Village Survey Study in Madhya Pradesh (Piprodh Village)

Study Sponsored by Ministry of Agriculture and Farmers Welfare (Govt. of India)

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June 2021

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PREFACE

The present study entitled "Village Survey Study in Madhya Pradesh (Piprodh Village)" has been assigned by the Directorate of Economics and Statistics Ministry of Agriculture Government of India to this centre in the year 2019-20 under the close coordination of Agro-Economic Research Centre, Visva-Bharati Santiniketan, West Bengal.

On behalf of the Centre, I express deep sense of gratitude to Prof. P.K.Bisen, Hon'ble Vice-Chancellor and Chairman, Advisory Body of AERC, Jabalpur, Smt. Promodita Satish, Adviser, AER Division, Ministry of Agriculture and Farmers' Welfare, Govt. of India, New Delhi, Dr. D. Khare, Dean, Faculty of Agriculture, Dr.P.K.Mishra, Director Research Services, Dr. Dinkar Sharma, Director Extension Services and Dr.A.K. Bhoumik, Dean, College of Agriculture, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur for providing the valuable guidance and all facilities during various stages in successful completion of this study of high importance.

I extend heartfelt thanks to Dr. B. C. Roy. Professor and Coordinator, Agro-Economic Research Centre, Visva-Bharati Santiniketan, West Bengal for providing valuable guidelines and time to time suggestions for conducting the study successfully.

The present study was conducted by Dr. H. O. Sharma, Dr. Deepak Rathi and Dr P.R. Pandey of this centre. The field investigation, tabulation, analysis, interpretation and drafting of the report were performed by them. I wish to express my deep sense of gratitude to team members namely; Mr. S. S. Thakur, Dr. P.R. Pandey, Mr. R. S. Bareliya and Mr. Akhilesh Kuril & Mr. P. K. Patidar for their untiring efforts in bringing this innovative study to its perfect shape.

I express sincere thanks to Shri R. K. Rathore, Deputy Director of Agriculture, Shri. Nitin Soni, Patwari of Piprodh Village for providing not only secondary data but also extending great assistance in collection of primary data from the household.

I hope the findings and suggestions made in the study would be useful to policy makers of the State and Govt. of India.

Date : 26.06.2021   (Hari Om Sharma)
Place: Jabalpur   Prof. & Director

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EXECUTIVE SUMMARY

Survey of the village "Piprodh" in Katni district of Madhya Pradesh was a baseline resurvey undertaken as a part of study designed by co-ordinating centre AERC, Visva Bharti. The village is located in Kymore Plateau and satpura hills agro-climatic regions of Madhya Pradesh. The village having sub-tropical climate. Average rainfall was about 1171.4 millimeters per annum. India has a long record of village survey and resurvey, since pre-independence to post-independence period witnessing interest among policy formulators in village survey across India. Also during the span of 10 years since independence the Union government and other institutions have been sponsoring researches on the conditions and structure of rural India and on the management and economics of farming etc. where in, these data appeared to be a useful source of information. Village surveys are the usual methods of collecting rural data in India. These village surveys include all the aspects of the life of the whole village wherein, some surveys are designed to examine the land utilization pattern some for types and systems of farming, some for inputs and outputs, some for profits and losses of farming, some for levels of living, some for migration and immigration and some for the incidence of debt and so on and so forth.

On the other hand, continuous village surveys and resurveys are the important devices (Schemes) for being acquainted with the socio-economic dynamism of villages. The empirical data collection over time on the social and economical aspects of village communities become the basis of analyzing various changes occurred and provided basis for all sorts of development policies. These surveys highlight the conditions which enable villagers to survive through ups and down in their socio-economic strength as well as constraints of village communities and sustainable developments can be brought forward by such surveys to enable the policy formulators for planning suitable policies.

1. **Objectives of the study**

   a) The overall objective of the study was to create a longitudinal panel data set and to capture the socio-economic dynamics of the village. The purpose was to assess the pace, process and pattern of rural changes by means of repeated surveys in the selected village.

   b) The focus was on agricultural changes and changing pattern of rural livelihoods and its implication for future development. This study also evaluated the efficiency of government interventions in rural areas and key drivers of changes in village economy.

2. **Data and Methodology**

   This study was based on both primary

collected by survey method through specially structured schedules and questionnaires by the coordinating centre. The secondary data were collected from the offices of state, district, block, village and village level institutions. Since, it was resurvey of village Piprodh. Which was surveyed in the year 1965 and resurveyed in 1972-73. During current resurvey in 2019-20 the village functionaries like Village Sarpanch, Aaganwadi Workers, School Teachers, Village Patwari, Pachyat Secretary and Rozgar Sahayak were consulted for collection of Primary data. The personal observations of all the hamlets (3) of village Piprodh were collected at three levels viz. Village, Group and Household Level Information.

3. Major Findings

The major findings emerged from the present situation, social dynamics, economic system, ecology, vulnerability & sustainability and policy & governance in the village are as follows:

3.1 Present Situation

- ❖ Piprodh is situated in Katni district of Madhya Pradesh. The longitude and latitude of Piprodh village is 80° 25' 14.1924" E and 23° 50' 1.3812" N, respectively with height of 381.25 meter from mean sea level. The village situated in the Murwada tehsil of Katni district of Madhya Pradesh and lies on the Mumbai-Calcutta National Highway 30. Piprodh is situated at a distance of 78

- ❖ Km. from Jabalpur towards north and 22 km from Katni towards south. Sub-tropical climate is reported in Piprodh village. It is fall under Kymore Plateau and Stapura Hills Agro-Climate Region of Madhya Pradesh. The average annual rainfall of Piprodh is 1171.4 mm. Village received maximum rainfall during south-west *monsoon* period (95%). The normal maximum temperature received during the month of May (44.30^{0}c) and minimum during the month of December/January (8.50^{0}C). During the south-west monsoon season the relative humidity generally exceeds to 99.5 per cent.

- ❖ The soil of the villages is clay-loam having black and yellow colour, popularly known as 'Dumatta'. The structure is sub-angular blocky. The majority of which is medium (60%) followed by light (23%) and heavy (17%). The soil is deficient in Nitrogen and Phosphorus and high in Potash content. The water holding capacity of soil is found between 35 to 45 percent and has a tendency to crack when dry.

- ❖ The sub-post office is located in the village for communication & financial facilities. Jio, Idea, Airtel and BSNL companies are providing telecommunication services in the village under study. The village is well connected with the outside world.

❖ A small forest found in outside of the village. This forest is mixed forest where Bamboo, Teak, Amaltash, Anola etc. trees. So many grasses are also found there. People of village depends on forest for firewood and grazing their livestock. Some of villagers also found to be collect Anola, Mahua, Tendupatta etc. from the forest. Monkey, Rabbits, Squirrels, mongoose etc. are the animals found in the forest. There are 2 ponds situated in the village having sufficient water. The total population of the village was found to be 1438, Out of which 51.46 per cent (740) are male and rests are female (48.54%). The adult, children and senior citizen were found to be 68.92 (991), 10.36 (149) and 20.72 (298) per cent, respectively in the village. The sex ratio of female over 1000 male was found to be 942 and number of HHs in the village were 326 only. Out of total population (1438) OBC (47.29%) were found to be maximum as compared to SC (24.83%), ST (21.00%) and General (6.88%). Amongst SC male and female were 52.82 and 47.18 per cent, while in case of ST they were 47.39 and 52.61 per cent, respectively resided in the village. The total workers were found to be 676 (47.01%). Out of which male (60.35%) were found to be more as compared to female (39.65%) worker. In total worker the cultivators (27.00%) were found to be more followed by casual

❖ labour(21.00%), marginal labour (19.00%), agriculture labours (9.00%) labour engaged in HHs industries (7.00%), persons engaged in trade and business (5.00%), private salary person (4.00%), govt. salary persons (2.00%), pensioner (2.00%), caste based professional (1.00%) and entrepreneurs (1.00%)

❖ As for as age and sex of population in concerned, the maximum number of persons were found to be in the age group of 35-44 year (14.39%) followed by 45-59 (13.77%), 15-19 (13%), 22-24(10.15%), 25-29 (9.25%) , 10-14 (9.11%), 5-9 (8.55%), 30-34 (8.07%) over 60 years(7.37%) and less than 4 years (6.33%). Across family size, the maximum were found to be 4 (90) followed 5 (76), 3 (45), 2 (38) and 6 (32) members. The 60 % HHs of the village have the family size of 4 to 6 members. The total literacy rate was reported to be 75.52 per cent, while the average literacy percentage among male & female was reported to be 51.46 & 48.54 per cent, respectively. The households belongs to OBC (48%) were found to be maximum followed by SC (25%), ST(20%) and general category (7%).

❖ In total 55.52 per cent population was found under Above Poverty Line (APL) category. The majority of them were found to belongs to general (100%)

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- followed by OBC (55.77%), ST (60.61%) and SC (38.27%). In B.P.L. (Below Poverty Line) category, the majority of them were found to be SC (61.73%) followed by OBC (44.23%) and ST (39.39%) category. An average HH was found to earn maximum annual income from their non-farm resources (Rs.131385/year) followed by farm income (Rs.8692/year) and off-farm income (Rs.7577/capita/annum) during the survey period. The majority of total population were found to got livelihood support from primary sector (77%) followed by secondary (15.00%) and tertiary (8%) sector.

- Out of total geographic area (495.64) ha the uncultivated land (61.00%) was found to be more as compared to agriculture cultivated land (39.00%). Out of total agriculture/cultivable land (93.50 ha), the current fallow was found only 7.00 per cent. In uncultivable land (302.14 ha), the pasture & grazing land (39.00%) was found to be more as compared to other (29%), forest (19%), cultivable waste land (11.00%), land under misc. trees & crops (2.00%) and barren land (0.42%). The cropping intensity was found to be 180.39%. On an average 89.92 per cent area of net area sown was found under irrigation with irrigation intensity of 147.09 per cent per year. The main source of irrigation was

- found to be tube well (40.00%) followed by pond (23.34%), well (20.00%), nala (13.33%) and canal (3.33%).

- The cropping pattern of Piprodh village was found to be dominated by irrigated condition as compared to rain-fed. In irrigated condition *Rabi* Season (56.66%) was found to be dominated over *Kharif* season (40.38%), while in unirrigated condition *Kharif* season (96.99%) was found to be dominated over *Rabi* season (2.13%). At overall basis the cultivators were found to grow more crops in Kharif season (52.00%) followed by rabi (45.00%) and perennial crop (3%). Gross cropped area of Piprodh village of Katni district was found to be 325.37 acres. Paddy (50.94%) followed by sesame, vegetables and black gram were found to be main Kharif crops cultivated by the cultivators. In *Rabi* Wheat (40.95%) followed by chickpea (4.00%), vegetable (4.00%) and Mustard (1.00%) were found to be major *Rabi* crops in the village. cultivators cultivate vegetables in both the seasons of the year and allocated 2.51 per cent of total area under fruits.

- The HHs of the villagers were also used to domesticate livestock on their farms in the village, they were found to domesticate 356 number of animals in the village. Out of which number of cows

❖ (53.00%) were found to be more as compared to buffalos (27.00%) and goats (20.00%) . The HHs were also found to rear poultry birds (35) in their farms.

❖ Panchayat, Co-operative Society (batter co-operative society), Schools (a high secondary school, a private B.Ed college, library, Financial Institutions (Allahabad Bank, Bank of Badodra), rice mill, flour mill and Ayurveda dispensary, a sub-health centre, a veterinary dispensary and Public Distribution soap (2) were found to be located in the village. Village is well electrified and tap water connection available almost in all the HHs.

❖ Holi, Diwali, Durgapooja during Dushahara are main festivals celebrated in the village. Mahaveer Jayanti and Paryushan Purv are main festivals of Jain community. As fairs Dangals are organized on Nag Panchmi and Kite flying on MakarSankranti in the village. There were total 6 temples of Lord Shiva, Goddess Durga ,Bajarangbali, Shanidev and two temples of Mahaveer Swami (Jainism) in the village. Sareeis was found to be common dresses among women of the village. Dhoti, kurta, Paijama, Pants and Shirts is the popular dress-up amongst men. While shalwar suit was found to be more popular amongst younger generation of the

❖ women. Wearing ornaments and bangles etc. was found to be common among women of the village Hindi and Bagheli (local) languages were found to be spoken by the villagers. 75 per cent of the HHs of the village were found to be non-vegetarians and the remaining 25 per cent vegetarians in the village. Caste-wise ceremonies and rituals were found to be perform amongst different categories of HHs i.e. Burman, Patel, Kushwaha, Jain, Harijans and Adivasi on the occasions of marriages, worships and religious rituals in the village. Untouchability is not reported by any of the HHs in the village. Dowry was not a very serious problem across castes of the village.

