnashree for Zaid crops.
- The majority of people (56.97%) in the study area possess job cards.
- Most people (56.97%) in the study area possess job cards.

8.2 Recommendations:

Based on the agricultural status study in Chanpi village, Purba Medinipur, the following recommendations could be made to address the challenges and improve the agricultural sector in the village:

1. **Improve irrigation facilities**:To address the dependency on monsoon rains and enhance agricultural productivity, there should be an emphasis on developing and improving irrigation facilities in Chanpi village. The government and relevant agricultural agencies can invest in water conservation structures, small-scale irrigation systems, and rainwater harvesting techniques.
2. **Promotion of modern agricultural practice**:Farmers in Chanpi village can benefit from training programs and workshops that promote the adoption of modern agricultural practices. Techniques such as integrated pest management, organic farming, and improved seed varieties can help increase yields and reduce input costs.
3. **Access to credit & financial services** Ensuring easy access to credit and financial services is essential for farmers to invest in agricultural inputs and equipment. Microfinance institutions and government-supported rural credit schemes can play a significant role in providing financial assistance to smallholder farmers.
4. **Diversification of crops:** Encouraging farmers to diversify their crop cultivation can reduce the risk of crop failure and improve income stability. The study can identify suitable crops with market demand and provide support in terms of training, market linkages, and storage facilities.
5. **Investment in rural infrastructure**:Improved rural infrastructure, including better roads, storage facilities, and marketplaces, can enhance market access for farmers and reduce post-harvest losses.
6. **Climate resilient agriculture**: Given the vulnerability of rural areas to climate change, promoting climate-resilient agriculture practices, such as conservation agriculture and agroforestry, can help build the resilience of farmers to changing weather patterns.
7. **Capacity building and extension services:** Strengthening agricultural extension services and providing continuous capacity-building programs to farmers can help disseminate knowledge on best practices, crop management, and new technologies.
8. **Linkage to government scheme:** Raising awareness among farmers about various government schemes and initiatives related to agriculture can ensure that they can avail themselves of the benefits and subsidies provided.
9. **Research and development**: Encouraging research and development in agriculture specific to the local context of Chanpi village can lead to innovations and solutions tailored to the needs of farmers in the area.

8.3 Limitations:

The present study has some shortcomings, primarily attributed to time constraints and the availability of reliable information. The key issues are as follows:

- ❖ The entire study is built upon a restricted set of primary data, limiting its scope and depth.
- ❖ Inadequate availability of data poses a significant challenge to the study's comprehensiveness.
- ❖ The study's duration was notably brief, which affected the extent of analysis that could be conducted.
- ❖ A detailed examination of the subject matter has not been previously undertaken, leaving a gap in comprehensive understanding.
- ❖ Respondents exhibited hesitance in providing answers that might portray them unfavorably, introducing potential response bias.
- ❖ Due to respondents' fading recollections of the topic or simply disinterest, the accuracy of their answers might be compromised.
- ❖ The study sample was confined to a mere eighty households in Chanpi village, potentially undermining the generalizability of the findings to the wider farming community.

8.4 Conclusion:

From the current study in Chanpi Village in Mahishadal revealed the information about land use, socio- cultural landscapes, and demographic background of the study area from the secondary data source and also know about the basic amenities of the village. Apart from the information about the above mentioned topics, all the other topics that can be known about the agricultural sectors and different cropping patterns.Almost every people in the study area has their own land and their own land and their land is about 2-3 Bigha. They cultivate different types of crops like **Kharif, Zaid** and **Rabi** crops. They mainly use chemical fertilizers. They use canal water vas a source for dependent crops. Paddy cultivation is sometimes affected by various types of crop diseases which ultimately disrupt the growth and production. There are several families who spend around 5-10,000 rupees on agriculture. After eating the crops that are produced per season, they also sell if they are excessive. Through the preliminary survey, information has been received from the farmers that this year’s production has increased substantially as compared to last year because of crop damage due to natural calamities (Flood) in the previous years. This study can be referred for any planning related to agricultural management system by both Government and Private(farmer) bodies to initiate necessary proactive section which leads to protect our agriculture as well as agricultural ecosystem.