3.2 Social Dynamics

❖ The numbers of households were found to be increased by 132.86 per cent in 2019 (326) as compared to 1972 (140). The total population of male and female was found to be increased by 107.87 and 114.11 per cent, respectively. The adult population of male and female was found to be increased by 232.68 and 357.72 per cent while in case of children (below 6 years) it was found to be decreased by -38.65 and -45.30 per cent respectively during the year 2019 as compared to 1972. The population of total male and female workers in the village was found to be increased by

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❖ 48.51and 8.65 per cent and population of male (1085.71%) marginal workers was found to be increased more as compared to female marginal workers (276.92%), while the population of male non workers (447.13%) was found to be increased more as compared to female non workers (286.44%). The population of male main workers (-5.06%) and agricultural labours (-69.91%) was found to be decreased, while population of female main workers (16.46%) and agricultural labours (27.78%) were found to be increased.

❖ The population of literate female (1208.16%) was found to be more as compared to male literate (223.65 %) and sex ratio was found to be increased by 2.84 per cent.

❖ The positive percentage change of male population was found to be more in age group 15-19,20-24, and over 60 years as compared to female, while in age group 10-14, 30-34, 35-44 and 45-59 years, the positive percentage change in female was found to be more as compared to male. The average size of family of General, OBC and SC was found to be reduced by 42.85, 20 and 20 per cent, from 7-4, 5-4 and 5-4 number, respectively while numbers of family members in ST were found to be increased by 25 per cent from 4 (1972) to 5 (2019) members per family. At overall

❖ level it remained 5 during 1972 & 2019.

❖ The illiterate male and female were found to be decreased by 14.81 and 25.69 per cent, respectively. In primary education, male have shown improvement of 1160 per cent as compared to female (930%), while in secondary education, female (4080%) have shown higher percent change over male (891%).

❖ Number of birth were found to be increased in all the categories of HHs viz. OBC, SC, ST as compared to number of death except in General category during the last five years (2016 to 2019). The birth rate of OBC (29) was found to be more as compared to ST (22) and SC (16). While the death rate of ST (17) was found to be more as compared to OBC (5), SC (2) and General (1) categories. The births of APL (44) was more as compared to BPL (23). The deaths were also observed more in APL (22) as compared to BPL (3) categories during last 5 years.

❖ The maximum number of male students were found to be enrolled in Govt. School in Vernacular (Hindi). They were found to be more in Schedule Tribe (96.25%) followed by Scheduled Caste (84.76%), OBC (82.62%) and General (66.37%) category. While male students enrolled in Private School Vernacular (Hindi) were found to be more in

❖ General (22.95%) followed by Schedule Caste (15.24%), OBC (13.12%) and Schedule Tribe (3.75%). Male enrolled in English vernacular were found to be more in General (10.68%) and OBC (4.26%) categories. Out of total students enrolled in the schools, the majority of them enrolled in Govt. Hindi medium schools (85.39 %) followed by Hindi medium Private School (11.98%) and English medium Private Schools (2.63%).

❖ Level of reading competency of all the students (100%) viz. boys and girls above standard V was found to be at scale 4, which means all the students of the villages above standard V were able to read paragraph of books. At overall level the reading competency of majority of student of govt. (49.34%) as well as private school (55.89%) at scale 4 which means about 50 per cent of children of the school were found to be able to read paragraph of books. The level of reading competency at scale 4 of General and OBC caste categories of total students was found to be more as compared to SC and ST students both in Govt. as well as private schools. The level of reading competency at overall level of boys at scale 4 was found to be more of private school (56.03%) as compared to boys of Govt. School (49.85%) revealed that boys of private school were found to be

❖ more competent in reading of paragraph of books than boys of Govt. schools.

❖ The level of arithmetic competency of all the boys and girls students (100%) above class V was found to be at scale 4 which means all the students of the village were found to be able to recognize numbers (0-9 & 10-99) and able to do simple subtraction and simple division. At overall level about 60 per cent of students found to be able to do simple division. Only about 13 per cent of boys and girls of standard-V were found to do simple division. Cent percent students of pre-school were found to at scale 0 means they were not in position to even recognize numbers. The level of arithmetic competency at level 4 was found to be more in boys as compared to girls both in private as well as Govt. schools across all caste categories and at overall level. Hence, it can be concluded that about 50% of boys and girls and total students of both private and Govt. schools are able to recognize number from 0-99 and do simple subtraction and division in the village. Although, boys were found to be more competent in level of arithmetic competency as compared to girls in the village. The level of arithmetic competency was found to be more in the students of General and OBC as compared to SC and ST category students in the village.

❖ Out of the total population of male children under General category, the majority of them were normal (76.19%) followed by overweight (23.81%). The majority of male children related to Schedule Caste were also found to be normal (63.82%) followed by underweight (29.79%) and overweight (6.38%). The majority of total population of Schedule Tribe was also found to be normal (68.75%) followed by underweight (25.00%), severely underweight (6.25%) in the village in the year 2019. Out of total population of OBC of male children, the majority of them were found to be normal (80.60%) followed by underweight (7.46%), overweight (5.97%) and severely underweight (5.97%).

❖ Out of total number of HHs, the majority of them reported that they never went a whole day and night without eating due to poverty (90.18%), never went to sleep hungry due to inability to purchase food (91.41%), never worried that the households would not have enough food (52.45%), never went for outside eating in hotel/restaurant(64.72%), and never eating too much packed food/purchased food like ice-cream, cold-drinks, etc. (74.23%). The majority of them also reported that they rarely not able to eat the kind of food that they preferred

(68.40%) and sometimes they worried that they would not have enough food (40.80%) and offered food to neighbors and guests (44.17%).

3.3   Economic System

❖ He majority of HHS belongs to OBC (47.85%) followed by SC (24.85%), ST (20.25%) and General Categories (7.06%). None of the HHs was found to involve in dairy, fisheries and poultry keeping activity as an enterprise. An average HH used to earn Rs. 44870/- per year in the village. An average HH used to earn more income from primary (Rs. 30100/year) as compared to secondary (Rs. 7600/year) and tertiary (Rs. 7170/year) sources. He was found to generate more income from non-form (Rs. 34200/year) as compared to farm (Rs.10470/year) and off farm (Rs.200/year) sources. The per capita per year income received by an average HH was found to be more in case of General categories (Rs. 73320/-) as compared to OBC (Rs. 58050/-), ST (Rs. 25650/-) and SC (Rs. 22455/-) categories in the village

❖ The net area sown was found to be increased by 3.76 per cent in the year 2019 (180.37 ha) over the year 1972 (173.84 ha). The area under current fallow(-48.14%), barren land(-85.05%), forest (-34.35%), pasture & grassing land(-1.96%), cultivable waste land (-15.77%) was found to be decreased,

❖ while the area under net irrigation (13.25%), gross cropped area (19.77%) was found to be increased during the period. With the result of this the cropping intensity and irrigation intensity of the village was found to be increased by 24.12 and 17.84 per cent respectively.

❖ The changes occurred in distribution of land holding in different size of farms i.e. marginal, small, medium and others in the year 2019 over the year 1972 were also observed and found that the number of holdings were found to be increased by 105.56 per cent. The maximum percentage change was observed in number of small holdings (260.0%) as compared to marginal (-37.97%), medium and other holdings (50.00%). The area under small holdings (173.58%) was found to be increased, while the area under marginal (-57.25%) and medium and others holding (-5.18%) was found to be decreased. The average size of holdings of these farms was also found to be increased by 7.25 per cent in the year 2019 (1.48 ha) over the year 1972(1.38 ha). The maximum negative percentage change was found to be observed in case of medium and other farms (-36.78%) followed by marginal (-31.82%) and small farms (-23.89%).

❖ The area of crops under irrigated condition was found to be increased by

❖ 55.45 per cent while under un-irrigated condition, it was found to be decreased by 35.14 per cent. The maximum change in area under irrigated crops was found to be observed in pulse (1682.35%) followed by paddy (67%), wheat (34.73%) and vegetables (62.46%) while under un-irrigated condition, area under all the crops was found to be decreased except oilseed and paddy. The growth of area under oil seed (123.67%/year) was found to be increased more as compared to pulse (3.03%/year) and cereals (0.36%/year). The area under fruits showed infinit change in growth because of the area under fruits in 1972 was nil. The growth of area under vegetables was found to be decreased with the average annual growth rate of 2.13% per year in the village. The productivity of all the crop under irrigated and un-irrigated was found to be increased . In irrigated condition the maximum increase in the productivity of vegetables (356.92%) followed by paddy (101.59%), wheat (52.51%), chickpea (43.39%), lentil (29.92%) and oilseeds (20.16%) while under un-irrigated condition, the maximum change was also observed in productivity of vegetables (381.32%) followed by paddy (157.35%), oilseeds(96.60%), blackgram (71.43%), wheat (70.92%), and lentil(27.78%)

❖ The farmers were found to grow Paddy, black gram & vegetables in Kharif and wheat, chickpea & vegetables in Rabi season. The cropping pattern of the village was not found to be changed during the last five years, however 5 per cent farmers were found to replace crop varieties of major crops with the experience that new varieties used to provided more yield and have disease resistance.

3.4 Ecology, Vulnerability and Sustainability

❖ The village have rich in flora and fauna. The village was found to be mostly flat, somewhere undulated. The soil is suitable for crops like paddy, wheat, gram, lentil and vegetables. Villagers were found to fulfill their requirement from the forest of firewood, timber, grazing of livestock etc. People who were found to belong to below poverty line used to collect gum, regains, anola, mahua, tendupatta etc. from the forest as Common Property Resources and earn money.

❖ The milch animal (Cow & Buffalo) population was found to be increased by 12.28 and 169.23 per cent respectively. The goat were found to be increased by 2.94 per cent while bullocks were found to be declined by 72.51 per cent. The poultry birds were also found to be declined by 92.13 per cent..

❖ The availability of irrigation water leads to increase in use of chemical fertilizer and pesticide in high proportion for higher production while during previous survey most of the farmer's were using farm yard manure with minimum doses of chemical fertilizers for getting high production. During current survey, the majority of farmers were found to use mainly two fertilizers i.e. Urea (46%N) and D.A.P. (18%N, 46%P). As government provide subsidy for purchasing of NPK fertilizers.

❖ The very erratic rainfall was found in the village during last 5 years according to vulnerability of rural group. The most vulnerable groups were the farmers & labours. Businessmen and trade persons were the least vulnerable groups among the villagers. The villagers never faced any type of epidemic and severe diseases in the village. After opening of an Ayurveda Hospital (1965) health facilities was found to be implemented in the village. Now it is known as AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy) but currently this Centre found to provide only ayurvedic treatment. Other dimensions will start soon. One sub-health center was providing medical facilities to villagers. The villagers have not faced any severe disease or epidemic but the some peoples of the village

❖ suffered from seasonal diseases like Malaria, viral fever, cough & cold, few reported diabetic, heart diseases They opined that medical facilities are expensive and on an average 3 to 5 percent of their annual income is spent on medical treatment.

3.5 Policy and Governance in the Village

❖ The coverage of BPL Card, PM Kishan, Old age pension, Widow Pension, PM Ujjala and Ladli Laxmi Yojna Schemes were reported to be 100% in the village. The cent per cent HHs related to KCC Card, Govt. Scholarship Scheme, Govt. housing Scheme, Old age pension Scheme and PM Ujjwala and MSP/PM AASHA Scheme were reported that they are satisfied with the facilities provided under government sponsored schemes. Apart from these schemes the majority of HHs were also satisfied with Public Health Insurance Card (50%), Soil Health Card (30%), MGNAREGA Job Card (65%), Mid-Day Meal (72.12%), PMKSY (35%), Life Insurance (35%), PM Kishan (95.20%), Widow Pension Scheme (78%) and Farm Loan Waiver Scheme (20%). None of the HHs reported his satisfaction related to Farm Pension Scheme, PMFBY, Farm Machinery and Implements and PMKBY (Organic Farming) Schemes in the Village.

❖ The majority of the HHs were found under low power structure (34.05%) as compared to medium (25.77%), top (20.25%), high (11.04%) and very low power structure (8.90%) in the village. The main reason of top power structure was found to be qualification (41.25%) followed by economic condition (28.40%), caste (16.20%) and political affiliation (14.15%) as reported by the majority of HHs. The majority of HHs found to be taken advice related to their livelihood and Social problems from relatives followed by friends, neighbour and subject specialist, while issues related to education and legal problems, the majority of them taken advice from Subject Matter Specialist followed by relative, friends and neighbours. The majority of HHs reported that their caste/gender/political deprivation (58%) was found to be increased along with incidence of disease, and medical expenditure also increased in the family (81%) during last five years but no change in rainfall pattern/air pollution (73%) was observed in the village.

❖ The lack of cottage & small scale industries (60.20%), huge increase of alcohol consumption, playing cards and other illegal activities (60.00%), specialized farming (55.50%), low cropping intensity (52.50%), poor economic condition (44.48%), absence

❖ of FPOs/SHGs (40.00%), poor management of crop and live stocks (36.70%), un-employment (31.70%), lack of technical knowhow regarding crop & livestock management (28.00%), poor sanitation and sewage system in the village (25.20%), trouble with dirt in and around the ponds & canal (18.00%), dilapidated building of sub health & Ayush center (18.00%), terror of wild beasts specially monkies (15.00%), irregular supply of water through tap (14.00), panic of stray animals (12.00%), and Lack of street light facility (5.00%) were found to be major problems of the village as reported by the majority of HHs.

❖ Proper implementation of govt. scheme (70.11%) followed by strong administration (66.13%), training to village secretary regarding all the government & other schemes related to agriculture and rural development (65.92%), establishment of processing units for paddy and wheat (55.88%), introduction of more value crops in *rabi*, *kharif* & summer seasons (55.36%), strong extension services provided for crop & livestock enterprises (54.78%), wild animal issue in agriculture needs to be solved (48.22%), better management of sanitation and sewage (35.29%), introduction of integrated farming system to enhance family income

❖ (32.45%), establishment of SHGS/FPOS for upliftment of rural youth and women (30.35%), re-construction of dilapidated buildings of sub-health and Ayushcentre (20.71%), establishment *kanji* house for stray animal (20.35%), introduction of agro-forestry & organic farming (15.63%) in the village, introduction of MSME or other employment scheme required for establishment of cottage & small scale industries in the village (10.64%) and continue supply of electricity for farm and industries (10.28%) were the remedial measure to solve problems reported by the majority of HHs.

3   POLICY IMPLICATION

Looking to the above findings following policy suggestions emerged from the study:-

✍ Cultural, sound and sport activities should be organised time to time in the school involving all the students. The population of children was found to be declined during the period under study in the village which shows that there is an effective implementation of family planning in the village.

✍ The population of cultivators was also found to be declined in the village due to availability and accessibility of non- farm and off- farm employment near the village. There is a need to form the SHGs

- for connecting cultivators and making them aware about various business activities.

- The sex ratio was found to be improved during the period under study in the village due to effective implementation of the Beti Bachao Beti Padhao scheme of the State Government.

- The birth rate among APL was found to be increased as compared to BPL during the period under study in the village which shows that there is a need to make BPL families aware about the various child care schemes of the Government of Madhya Pradesh and India.

- The students of private schools were found to be superior than government school in both the vernacular languages (Hindi and English), which shows that efforts should be made to strengthen the standard of government schools as good over and above private schools to improve the competency of the students in the village.

- The reading as well as arithmetic competency beyond 5th and 6th standard was found to be hundred per cent in the students of private as well as Government schools, respectively in the village during the period under study. The reading competency of boys and girls was found to be at-par across schools and vernacular languages in the

- village. In case of arithmetic competency the students of private schools were found to be superior to the government school and boys were performed better than the girls. Altogether 50% students across boys and girls can read paragraph and do simple division.

- Education standard of the government schools is required to be enhanced with all respects particularly 100 per cent attendance of teachers as well as students should be ensured. Best quality mid day meal with day to day variation in taste should be provided keeping in view the balanced diet of the standards.

- Online portal of government seed distribution agency needs to be created to show the variety wise and class wise availability of seed with the facility of online purchase/booking.

- Literacy must be pre-requisite while selecting the members for program related to agriculture and rural development. Hence some key persons should be involved for effective implementation of the programme.

- Labour for agriculture is becoming serious problem now a days in the State due to implementation of the MGNREGA and other social welfare schemes. There is a need to stop the MGNREGA work during the critical labour intensive activities of the

✍ agriculture and need to stop social welfare schemes which are making persons lazy/ idle and creating the environment of no work culture which ultimately leads to inculcate antisocial practices amongst them which will create the problem for social harmony in the long run.

✍ Need based training programme based on the agriculture related problem of the area must be organized for the field staff of the agriculture department followed by producer before the start of the season in the KVK. The whole training must be designed taking the view of the field staff and producers of the area which will directly reflect into the productivity of crops.

✍ It is also found during the course of investigation the field staff was not able to achieve the targets related to productivity

✍ mission due to duplicity of same work viz. distribution oh HYVs seeds, formation of SHGs etc. by the field staff of other departments viz. agriculture, horticulture, veterinary etc.

✍ Efforts should be made to introduce need based integrated farming system. At least a Farmers Producer Company and a Custom Hiring Centre are required to be established in the village.

✍ Proper awareness of various govt. scheme among the students, rural youth and farm women are required to be created in the area.

✍ All the developmental programme/ activities must be covered under an umbrella of the village in the leadership of panchayat secretary with proper convergence and synergy between the line departments.

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INTRODUCTION

The planning commission gave maximum attention to solve the social problems of rural India with the help of village studies. From village studies, various aspects of rural life, for example, the extent of sub-division and fragmentation of holdings, the nature of rural credit, the conditions of landless labourers etc. are derived. It helps in planning rural reconstruction. Village studies provide detailed information regarding various aspects of rural life. In these studies, either the holistic nature of the village communities is discussed or certain specific aspects of rural life are focused. This chapter deals with need & scope and objectives of the study, review of literature and scheme of chapter.

1.1 Need and Scope

It is quite uncontroversial that social economic and political development of India still lies in the multidimensional development of its villages and rural population. India has a long record of village surveys and resurveys, since pre-independence period to the post-independence period which witnessed a sharp increase in the interest among social-scientists, economists and policy formulators in village surveys across India. This was partly in response to the need felt by the State and Union Governments to have a reliable and accurate information on socio-economic and political configurations in the rural context to facilitate the process of economic growth and change that it planned for, but the interest was also sustained by the fact that the critics of State and Union Government, policies provided a central place to the rural context in the scheme of village survey studies. The State and Union Governments as well as its critics recognized that India lives in its villages and the growth and transformation of the economy needed an accurate knowledge of the rural context.

This context was a very complex one. Villages were obviously witnessing a great deal of social, economic and political transformation, but these villages were also remained as a good deal of the old baggage. Moreover, one also witnessed a tremendous amount of diversity with each displaying its own specificities. It was obviously clear that such a complex reality with its dimensions of the continuity and changes, the general and the specific openness and territoriality could not be captured adequately by the secondary data generated by the various government departments or by the data generated through population censuses or through large scale nation- wide surveys done by the National sample Surveys, although these data could serve the essential purpose of

understanding the broad general purpose of larger contexts. Thus, it is this realization that led to a spate (series) of village surveys by various Agro-Economic Research Centers of the country.

Also during the span of 10 years since independence the Union Government and other institutions have been sponsoring researches on the conditions and structure of rural India and on the management and economics of farming etc. wherein, these data appeared to be an useful source of information, village surveys are the usual and common method of collecting rural data in India. These village surveys include all the aspects of the life of the whole village wherein, some surveys are designed to examine the land utilization pattern, some for the types and systems of farming, some for inputs, outputs, some for profits and losses of living, some for migration and immigration and some for the incidence of debt and so on and so forth. Apart from these village surveys attempts on demographical, educational and various other statistical and time series surveys of above said characteristics were done.

On the other hand continuous village surveys and resurveys are the important devices (schemes) for being acquainted with the socio-economic and political dynamism of villages. The empirical data collected over time on the social, economic and political aspects of village communities become the

basis of analyzing various changes occurred and provide basis for all sorts of development policies. These surveys highlight the conditions which enable villages to survive through ups and downs in their socio-economic and political strength as well as constraints of village communities and sustainable developments can be brought forward by such survey to enable the policy formulators for planning suitable policies. Keeping the aforesaid facts in view the present study entitled "village survey study in Madhya Pradesh (Piprodh village)", was conducted with the following main objectives:

1.2   Objectives

1.   To create a longitudinal panel dataset and to capture the socio-economic dynamics of the village.

2.   To focus on agricultural changes and changing pattern of rural livelihoods and its implication for future development.

1.3   Background Information

The background information about the resurvey, brief review of the earlier survey and historical profile of the village are presented under this sub head.

1.3.1 Background Information about the Resurvey

The Piproudh village was first time surveyed in the year of 1965, a resurvey study conducted on an earlier survey in the work-plan 1972-73 bearing   village Study No.26

and published in the year 1975 by Agro-Economic Research Centre, Jawaharlal Nehru Kirhi Vishwa Vidyalaya, Jabalpur. The main objective of the village study was to collect benchmark data on the then prevailing dynamics of socio-economic life in the village. Geographically the village is located in the north-west corner of Jabalpur district. Administratively Village Panchayat Piprodh is situated in Mudwara block of Katni Tehsil in Jabalpur district of Madhya Pradesh. After the formulation of Katni district in the year 1998 Pipridh village fall under jurisdiction of Katni district. As regards the selection of village and households, village Piprodh was under taken to be resurvey during 2019-20 as per the decision taken under Director's meeting to resurvey the village which has been already surveyed earlier (Resolution-A/4, dated 01-08-2019). About the selection of households, since the total number of households in Piprodh village were not more than 400. Therefore, complete enumeration was done for the study. The survey was conducted using the structured schedules and questionnaires prepared by the Coordinating Centre (AERC, Viswabharti, Shanti niketan, West Bengal).

1.3.2   Brief Review of the Earlier Survey

The brief review of the earlier survey includes Socio-Economic Resurvey of a Village in Jabalpur district, Average income per household and per capita, Cropping Pattern, Land Ownership Pattern, Land Utilization, Households and their Primary Occupation and Social Structure of Sample Households.

1.3.2.1 Situation and Main Features

Village Piprodh is situated at Mudwara (Katni) Tehsil under Jurisdiction of Mudwara development block in Jabalpur district which is about 78 Km. away from Jabalpur district head quarter. The village had 140 households and 682 people as per 1971 population census. It was mainly inhabited by Burman, Jaiswal, Patel,Jain, Harijan and Adivasi castes. Wells were the only source of drinking water in the village. There was only one Middle School in the village. The Higher Secondary School was situated at a distance of 5 km. For University education the nearest place was Jabalpur. The village was linked with Mudwara by a Pucca road and adjoining villages by paths. Piprodh was connected by Road. It is situated on the NH-7 road. Some houses were electrified.

1.3.2.2 Social Structure of Sample Households

Out of the total 682 persons represented 140 census households in 1972-73, Numerically, OBC were 390 (57.17%), the predominant caste of the total household. Scheduled Tribes 171(25.09%) were the second numerically important caste. Remaining castes were Jain 84 (12.37%) and General 37 (5.38%). The main occupation of

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OBC was agriculture, business, and casual labour. SC and ST were depended on Agriculture labourer, casual laborer for their livelihood. Similarly General caste and minorities households were engaged in agriculture, trade and service.

1.3.2.3 Households and their Primary Occupation

Cultivation, labour, service, trade, profession and sale of livestock products were reported to be the occupations followed in the village.

1.3.2.4 Land Utilization

According to the village papers, village Piprodh had 495.64 hectares as its geographical area, out of this area, 214.69 hectares was put to Agricultural use and 280.95 hectare area under non-agricultural use in 1972-73.

1.3.2.5 Land Ownership Pattern

As per Patwari records land situated in the revenue area of village Piprodh was not entirely owned by the farmers from the village itself but also by the people from other villages and vice versa. Here the land owned is considered as the total land owned by a farmer irrespective of the location, inside and outside the village. During 1972-73, there were 90 land owning households and total land owned by them was 124.11 hectares.

1.3.2.6 Cropping Pattern

Cereals, mainly paddy and wheat dominated the cropping pattern. Together they covered 92.94 percent of net area sown in 71-72. Remaining area was covered by pulses and other crops.

1.3.2.7 Average income per household and per capita

Cultivation, labour, service, trade, profession and sale of livestock products were the sources of income in the village. Among these labour, cultivation and service played a vital role in the village economy. From all sources average income per household was reported to be Rs. 2997/- in 1972-73, per capita average income in 1972-73 Rs. 649/-.