BIBLIOGRAPHY

1. Barua, S., Mukhopadhyay, B. P., & Bera, A. (2021). Integrated assessment of groundwater potential zone under agricultural dominated areas in the western part of Dakshin Dinajpur district, West Bengal, India. *Arabian Journal of Geosciences*, *14*, 1-17.
2. Bevan, G. P. (1880). *Primer of the Industrial Geography of Great Britain & Ireland* (Vol. 1). Swan Sonnenschein & Allen.
3. Das, B., Ghosh, T., & Gangopadhyay, S. (2013). Child work in agriculture in West Bengal, India: assessment of musculoskeletal disorders and occupational health problems. *Journal of occupational health*, *55*(4), 244-258.
4. Das, S., Choudhury, M. R., & Nanda, S. (2013). Geospatial assessment of agricultural drought (a case study of Bankura District, West Bengal). *International Journal of Agricultural Science and Research*, *3*(2), 1-27.
5. Dutta, S. (2012). Assessment of agricultural efficiency and productivity: A study of Hugli district, West Bengal, India. *International Journal of Current Research*, *4*(11), 190-195.
6. Freeman, T. W. (1961). *A hundred years of geography*. Transaction Publishers.
7. Grigg, D. (2003). *An introduction to agricultural geography*. Routledge.
8. Grigg, D. (2019). *The dynamics of agricultural change: the historical experience* (Vol. 10). Routledge.
9. Haldar, A., & Debnath, A. (2014). Assessment of climate induced soil salinity conditions of Gosaba Island, West Bengal and its influence on local livelihood. In *Climate Change and Biodiversity: Proceedings of IGU Rohtak Conference, Vol. 1* (pp. 27-44). Springer Japan.
10. Ilbery, B. (2014). *The geography of rural change*. Routledge.
11. Kundu, M. C., & Mandal, B. (2009). Assessment of potential hazards of fluoride contamination in drinking groundwater of an intensively cultivated district in West Bengal, India. *Environmental monitoring and assessment*, *152*, 97-103.
12. Ogilvie, A. G. (Ed.). (1930). *Great Britain essays in regional geography*. CUP Archive.
13. Pacione, M. (2014). *Progress in Agricultural Geography (Routledge Revivals)*. Routledge
14. Rowley, T. (Ed.). (2019). *the origins of open field agriculture* (Vol. 45). Routledge.
15. Senapati, U., & Das, T. K. (2022). Geospatial assessment of agricultural drought vulnerability using integrated three-dimensional model in the Upper Dwarakeshwar River Basin in West Bengal, India. *Environmental Science and Pollution Research*, 1-28.
16. Senapati, U., & Das, T. K. (2022). GIS-based comparative assessment of groundwater potential zone using MIF and AHP techniques in Cooch Behar district, West Bengal. *Applied Water Science*, *12*(3), 43.
17. Shirlaw, D. G. (2013). *An Agricultural Geography of Great Britain: The Commonwealth and International Library: Geography Division*. Elsevier.

18. Singh, N., Singh, R. P., Kamal, V., Sen, R., & Mukherjee, S. (2015). Assessment of hydrogeochemistry and the quality of groundwater in 24-Parganas districts, West Bengal. *Environmental Earth Sciences*, *73*, 375-386.
19. Symons, L. (2019). *Agricultural geography*. Routledge.
20. Vaishampayan, M. R., Nile, U. V., & Patil, D. Y. (2019). *Agriculture geography a study of cropping pattern in Western Satpuda region*. Lulu. Com.

Web Pages:

1. https://www.census2011.co.in/data/village/344795-chanpi-west-bengal.html.....01.01.2023
2. https://villageinfo.in/west-bengal/purba-medinipur/mahisadal/chanpi.html.....02.01.2023
3. https://en.wikipedia.org/wiki/Mahishadal.....03.01.2023
4. https://www.swarnabdutta.com/mahishadal-rajbari-haldia-west-bengal/.....05.02.2023
5. https://etrace.in/census/village/chanpi-mahisadal-district-purba-medinipur-west-bengal-344795.....07.02.2023
6. https://agri-horti.assam.gov.in/.....03.02.2023
7. https://lotusarise.com/cropping-intensity-upsc/.....02.03.2023
8. https://sitoolkit.com/the-five-domains/productivity/cropping-intensity.....05.03.2023
9. https://www.tractorjunction.com/blog/types-of-farming-in-india-procedure-benefits-and-role/.....10.03.2023
10. https://socialprotection.org/learn/glossary/agriculture-orientation-index-aoi#:~:text=%22The%20agriculture%20orientation%20index%20(AOI,Organization%20of%20the%20United%20Nations.....02.04.2023
11. https://testbook.com/question-answer/the-size-of-marginal-land-holding-in-india-is6086b2a5c7ab0d71e1f1d827#:~:text=Marginal%20(with%20holdings%20of%20less,Medium%20(4%2D10%20hectares).....08.04.2023