1.4 Historical Profile of the Village

Piprodh village situated in Jabalpur district in 1972-73. In the year 1998 new district came under existence in Madhya Pradesh. After this Piprodh village become part of Katni district. According to myth by old persons of the village that in ancient days there was a famous *Vaidya* lived here. They used to treat the patients through the medicines made by Pipal tree (*Ficusreligiosa*). In local language it is known as piper, villagers used to tell *piper ki ausadh* so name came is existence in Piprodh. Investigators tried to get some other source about village history but there was nothing documented proof was found for the village in any government office, Panchayat and anywhere.

4

1.5   Review of Literature

A review of past research helps in identifying the conceptual and methodological issues relevant to the present study. A brief review of the relevant research literature that has accumulated on the areas related to this study.

A.H. Diack (1896)[1] discussed the location of Malana village and its isolation from the rest of the world. He has asserted that this isolation has played an important role in preservation of the ancient dialects-Kanashi of the Malanis. The author has also given the crude tabulation of five dialects and has ascertained the resemblance of Kanashiwith the others.

G. A. Grierson (1967)[2] studied the Tibeto-Burman languages along with the Kanashi-a dialect spoken in Malana village of district Kullu in Himachal Pradesh. He observed that the isolation of Malana village, from the rest of the world, has played an important role in the preservation of the same. Touching upon the grammar of the Kanashidialect along with its translation, he has also given a comparative list of the words of six languages or dialects. He asserted that the Kanashidialect somewhat resembles the Kanawaridialect.

Colin Rosser (1969)[3] made an attempt to throw light both on the physical as well as socio-political and cultural features of Malana. The author termed the village as hermit village with its own unique culture, far away from the world outside it. He has observed that the dialect Kanashi of Malana must be one of the smallest languages in the world and has discussed in detail about housing pattern, caste, marriage system and economic life of Malanis. Further, Rosser has examined the role, functions and importance of political and judicial organizations of the village Malana, working under the influence and divine supervision of local deity Jamlu. He observed that the most striking fact about the political and judicial organization of the village appears to be the extent to which it rests on public sentiment.

Lal Chand Prarthi (1971)[4] examined the socio-political, cultural and religious aspects of the people of Malana. The author has narrated some legends about the local deity Jamlu - the omnipotent and omniscient god both in the village as well as in the neighbouring areas. The inhabitants of Malana village, according to Prarthi, look like complete Aryan, however, somewhat close to Kiratand Tibetan by language. He

1. A.H. Diack, The Kullu Dialect of Hindi: Some Notes on its Grammatical Structure, with Specimens   of the Songs and Sayings Current amongst the People, and a Glossary, The Civil and Military Gazette Press, Lahore, 1896.
2. G.A Grierson, Linguistic Survey of India, Vol. 3: Tibeto-Burman Family, Part 1, Delhi, Motilal Banarsi Dass, 1967.
3. Colin Rosser, A Hermit Village in Kullu, in M. N. Srinivas, ed., India's Villages, Asia Publishing   House, New Delhi, 1969.
4. Lal Chand Prarthi, KulootDesh Ki Kahani, Hindi, Neel Kamal Prakashan, Kullu, 1971.

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also explained the practices related with democratic system of republic of Malana. He has observed that the system prevailing over there is unique in its characteristics.

Penelope Chetwode (1972)[5] based on the experiences of her visit to the different places in Kullu district, has narrated a prevalent legend of a Brahmin and Jamludevtain which Brahmin had to face the wrath of the devtafor telling a concocted fake tale about the lineage of Jamlu. Further, she has mentioned that the devtaJamlu is Jamadagni Rishi-a sage described in Vishnu Purana.

M.S. Randhawa (1974)[6] briefly discussed about the village Malana and its inhabitants. According to him, Malana village is isolated from the rest of Kullu and has a strange population. The author has very briefly discussed the features of Malana people and their culture. He has observed that the god Jamlu has enormous importance and extraordinary influence in lives of Malana people. In this context, the author has mentioned two legendary stories; one is related to god Jamlu and Emperor Akbar while the other is concerned with people of Saraj valley, who violated his sanctuary.

Sukhdev Singh Charak (1979)[7] illustrated an interesting story about the Tibetan origin of the inhabitants of Malana village. He has also narrated a legend, which glorifies Jamludevta of Malana village.

Gautam Sharma (1980)[8] made a modest attempt to perceive the village administration and social ceremonies of the village Malana. The author hasobserved that language of Malana-Kanashi, is somewhat close to Kiratalanguage. He has also narrated a mythological legend related with local god Jamlu-the omnipotent head of Malana village. He further has written that Jamlu-a charismatic god, is the preserver as well as a destroyer according to the inhabitants of village Malana.

G.D. Khosia (1980)[9] described the physical features of Malanis, their marriage and exchange systems.A brief discussion on the election of three heads-the Kanriisht, PujyaraandGoorof the political and judicial systems of Malana village has also been undertaken. Further, the book also contains two prevalent mythological legends among Malana people-one reveals the founding of the republic of Malana, and the other glorifies the local god Jamlu.

5 Penelope Chetwode, Kullu: The End of the Habitable World, John Murray, Ltd., London, 1972.
6 M. S. Randhawa,Travels in the Western Himalayas: In Search of Paintings, Thomson Press Limited, Delhi, 1974.
7 Sukhdev Singh Charak, History and Culture of Himalayan States, Vol.2: Himachal Pradesh, Part 2, Light and Life Publishers, New Delhi, 1979.
8 Gautam Sharma Vyathit, Himachal Pradesh: LokSanskritiAurSahitya, National Book Trust, New Delhi, India, 1980.
9 G.D. Khosia, Of Mountains and Men, Allied Publishers Private Limited, New Delhi, 1980.

J.R. Verma (1980)[10] examined the economy of Malana village in-terms of agricultural activities, crop pattern, livestock rearing,sheep breeding and collection of medicinal herbs etc. The author has comprehensively described the developmental activities performed by the government in Malana village and their impact on the people of this village.

M.R. Thakur (1981)[11] comprehensively described a mythological legend ascribing the establishment of the village Malana by Rishi Jamadagni, who defeated a cruel Rakshasa– Banasurin a fierce battle and founded Malana.

A.F.P. Harcourt (1982)[12] revealed some hidden facts about the Malana village and the lifestyle of this little human settlement. The authorhas briefly ascribed a vague mythological legend related with formation of the village by the god Jamlu.He has considered this village as one of the greatest curiosities in Kullu district due to its unique and distinct features. Hehas very briefly discussed the physical features of people of Malana. Further, the author has narrated a unique custom in the village to settle all disputes before a local tribunal.

J. Hutchison and J. Ph. Vogel (1982)[13] have mentioned an interesting commentary on the Tibetan origin of the Malana people in the upper Parvati valley, who claim to be the disciples and incarnations of Jamlu. The authors have narrated a legendary story concerned with Akbar and god Jamlu of Malana in which the Emperor Akbar bowed before the god to appease the wrath of Jamlu. According to a legend, it has been said that Akbar visited Malana, however, the authors have assumed it incorrect.

Government of Himachal Pradesh (1982)[14] conducted a field work study, which contains adequate information about the village Malana and provides important knowledge about the inhabitants, demographic composition, agriculture, animal husbandry, industries, education, employment, housing and socio-economic conditions, medical and public health, income expenditure and indebtedness of the village Malana. The document also records some suggestions for the development of this isolated village.

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10 J.R. Verma, Impact of Development on Malana, KulluDushehra: Antan-ashtriaLokNritya Samaaroh, by J.C. Dutt, Annual Magazine, October, 1980.

11 Maulu Ram Thakur, Himachal Main Pujit Devi-Devta, Hindi, Rishabhacharan Jain EvamSantati, New Delhi, 1981.

12 A.F.P. Hercourt, The Himalayan Districts of Kooloo, Lahual and Sipiti, Vivek Publishing, Company Delhi, 1982.

13 J. Hutchison and J. Ph. Vogel, History of Panjab Hill States, Vol. 2, Department of Languages and Culture, Shimla, Himachal Pradesh, 1982.

14 Socio-Economic, Survey of Malana (District Kullu, H.P.), Department of Economics and Statics, Himachal Pradesh Government, Shimla, 1982.

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D.D. Sharma (1982)[15] observed that linguistic area of Kanashiis the tiny village of Malana of district Kullu. He is of the opinion that the linguistic evidences prove beyond doubt that Kanashiis very much a part and parcel of the Western group of the pronominal zed Tibeto-Himalayan languages. He has tried to trace the linguistic affinities of Kanashi language with other Tibeto-Himalayan dialects, namely, KinnauriandLahauli.

AshaSood (1983)[16] highlighted the main features of village Malana. The work gives a general idea about the physical feature and occupations of the inhabitants, as well as dialect and devtaJamlu of Malana village. Further, the author has tried to perceive the composition of two houses of the village committee, the role and the functions of the office-bearers of the legislative, executive and judicial institutions of the village. She has also narrated a mythological legend concerned with the Emperor Akbar and Jamludevta-the omnipotent head of Malana village.

SudershanVashishtha (1984)[17] narrated a mythological legend related to the establishment of the village Malana. The author has compared the people and their today features, language, the art of wooden carving and culture of Malana village with some neighbouring areas. He ascribed the distinct and specific characteristics of the bicameral republic of Malana. He, however, also observed that the influences of modernization may affect this unique system of government.

Puran Chand (1984)[18] made an attempt to study the biological differences of the Malanis in relation to some neighbouring populations, viz., Kinnauras, Lahualies and Kullawison the basis of morphometric data. Some cultural attributes like migration and linguistic records have also been studied to provide supportive evidence for tracing ethnic affinities. The data comprising head and body measurements, genealogical record and a list of 100 words of common vocabulary have been analyzed with some objectives related with morphological importance. The researcher has tried to make

15 D. Sharma, Tribal Languages of Himachal Pradesh, New Delhi, Mittal Publications, 1992.
16 AshaSood, "MalanaJanapada", KulluDushehraSmarika, by J.C. Dutt, Annual Magazine, October 1983.
17 SudershanVashishtha, Beas Ki Dharaa, Hindi Himachal PustakBhandar, Delhi, 1984.
18 Puran Chand, Group Differentiation in Isolation: A comparative morphometric study of Malanis in relation to some neighbouring population of Himachal Pradesh, Ph.D. Thesis, Department of Anthropology, Punjab University, Chandigarh, 1984.

a comparative morphometric study of the Malanis of Malana glen and some neighbouring populations of Himachal Pradesh with a view to highlight a quantitative analysis of ethnic differences among these populations. In this work an attempt has also been made to trace the origin and ethnic relationship of Malanis with the neighbouring populations of Himachal Pradesh, with whom they share some common linguistic and cultural experiences.

N.K. Sharma (1988)[19] described the physical features of Malana village and the unique characteristics of the socio-political-cultural and religious aspects of the Malanis society. The author has highlighted the hard geographical condition, location, climate, arduous routes and flora and fauna of the village Malana. He has narrated some legendary stories about the establishment of Malana's republic and has written that the Vedic sage Jamadagni(Jamludevta) is the founder of this village. He further highlighted the social ceremonies, i.e., marriage, death ceremony, royal hunting etc.; and the economic activities, i.e., farming, sheep rearing, collection of medicinal herbs, bee keeping, etc., of the Malanis community.

He has stratified the Malanis society on the basis of castes and clans, and has described the religious ceremonies, which are performed during the celebration of fairs and festivals in the village. The author has examined the composition, role and functions of the various social and political institutions, viz., legislative, executive and judicial, of Malana village. An account of the Independence Day of Malana village from the atrocities of Banasuris also described in this work. Sharma has concluded the work by asserting that the democratic system of Malana village is far better than the present democraticsystem prevailing in the rest of the world.

F. S. J. Gore (1989)[20] described the location of Malana village and the physical features, nature and dialect of Malanis. The author has also mentioned the art of wooden carvings on houses in the village.

TejVir Singh (1989)[21] narrated two legendary stories ascribing the prominent position and extraordinary influence of JamludevtaofMalana village on the people of Kullu district. One legend talks of the Thara-Karadu, i.e., 360(18X20) deities of Kullu district, and Jamludevta, while another about Jamlu and the Emperor Akbar.

19 Narender Kumar Sharma, Malana: PuratanSanskritiKaPrateek,BhavanaPrakashan, Delhi, 1988.
20 F. St. J. Gore, Lights & Shades of Hill life, Oriental Publishers, Delhi, 1972.
21 TejVir Singh, TheKullu Valley: Impact of Tourism Development in the Mountain Areas, Himalayan Books, New Delhi, 1989.

NarotamThakur(1992)[22] dealt with the social and political institutions of Malana village. The work gives the general idea about the place, people, political institutions and administrative structure of Malana village. Further, it provides information about the location, altitude, environment, living standard and literacy rate in Malana and the legends about the Malanis. The researcher has tried to comprehend the social structure of Malana community through the analysis of various institutions such as marriage, family, status of women, sources of entertainment etc., and their inter-dependence. He has also categorized the political system of Malanis governance into three levels of authority, i.e. Jamlu (King), Mundi (Cabinet) and Jaishthang (Parliament). Besides, the role of Judiciary and Financial Institutions are also discussed. Hehas concluded the work with the social change in the village and the impact of modernization on the lives of Malanis with the passage of time.

Sonia Thakur (1992)[23] made an attempt to visualize the pattern of direct democracy of Malana and tried to comprehend the social structure of Malana community through detailed analysis of various institutions and their inter-dependence. Focus is laid on structural aspects such as land ownership, division of labour, exchange pattern, etc. of the village. Further an attempt has been made to understand Malana's political set-up along with other social and religious institutions.

D.V. Singh and B.K. Sikka (1992)[24] conducted a detailed village study of Malana village, aimed at to study the demographic and cultural features of the Malanis, their economic resources, production systems, and democratic and public institutions. Theyanalyzed the status of real wealth, i.e. land, labour, animals, trees, implements and household durables, the production economics of different enterprises, the income expenditure and saving pattern, economic viability and sustainability of enterprises of Malanis.

C.S. Panchani (1994)[25] touched upon some features of the inhabitants of Malana village and their political and judicial systems. According to him, the Malanis are quite advanced as far as their political system is concerned. They have a democracy, which is not found prevailing in any other Himalayan tribe. The author has tried to highlight the features of democratic system

22 Narotam Thakur, ZilaKullu main MalanaGaon Ki SamajikTathaRajanitikSansthayn, M.Phil. Dissertation, Department of Political Science, H.P. University, Shimla, 1992.

23 Sonia Thakur, A Sociological Study of the People of Malana in Himachal Pradesh, Ph.D. Thesis, Department of Sociology, Punjab University,Chandigarh,1992.

24 D.V. Singh and B.K. Sikka, Malana: an Oldest Democracy, Sustainability Issues in Village Economy (Himachal Pradesh), Agro–Economic Research Centre, HP. University, Shimla 1992.

25 C.S. Panchani, The Himalayan Tribes, Konark Publishers Private Limited, Delhi, 1994.

being practiced in the republic of Malana. According to him, the republic ran in the name of Jamludevta. The author has also explained the working of judicial system prevalent in the village and has written that the court of Lord Jamlu acts as the Supreme Court whose decisions are final and binding upon all.

Punjab Government Gazetteer of the Kangra District (1994)[26] throws some light on the strange customs and traditions of Malana village. It is an authentic document, which highlights the different aspects of the lives of Malanis community such as language, housing pattern, illiteracy and inter-marriage system.

M.R. Thakur (1996)[27] examined socio-political and judicial systems of Malanavillage. He considered the village governance system of Malana as the best example of republican form of government. The authorhas also described the physical features of Malanis, their food habits, language, dress, marriage system etc.

D.R. Shabab (1996)[28] briefly discussed the location of Malana village. While writing about Jamlu, he has ascertained his exalted position among all the village gods of Kullu district. The author

is of the view that Jamludevtais a Buddhist deity of wealth, who was the king of Spiti region, wholater on migrated to Malana village. He has also narrated a legendary story related to the Mughal Emperor Akbar and Jamludevta. He described the role and functions of political and judicial institutions of the village.

V. Bhalla and P.C. Sharma (1996)[29] examined the different aspects of lives of Malanis. At the outset, the authors have expressed the view that many centuries ago; the ancestors of Malanis had migrated from different places in the Parvati and Kullu valleys. According to them, the names of five out of eight existing clans in Malana village lend support to this contention. In this article, these authors have tried to highlight the different aspects of Malanis community life, i.e., body features, dress, food habits, clans, fairs and festivals, marriage system, the role of women in various activities of the village, land and agriculture, economy, flora and fauna, etc. Further, they have also examined and analyzed briefly working of Malana's village council and Gram Panchayat. In the end, the authors have tried to visualize the impact of modernization on the village.

26 Panjab Government Gazetteer of the Kangra District: Kulu, Lahul and Spiti, Part 2 to 4, Indus Publishing Company, New Delhi 1994.

27 M. R. Thakur, PahariSanskritiManjusha, Hindi, Reliance Publishing House, New Delhi, 1996.

28 Dila Ram Shabab, Kullu: Himalayan Abode of the Divine, Indus Publishing Company, New Delhi, 1996.

29 V. Bhalla and P. C. Sharma, "Malanis", in K. S. Singh, et al. People of India: Himachal Pradesh, Vol. 24, Anthropological Survey of India, New Delhi 1996.

Surat Thakur (1997)[30] highlighted some outstanding features of village Malana. The work gives the general idea about the location, the inhabitants, language, fairs and festivals, social ceremonies, economy, village administration, and god Jamlu of Malana village. Hehas discussed the composition, roles and functions of political and judicial institutions of the village. A prevalent legend, which glorifies the Jamludevta is also narrated by him. He is of the view that the unique and enriched culture, which the Malanis have nurtured and nourished from centuries, is intact even today.

M. R. Thakur (1997)[31] narrated a mythological legend concerned with the great Vedic sage Jamadagni (Jamlu-the titular and spiritual head of Malana), the Banasurand the Thara-karadu (eighteen deities of Kullu district). Further, he has given a brief description of the selection procedure of the Goor of Jamludevta. The author has also described the role and functions of the office-bearers of the local village administration of Malana.

Tobdan (2000)[32] described the prominent position and extreme and extraordinary influence of Jamludevta of Malana village. He also narrated a legendary story concerned with Emperor Akbar and Jamludevta, in which devtahelps incurring the deformity of the Emperor's daughter. Healso has written about the fairs of Malana village.

Vidya Sharma (2001)[33] comprehensively narrated a mythological legend ascribing the establishment of the village Malana. The author has highlighted the twelve abodes of Jamludevtain different places of district Kullu. He has also given a brief description of the fairs and festivals, dedicated to Jamludevtaand the traditional costume donned by the Malanis at the time of celebration of the same.

Narender Sharma (2001)[34] focused on the study of the customary laws, which are being practiced in Malana village. It is a modest attempt to know as to what extent the customary laws of the village are effective in Malanis society. It starts with the general idea about the location, place, people, language, legends, economy and occupations of the Malanis. This is followed by the study of social-structure of Malanis society with a reference to the working of the customary

30 Surat Thakur, ParyatakonKaSwarga – DevBhoomiKullu, PuratatvaChetanaSangh, Kullu, 1997.
31 M. R. Thakur, Myths, Rituals and Beliefs in Himachal Pradesh, Indus Publishing Company, New Delhi, 1997.
32 Tobdan, Kullu: A Study in History (From the Earliest to A D 1900), Book India Publishing Company, Delhi, 2000.
33 Vidya Sharma, KulaantDarpan, Kullu, ChanderPrakashan, Kullu, 2001.
34 Narender Sharma, Philosophy of Customary Jurisprudence: A Case Study of MalanaVillage in District Kullu of Himachal Pradesh, LL.M. Dissertation, Department of Laws, H.P. University, Shimla, 2001.

laws in various institutions such as proprietary rights of the villagers, matrimonial matters, election system and composition of village council. He observed that Malanis have their own way of life and well-entrenched customs. They have not as yet been integrated socially, politically, economically and even legally, with the rest of the society in Kullu district, and the state at large.

Parveen Kumar Sharma (2002)[35] narrated a mythological legend related to the local deity Jamludevta (Rishi Jamadagni) and a giant (Rakshasa). Though, the work is mainly focused on the study of Medicinal and Aromatic plants in Parvati valley of Kullu, however, the author has also attempted to study the socio-political and judicial set-up of the village Malana located in Parvati valley.

1.6   Scheme of Chapters

The study is organized into 8 chapters, Chapter I deals with Introduction in whichbackground, objectives and background of the old study are covered. Methodology is discussed in Chapter-II, An overview of Study village is given in chapter-III, This Chapter highlighted viz. village profile, livelihood/employment and migration status, agriculture status, developmental institutions & infrastructure, village infrastructure, cultural profile and uniqueness of the village. Social dynamics : population & households structure, sex composition & age distribution, caste/religion wise distribution, literacy pattern by sex, APL/BPL, birth and deaths, enrollment and drop outs in different educational level (gender-wise), quality of basic educations, food security & child nutrition, access to basic amenities and changes therein and participation, inclusiveness and empowerment are dealt in Chapter IV. Perception of various groups in the village about economic changes in the village, financial transactions, poverty, income and consumption, agrarian system and livelihood and employment are described in Chapter V.Perception of various groups in the village about ecological changes in the village, natural and manmade disasters, land use classifications and changes therein and natural resource explained briefly in Chapter V. Challenges of micro irrigation under ecology, vulnerability and sustainability are deal in Chapter VI. Policy and Governance i.e. opinion and attitudes towards rural change, participation in local governance, perception about Government schemes and nature and coverage of Government schemes

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35Parveen Kumar Sharma, Studies of Phytodiversity of Medicinal and aromatic Plants in Parvati Valley, Himachal Pradesh, Ph.D. Thesis, College of Forestry, Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Nauni-Solan (Himachal Pradesh), 2002.

are presented in Chapter VII. Summary and conclusions and policy recommendations of the study are described briefly in Chapter VIII.

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METHODOLOGY

This chapter deals with the definitions and concepts, data base, sampling design, survey approach, dimensions covered, analytical tools and limitations of the study.

2.1 Definitions and Concepts

The various concepts used in the study are as follow:

a) **Village:** It is an old French name originated from the Latin word villa which means country- house. Thus, villas means group of country houses or villa dom (collection of villas). Therefore, village means an assemblage of houses smaller than a town. Village may be defined as: A village is a clustered human settlement or community larger than a hamlet but smaller than a town (with a population ranging from a few hundred to a few thousand). Though, villages are often located in rural areas the term urban villages are also applied to certain urban neighborhoods. Villages are normally permanent, with fixed devilling. However, transient villages can occur. Further, the devilling of a village is fairly close to one another, not scattered broadly over the landscape, as dispersed settlement.

b) **Household:** A household is a group of family members/persons normally living together and taking food from a common kitchen.

c) **Holding:** If the land is operated either by one person or by a group of persons being members of the same household the holding is called individual holding. If two or more persons belonging to different households share jointly (as partners) the economic and technical responsibility for the operation of the agricultural holding, the holding is called joint holding.

d) **Holding Size:** The NABARD has classified the farmers of India into the following four categories viz. marginal, small, medium and large farmers, on the basis of their landholding (i) Marginal farmers: All households with a landholding of less than 1 hectare have been termed as marginal farmers, (ii) Small farmers: All households with a landholding of 1 – 2 hectares have been considered as small, (iii) Medium farmers: All households with a landholding of 2 – 4 hectares have been termed as medium farmers and (v) Large farmers: All households with a landholding of above 4 hectares have been considered as large farmers.

e) **Labour Force:** The standard definition of labour force includes the males and females falling in the age-group of 16 – 60 years, but males and females falling in the age group of 7 – 15 years as well as 60 – 65 years also perform some light household activities, hence, they have also been considered in the labour force (after converting them in to standard man days) in order to avoid the under estimation of the magnitude of un-employment and/or under employment in the present study.

f) **Operational Holding:** It includes all land which is wholly or partly used for agricultural production and is operated as one technical unit by one person alone as well as with others without regard to title, legal farm, size or location. The technical unit is that which is under the same management and has the same means of production such as labour force, machinery and animals.

g) **Agricultural Labourer:** All those persons without any land but having a homestead and deriving more than 50 percent of their income from agricultural wages have been termed as agricultural labourar.

h) **Non-Agricultural Labourer:** Those who derive their income partly from agriculture and partly from other source fall under this category provided at least 50 percent of their income is from non-agricultural sources. They need not have a homestead but must be residents of the village in which they are identified.

i) **Earner:** All household members who contribute financially towards the total family income are called earners. An earner may be defined as one whose income is sufficient for his/her maintenance and earning dependent whose income is not adequate for his/her maintenance.

j) **Dependents:** Those persons, who are dependent on others for their livelihood. Persons falling in the age group of less than 11 years and greater than 59 years are considered as dependents in the present study.

k) **Reference Period:** Reference period means the period to which survey data refers. In the present study the reference period was year 2018-19.

l) **Household Income:** Household income includes current income of all members of the household from all sources. It consists of both farm and non-farm income.

m) **Farm:** The area of land actually cultivated including land leased-in by

the farmer and his family irrespective of title or location. The term farm or cultivated holding has been used synonymous to operational holding.

n) **Fragment:** All contiguous fields or plots of a farm constitute one fragment.

o) **Cultivated Area:** Net sown area plus current fallow.

p) **Gini-Coefficient & Lorenz Curve:** The Gini coefficient is a measure of inequality on scale of 0 to 1. A Zero coefficient means that, in the case of farmland distribution, all agricultural holdings hold the same amount of farmland. A coefficientof 1 means that a single agricultural holding holds all the farmland.

q) **The Gini Coefficient can be calculated using the formula:**

Gini Coefficient = A / (A + B), where A is the area above the Lorenz Curve and B is the area below the Lorenz Curve.

r) **Lorenz Curve:** A graph on which the cumulative percentage of total national income (or some other variable) is plotted against the cumulative percentage of the corresponding population (ranked in increasing size of share). The extent to which the curve sags below a straight diagonal line indicates the degree of inequality of distribution.

s) **Livelihood matrix :** The income-livelihood matrix is a technique that can be used to get a rapid idea of farmer's strategies for making a living. The matrix exercise can be done with individual farmers Livelihood Matrix. The income-livelihood matrix is a technique that can be used to get a rapid idea of farmer's strategies for making a living. The matrix exercise can be done with individual farmers.

t) **Cropped Area:** It refers to the area total cropped in which area sown more than once during an agricultural year is counted twice or thrice as the case may be. If three crops have been taken in succession, the area is counted thrice.

u) **Farm Enterprise:** The farm enterprise is an income producing branch of the farm business such as crops or class of live stocks.

v) **Cropping Intensity:** It is ratio of Gross cropped area to Net cultivated area.

w) **Net Irrigated Area:** It is the area irrigated through any source once in a year for a particular crop. Area irrigated more than once in the same year is counted only once.

x) **Gross Irrigated Area:** This is the sum total of the areas irrigated under all crops over the various seasons in agriculture year (i.e. from the 01st July to 30th June next year). Under GIA, area irrigated twice/thrice in the same year is counted as two/three times.

y) **Irrigation Intensity:** It is the ratio of gross irrigated (total) area to the net irrigated area expressed as a percentage.

z) **Worker:** Worker is defined as the male family member of 15 – 60 years who work whole time on the farm. The female members do not work whole time on the farm. They attend domestic work mainly hence, they have not been included among workers.

aa) **Helpers:** Those family members who are not working whole time but working from time to time on the farm to help the workers i.e. women, children and old persons

bb) **Farm Family Workers:** Farm family workers are members of the farm family for whom work on the farm has first call on their time.

cc) **Casual Labour:** The labour which are employed temporarily on daily wages during peak seasons.

dd) **Farm Workers:** Farm workers include farm family workers and permanent farm servants (Annual farm servants).

ee) **Man day:** Unit of work equivalent to 8 hours work of a male adult worker.

ff) **Animal Labour Day:** Units of work equivalent to 8 hours work by a pair of draught animal is synonymous to animal labour day pair day.

gg) **Farm Assets (Investment):** These include owned land, farm buildings (non-residential) wells, live stocks, implements and machinery.

hh) **Working Capital:** It includes the value of the human labour, seeds, manures and fertilizers.

ii) **Farm Output:** It includes cash received from the produce (main and by-product) sold, value of produce used in the household or held over for the use of family, value of seed kept for sowing, value of produce given over to other as wages or customary charges to barber, washer man, carpenter etc. Value of the by-products fed to the cattle or carried over to the next year as feed for cattle.

jj) **Gross Income:** The value of total produce including main and by-product at average price for different produce. It is synonymous with the value of output.

kk) **Primary and Secondary Occupation:** Primary occupation has been one among the listed occupations from

which a household derived maximum income greater than 50 percent of the total household income. While secondary occupations have been those among the listed occupations from which a household derived meager percentage of household income i.e. less than 50 percent.

II) **On-Farm income** –Income generated from growing crops, vegetables, fruits plants, livestock processing done on the premises sales generated from people those come to farm to purchase.

mm) **Off-Farm income** – Income generated from other activities not related to crop production sell of farmer processed product etc.

nn) **Non-Farm income** –Income generate from non-farm activities, such as income earn a labour and service sector etc..

2.2 Data Base

This study was based on both primary and secondary data. The required primary data were collected by survey method through the schedules and questionnaires specifically structured by the coordinating center, which was pre-tested in local condition before use it. The required secondary data were collected from the offices of state, district, tehsil, development block, village and village level institutions. Since, this study was a resurvey of the village Piprodh which had been surveyed in 1972-73. This village had 140 households and 682 people as per households in the year 1972-73 which increased to 332 households and 1476 people in the year 2018-19. During the course of present resurvey in the current year 2018-19, all the village functionaries like Village Sarpanch, Aaganwari workers, School teachers, Ward-workers, Village Patwari, Panchayat Secretary and Rozgar Sahayak (*KrishakMitra*) were consulted for collection of primary data. The personal observations of the hamlets of village Piprodh was keenly done by the investigators.

2.3 Sampling Design

The criteria for selection of village and criteria for selection of households are described under the sub-head.

2.3.1 Criteria for Selection of Village

As per the final study design received on 11-11-2019, Centre proceeded further with the village survey study wherein, AERC, Jabalpur had to undertake a village already surveyed earlier and hence, following this criteria for the selection of the village. The Centre undertaken village Piprodh which had been surveyed in the year 1972-73 under the title "Piprodh: Socio-Economic Resurvey of a Village in Jabalpur district of Madhya Pradesh" bearing village Study No.26 and Resurvey No.1 Published in 1975.

2.3.2 Criteria for Selection of Households

The main basis for census of households was that the total number of households in Piprodh village were not exceeded 400, therefore all the households (326) of Piprodh were considered for study.

2.4 Survey Approach

The survey was conducted at three levels viz. Village Level Information, Group Level Information and Household Level Information.

2.4.1 Village Level Information

All the necessary basic informations about the village were collected during the course of survey with the help of Patwari and Panchayat Secretary as well as Rozgar Sahayak, Village sarpanch and School Teachers. Senior citizens of the village were also consulted for detecting the historical profile of Piprodh village. Aaganwari workers were also contacted for collecting the relevant information on households and their inmates.

2.4.2 Group Level Information

The group level informations for the present village survey study of Piprodh village were collected through the three types of Group Discussion Schedules i.e. (1) Group Discussion Schedule – I, (2) Group Discussion Schedule – II and (3) Group Discussion Schedule – III optional (BMI and ASER – Test) particularly structured by the coordinating centre. Under Group Discussion Schedule – I the information related to the frequency and exposures to shocks and degree of hardship faced by village during the last 5 years (2014-19), main coping strategies at household level in the village, adaptation strategies by different stakeholders and natural disaster management and relief operations during the last 5 years were collected with the help of Block officials and other stakeholders. Under Group Discussion Schedule – II all the issues of the village Piprodh related to irrigation resources, pollution in surface and ground water, crop-wise use of NPK, use of pesticides in

Fig. 2.1 : Collection of data by investigators

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crops, use of the varieties of crops, proportion of indigenous and improved Cattles, Marketing channel and procurement system, major farming systems and major group perceptions were collected for the last 5 years. Under Group Discussion Schedule – III optional the malnutrition through BMI (Body Mass Index) was calculated with the help of the ICDS workers as well as school teachers using the height and weight of children and relating it with their age in the format provided by the coordinating centre. Also for calculating the quality of basic education through ASER (Annual Status of Education Report) toolkit with the help of ICDS workers and school teachers in the format provided by coordinating centre on the class of study, type of school, ASER math level and ASER-reading level of the children of the sample households of Piprodh village wasdone.

2.4.3 Household Level Information

The household level information were collected through the Household Schedules in two parts structured by the coordinating centre, wherein under the Household Schedule – Part-I the general information of the sample households, employment pattern of working family members birthand deaths during last 5 years, school dropout of children, socio-economic status, ownerships of assets, income and expenditure details, food security issues, savings and borrowings, governance & policy issues and perceptions about changes in the Households were collected by survey method visiting the households personally. Also under the Household Schedule- II the area under cultivation, cropping pattern, crop-diversification along with profit/loss and marketed surplus like information's for farmers have been collected, although, details of farming have been covered under ownership of assets in Household Schedule Part-I. In Piprodh village the majority of sample households were farmers being dominant households in the village.

2.5 Dimensions Covered

Since this village survey study was a resurvey, the generic dimensions covered were social, economic, agrarian, farming, ecological and policies. The resurvey had included particularly the social changes, demographic changes, agrarian changes, livelihood changes, economic changes, ecological changes and perceptions regarding government schemes and policies.

2.6 Analytical Tools

To cover the objectives of the study, apart from the simple mathematical and statistical tabular analysis, some other techniques were also used as detailed below:

2.6.1 Growth rates: Growth rates refer to the percentage change of a specific variable within a specific time period.

2.6.2 Tabular Analysis

Both the primary as well as secondary data available through survey have been analyzed and presented using simple mathematical and statistical technique in the present study for deriving the required result as per the objective of the study.

2.6.3 Livelihood matrix

The income-livelihood matrix is a technique that can be used to get a rapid idea of farmer's strategies for making a living. The matrix exercise can be done with individual farmers.

2.6.4 Diversification indice

Diversification is defined as a process in which rural households increase their employment and income from the non-farm activities. Regarding this, eighter the share of time spent on or the share of earnings from non-farm activities is used to highlight the importance of non-farm.

2.6.5 Gini Coefficient & Lorenz Curve

The area between the straight line and the curved line, expressed as a ratio of the area under the straight line, is the **Gini coefficient**, a scalar measurement of inequality. While the **Lorenz curve** is most often used to represent economic inequality, it can also demonstrate unequal distribution in any system.

2.6.6 Average Annual Growth Rate (AAGR)

The average annual growth rate (AAGR) is the average increase in the value of an individual investment, portfolio, asset, or cash stream over the period of a year. It is calculated by taking the arithmetic mean of a series of growth rates. The average annual growth rate can be calculated for any investment, but it will not include any measure of the investment's overall risk, as measured by its price volatility.

The average annual growth rate is used in many fields of study. For example, in economics, it is used to provide a better picture of the changes in economic activity (e.g. growth rate in real GDP).

AAGR= {[(Ending Value-Beginning Value)/Beginning Value]x100}/Number of year

2.6.7 Body Mass Index(BMI)

The Body Mass Index (BMI) is also known as Quetelet Index because it was invented by Adolphe Quetelet. In fact, it is a statistical measurement which compares as individuals weight and height. Although, it does not measure actually the percentage of body fat, yet it is very useful tool to estimate a healthy body weight based on how tall an individual is. Indeed, it is the most widely used tool to identify the weight problem. BMI is very easy to measure and evaluate. With the help of BMI one can

come to know whether one is of underweight, normal weight, overweight or in the category of obesity. BMI can be defined as the individuals body weight divided by the square of his height. BMI helps one to know whether he has a healthy weight or needs to loose his body weight or needs to gain weight. It's value is measured in kg/m^2.

Calculation of BMI

BMI of any individual can be calculated with the help of the following formula:

Body Mass Index 'BMI' = Body weight/height^2

The weight of an individual is measured in Kilograms and the height of the individual is measured in meters. Thus, with the help of World Health Organization (WHO) criteria for underweight and obesity, one can know whether he is under weight, normal weight, overweight or in obesity.

BMI categories for children in Kg

1. Severely underweight = less than $16.5 kg/m^2$

2. Underweight = $16.5 kg/m^2$ to less than $18.5 kg/m^2$

3. Normal weight = $18.5 kg/m^2$ to less than $25 kg/m^2$

4. Overweight = $25 kg/m^2$ to less than $30 kg/m^2$

5. Obesity = $30 kg/m^2$ and above.

Precautions during measurement as per WHO

As per WHO the following precautions must be taken while taking measurements of height and body weight for calculating BMI:

While measuring height one should be bare footed and his/her face should be in a straight position. Body weight must be taken on a reliable and perfect weighing machine, while taking body weight one must wear minimum required clothes.

2.6.8 ASER (Annual Status of Education Report)

ASER stands for Annual Status of Education Report. This is an annual survey that aims to provide reliable annual estimate of children's schooling status and basic learning levels for each State and rural districts in India. In the present study the levels of reading competency and arithmetic competency of the children (age group of 5-15 years) by sex, caste and schools, were studied with the help of ASER toolkit test provided by the coordinating center.

2.6.9 Crop Diversification Index

The extent of crop diversification by the sample farmers of Piprodh village has been worked out with the help of Simpson's diversity index (SDI) formula as given under:

$$D = 1 - \frac{\Sigma n(n-1)}{N(N-1)}$$

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Where:

n = number of individuals of each species

N = total number of individuals of all species

Simpson's diversity index (SDI) measures community diversity. Although it's commonly used to measure biodiversity, it can also be used to gauge diversity differences of populations in schools, communities and other locations.

The range is from 0 to 1, where:

High scores (close to 1) indicate high diversity.

Low scores (close to 0) indicate low diversity.

One of more the useful aspects of the index are to compare two sets of data to see which is more diverse. For example, if one has an SDI of 0.5 and another has an SDI of 0.35, then the set with the SDI of 0.5 is more diverse.

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AN OVERVIEW OF STUDY VILLAGE-PIPRODH

This chapter deals with the village profile, livelihood/employment and migration status, agriculture status, developmental institutions & infrastructure, village infrastructure, cultural profile and other parameters of the village.

3.1   Village Profile

In village profile geographical & administrative location of the village, climate and rainfall, soil, communication, transportation facilities, natural resources , demographic profile of the village , religion ,

village settlement pattern, literacy&poverty have been considered for the Piprodh village.

3.1.1   Geographical & Administrative Location of the Village

Piprodh is situated in Katni district of Madhya Pradesh. The longitude and latitude of Piprodh village is 80° 25' 14.1924" E and 23° 50' 1.3812" N, respectively with height of 381.25 meter from mean sea level. The village situated in the Murwada   tehsil of Katni district of Madhya Pradesh and lies on the Mumbai-Calcutta National Highway 30. Piprodh is

Madhya Pradesh

Katni District

Murwara Tehsil in Katani District
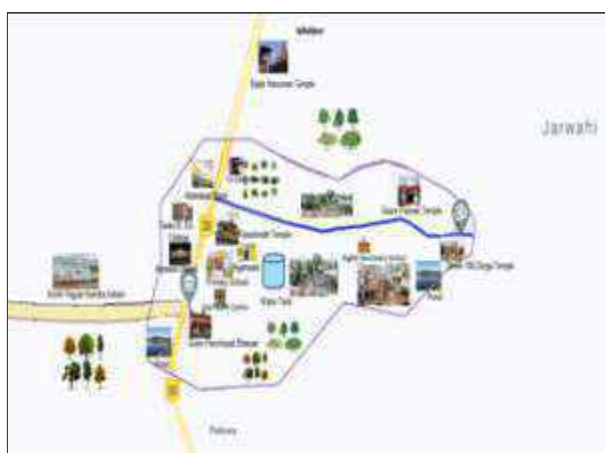
Piprodh Village of Murwara Tehsil in Katani District

Jarwahi   Takhala   Ghughra

Gaitara

Bichhiya

Piproundh

Padwa

Fig. 3.1 : Satellite Image of the Village

Matwari   Thuthari   Sagodi

situated at a distance of 78 Km. from Jabalpur towards north and 22 km from Katni towards south. It is only 5.5 Km away from Niwar (Katni) having a large nucleus of limestone and allied industries. National Highway 30 forms Western boundary of the villages. A concrete road linking Jabalpur-Allahabad road to Niwar railway station form the Northern boundary. Village Bicchia and Ghughra are on the East. Village Lakhapatheri situated on the South. Dewari & Piprondh situated in North. Other surrounding villages are Jarwahi on the North-East, Takhla & Tikariya on the South East, Raipura on the West and Matwari on the North-

West. Piprodh is divided into three hamlets (Fig 3.1). The first hamlet is on the west of the National Highway 30. This hamlet consists of 85 households, 4 flour mills and 2 shops. The second hamlets are opposite to the first on the east of the National Highway and consist of a Jain Temple, a tea stall and a bicycle repair shop.

The well-to-do people including a former *Malguzar* are residing in either of these 2 hamlets. The third hamlet is adjoining to the second. All hamlets are electrified. Hamlet No.3 ends just at the foot of a limestone quarries. (Table 3.1)

Table 3. : An overview of the Piprodh village

Particulars	In 2019
Location Code (as per 2011 Census)	488134
Geographical area of the village	495.64 ha
Latitude	23° 50' 1.3812" N
Longitude	80° 25' 14.1924" E
MSL	381.25 m
Total Households	326
Total Population	1438
Post Office and Pin code	Katni and 483442
Gram-Panchayat	Piprodh
Assembly Constituency	Murwara
Parliament Constituency	Khajuraho
Block/Tehsil	Murwara
District	Katni
State	Madhya Pradesh
Nearest Primary School(with distance)	Govt. Primary School Piprodh (Katni) (0 km)
Nearest Secondary/Higher Secondary School (with distance)	Govt. Higher Secondary School Piprodh (Katni) (1km)
Nearest College (with distance)	TaviteB.Ed Training College, Piprodh (Katni) (0 km)
Nearest Health Centre/Hospital (with distance)	Govt .AayushAushdhalaya(0 km)
Nearest City or Town (with distance)	Katni (22 km)
Nearest Railway Station (with distance)	Niwar (Katni) (5.5 km)
Nearest Airport (with distance)	Dumna Airport, Jabalpur (95 km)

Source: http://landrecords.mp.gov.in

3.1.2   Climate and Rainfall

Sub-tropical climate is reported in Piprodh village. It is fall under Kymore Plateau and Stapura Hills Agro-Climate Region of Madhya Pradesh. The climatic year is divided into four seasons. The cold season (December to February) followed by the summer season (March to middle of June). The period from the middle of June to September is the south-west monsoon season. October and November form the post monsoon or transition period. The average annual rainfall of Piprodh is 1171.4mm.Village received maximum rainfall during south-west *monsoon* period, about95% of the annual rainfall received during monsoon season. Only 5 per cent of the annual rainfall takes place during rest of the year. The surplus water for ground water recharge is available only during the south-west monsoon period. The normal maximum temperature received during the month of May (44.30^{0}c) and minimum during the month of December/January (8.50^{0}C). The normal annual mean maximum and minimum temperature of Piprodh is 32^{0}C & 18^{0}C respectively.

During the south-west monsoon season

Table 3.2: Weather condition of the village

Weather	Minimum	Maximum	Average
Temperature	8.50	44.30	-
Mean Temperature	18.00	32.00	-
Rainfall	-	-	1171.4
Relative Humidity (%)	9.50	99.5	-
Wind speed	12	18	-

Source: Field survey

the relative humidity generally exceeds to 99.5 per cent, rest of the year is drier. The drier part of the year is the summer season, when relative humidity is found 9.50 per cent. May is the driest month of the year (Table 3.2).

3.1.3   Soil

The soil of the villages is clay-loam having black and yellow colour, popularly known as 'Dumatta'. The structure is sub-angular blocky. The majority of which is medium (60%) followed by light (23%) and heavy (17%). The soil is deficient in Nitrogen and Phosphorus and high Potash content. The water holding capacity of soil is found between 35 to 45 percent and has a tendency to crack

Table 3.3: Type of soil in Piprodh

Soil type	%
Light	23
Medium	60
Heavy	17

Source: Field survey

when dry. The soil is more suitable for cultivation of paddy and wheat. The vegetables can also be cultivated with adding manures in the soil. (Table 3.3)

3.1.4 Communication

Now a day's almost 95 per cent HHs of the village were found to be use cell phones. Youngsters are very familiar with multimedia mobile, Internet etc. The 62 per cent HHs have television and 4 per cent of HHs also using radio for their entertainment. Almost 95 percent people were found to be use internet through cellular network. A sub-post office is also situated in the village for communication & financial facilities. Jio, Idea, Airtel and BSNL companies' are providing telecommunication services in the village under study (Table 3.4).

Table 3.4: Source of communication

Source of communication	%
Telecom	95
Television	62
Radio	4
Internet	95

Source: Field survey

3.1.5 Transportation Facilities

The village is well connected with the outside world. National Highway-30 is passing on the west direction of the village on which regular buses are available for transportation. All passenger buses use to stopped at Piprodh. Some of the people have also using their own vehicle i.e. bicycle, bike and four wheelers. Auto rickshaw is also a means of transportation for labours to go to Katni. On the east of the village Jabalpur-Katni railway line.The nearest railway station for the villagers is Niwar, which lies only a distance of 5.5 km. The nearest airport is in Jabalpur which is 95 Km far away from the village.

3.1.6 Natural resources: Forest/Rivers/ Pond/Wells/Flora & Fauna

A small forest found outside the village. This forest is mixed forest of Bamboo, Teak, Amaltash, Anola etc. trees. So many grasses are also found there. People of village depends on forest for firewood and grazing their livestock. Some of villagers were also found to be collect Anola, Mahua, Tendupatta etc. from the forest. Monkey, Rabbits, Squirrels, mongoose etc. are the animals found in the forest.

There are 2 ponds situated in the village having sufficient water. Few famers were found to use pond water for irrigation purposes during in *Rabi* season.

Fig. 3. 3: Pond for irrigation purpose

3.1.7 Demographic Profile

In demographic profilepeople, religion, village settlement pattern, literacy and poverty are included for the study.

3.1.7.1 People

The total population of the village was found to be 1438, Out of which 51.46 per cent (740) are male and rest are female (48.54%)(Fig3.4).

The adult, children and senior citizen were found to be 68.92 (991), 10.36 (149) and 20.72 (298) per cent, respectively in the village. The sex ratio of female over 1000 male was found to be 942 and number of HHs in the village were 326 only (Table 3.5).

Out of total population (1438) OBC (47.29%) were found to be maximum as compared to SC (24.83%), ST (21.00%) and General (6.88%). Amongst SC male and female were 52.82 and 47.18 percent, while in case of ST they were 47.39 and 52.61 percent, respectively reside in the village (Table 3.6).
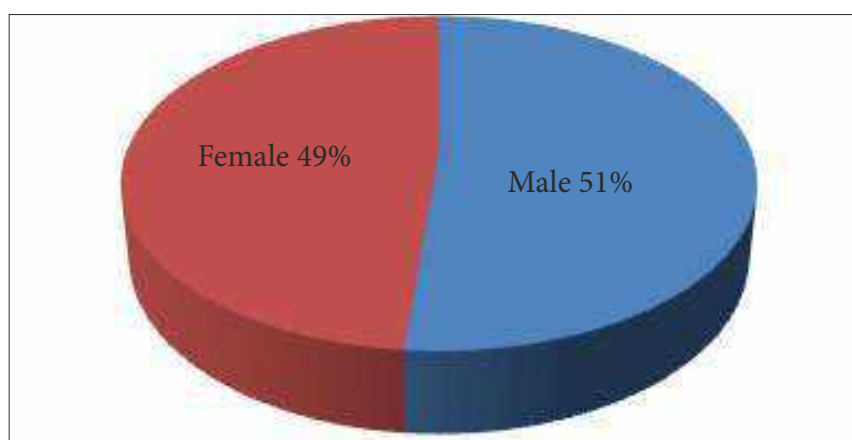
Fig. 3.4: Percent share of male & female in total population

Table 3.5: Demographic features of Piprodh village

Particulars	Male	Female	Total
Population according to Age group (Number)			
Adults	509	482	991
Children(0-6)	85	64	149
Senior citizens	146	152	298
Total	**740**	**698**	**1438**
Population according to Age group (Percent to Total)			
Adults	68.78	69.05	68.92
Children(0-6)	11.49	9.17	10.36
Senior citizens	19.73	21.78	20.72
Total	100.00	100.00	100.0
Sex Ratio over 1000 male		942	
Number of HHs		326	

Source: Field survey, Figures in parenthesis show per cent to total population

Out of total population (1438) total workers were found to be 676 (47.01%). Out of which male (60.35%) were found to be more as compared to female (39.65%) worker (Table 3.6). In total worker the cultivators (27.00%) were found to be more followed by casual

Table 3.6: Population characteristics by caste

Age Groups	Male	Female	Total	Sex ratio	Average size of households
General	54 (7.30)	45 (6.45)	99 (6.88)	833	4.21
Scheduled Caste	201 (27.16)	156 (22.35)	357 (24.83)	772	4.41
Scheduled Tribe	153 (20.68)	149 (21.35)	302 (21.00)	974	4.65
OBC	332 (44.86)	348 (49.86)	680 (47.29)	1048	4.36
Total	**740 (100)**	**698 (100)**	**1438 (100)**	943	4.36

Source: Field survey

labour(21.00%), marginal labour (19.00%), agriculture labours (9.00%)labour engaged in HHs industries (7.00%), persons engaged in trade and business (5.00%), private salary person (4.00%), govt. salary persons (2.00%), pensioner (2.00%), caste based professional (1.00%) and entrepreneurs (1.00%) (Fig 3.5).

Village Survey Study in Madhya Pradesh (Piprodh Village)
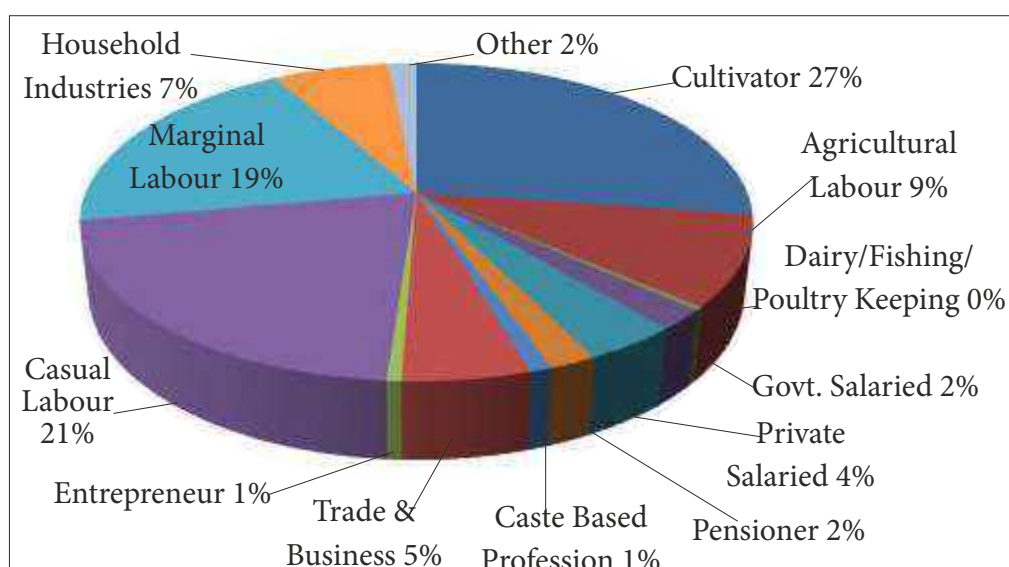
Fig.3.5: Percent share of workers in different activities (Total Population 1438)

Table 3.7: Workers in total population of Piprodh village (2019)

Livelihood Groups	Male	Female	Total
Cultivator	184	0	184
Agricultural labour	16	46	62
Dairy/Fishing/Poultry keeping	1	1	2
Govt Salaried	11	3	14
Private Salaried	20	6	26
Pensioner	8	5	13
Caste based profession	4	2	6
Trade & business	24	11	35
Entrepreneur	3	1	4
Casual labour	79	63	142
Marginal labour	83	49	132
Household Industries	12	33	45
Others	5	6	11
Overall	**450**	**226**	**676**
Percent to total			
Cultivator	100.00	0.00	100
Agricultural labour	25.81	74.19	100
Dairy/Fishing/Poultry keeping	50.00	50.00	100
Govt Salaried	78.57	21.43	100
Private Salaried	76.92	23.08	100
Pensioner	61.54	38.46	100
Caste based profession	66.67	33.33	100
Trade & business	68.57	31.43	100
Entrepreneur	75.00	25.00	100
Casual labour	55.63	44.37	100
Marginal labour	62.88	37.12	100
Household Industries	26.67	73.33	100
Others	45.45	54.55	100
Overall	**66.57**	**33.43**	**100**

Source: Field survey

An Overview of Study Village-Piprodh

Male were found to be more dominated than female in all these activities viz. cultivation, salaried person, casual labour, marginal labour, entrepreneur, trade & business, except in agriculture labours & HHs industries and other activities where female were found to be dominated over male. Male and female were found to be equally participated in dairy/fishing/poultry and caste based professions in the village (Table 3.7)

3.1.7.2 Population Distribution

As far as age and sex of population in concerned, the maximum number of persons were found to be in the age group of 35-44 year (14.39%) followed by 45-59 (13.77%), 15-19 (13%), 22-24(10.15%), 25-29 (9.25%) , 10-14 (9.11%), 5-9 (8.55%), 30-34 (8.07%) over 60 years(7.37%) and less than 4 years (6.33%) (Table 3.8).

Table 3.8: Population Distribution according to age group

Age-groups (years)	Male	Female	Total	% to total
0-4	49	42	91	6.33
5-9	66	57	123	8.55
10-14	64	67	131	9.11
15-19	96	91	187	13.00
20-24	71	75	146	10.15
25-29	66	67	133	9.25
30-34	63	53	116	8.07
35-44	106	101	207	14.39
45-59	101	97	198	13.77
60- Over	54	52	106	7.37
Total	**740**	**698**	**1438**	100.00

Source: Field survey

The distribution of HHs across family size was found to be maximum in family size of 4 (90) followed 5 (76), 3 (45), 2 (38) and 6 (32) members. The 60 % HHs of the village have the family size of 4 to 6 members. (Table 3.9). The number of persons in different family size groups were found to be also more in family size of 4 and 5 members as compared to other classes of family size.

Table 3.9: Distribution of households by family size

Family size	No. of households	% of total	No. of persons	% of total
1	9	2.76	9	0.63
2	38	11.66	76	5.29
3	45	13.8	135	9.39
4	90	27.61	360	25.03
5	76	23.31	380	26.42
6	32	9.82	192	13.35
7	20	6.13	140	9.74
8	6	1.84	48	3.34
9	4	1.23	36	2.5
10 & above	6	1.84	62	4.31
Total	**326**	**100**	**1438**	**100**

Source: Field survey

3.1.7.3 Literacy

At overall level the total literacy rate in Piprodh village was reported to be 75.52 per cent, while the average literacy percentage among male & female was reported to be 51.46 & 48.54 per cent, respectively in the village (Table 3.10).

At overall level 30.00 per cent people were found to be educated at higher secondary level (30%) followed by primary (22.00%), intermediate (14.00%), graduate (6.00%) and technical (3%) (Fig 3.6). The 25 per cent of total population was found to be illiterate in the village.

Table 3.10: Educational status

Educational Status	Male	Female	Total
Illiterate	138	214	352
Up to Primary	189	138	327
Up to Secondary	224	209	433
Up to Intermediate	121	75	196
Technical	21	17	38
Graduates	44	43	87
Post graduates & professionals	3	2	5
Total	**740**	**698**	**1438**
Percent to Total			
Illiterate	39.20	60.80	100.00
Up to Primary	57.79	42.21	100.00
Up to Secondary	51.74	48.26	100.00
Up to Intermediate	61.73	38.27	100.00
Technical	55.26	44.74	100.00
Graduates	50.57	49.43	100.00
Post graduates & professionals	60.00	40.00	100.00
Total	**51.46**	**48.54**	**100.00**

Source: Field survey
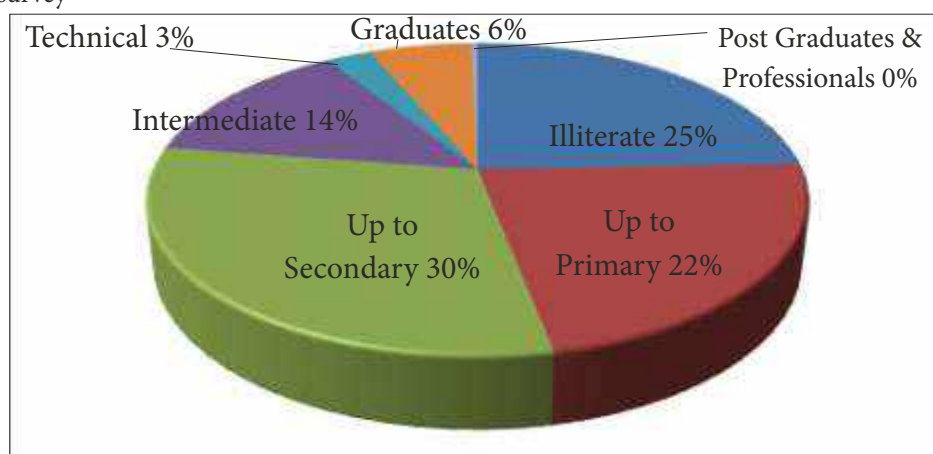
Fig.3.6: Education Status of HHs(Total population 1438)

3.1.7.4 Poverty

Generally, the most of the people of this village are still living in a backward economy. The households belongs to OBC (48%) were found to be maximum followed by SC (25%), ST(20%) and general category (7%) (Fig. 3.7).
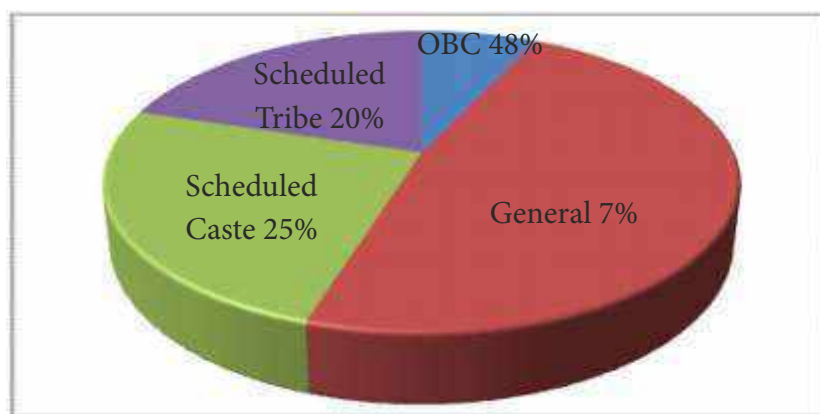
Fig. 3.7: Economic Status by Caste (Total HHs 326)

In total 55.52 per cent population was found under Above Poverty Line (APL) category. The majority of them were found to belongs to general (100%) followed by OBC (55.77%), ST (60.61%) and SC (38.27%). In B.P.L. (Below Poverty Line) category, the majority of them were found to be SC (61.73%) followed by OBC (44.23%) and ST (39.39%)

Table 3.11: Economic Status by Caste

Particulars	Economic Categories		Overall
	APL	BPL	
General	23	0	23
OBC	87	69	156
Scheduled Caste	31	50	81
Scheduled Tribe	40	26	66
All Categories	**181**	**145**	**326**
Percent to Overall			
General	100.00	0.00	100.00
OBC	55.77	44.23	100.00
Scheduled Caste	38.27	61.73	100.00
Scheduled Tribe	60.61	39.39	100.00
All Categories	**55.52**	**44.48**	**100.00**

Source: Field survey

category(Table 3.11). None of the HHs was found under general category in BPL.

3.2 Livelihood/Employment and Migration Status

The livelihood pattern, primary, secondary and tertiary categories of livelihood and pattern of migration in different economic categories were observed for the study.

3.2.1 Livelihood Pattern/Types

The per capita per annum farm, off farm, non- farm and over all income across various livelihood groups were observed and presented in table 3.12. It is observed from the data that at overall level an average HH was found to earn maximum annual income from their non-farm resources (Rs.131385/year) followed by farm

Table 3.12: Composition of annual income of HHs in Piprodh village by livelihood groups (Rs./capita/annum)

Livelihood Groups	Farm Income	Off-farm Income	Non-farm Income	Total
Cultivator	68000	11000	7000	86000
Agricultural labour	0	13500	40000	53500
Dairy/Fishing/Poultry keeping	45000	20000	30000	95000
Govt. Salaried	0	0	320000	320000
Private Salaried	0	0	240000	240000
Pensioner	0	0	12000	12000
Caste based profession	0	12000	125000	137000
Trade & business	0	0	430000	430000
Entrepreneur	0	0	320000	320000
Casual labour	0	12000	52000	64000
Marginal labour	0	14000	32000	46000
Household	0	16000	65000	81000
Others	0	0	35000	35000
Overall	**8692**	**7577**	**131385**	**147654**

Source: Field survey

income (Rs.8692/year) and off-farm income (Rs.7577/capita/annum) during the survey period.

3.2.2 Primary, Secondary and Tertiary Livelihoods

In the Piprodh as a whole the majority of
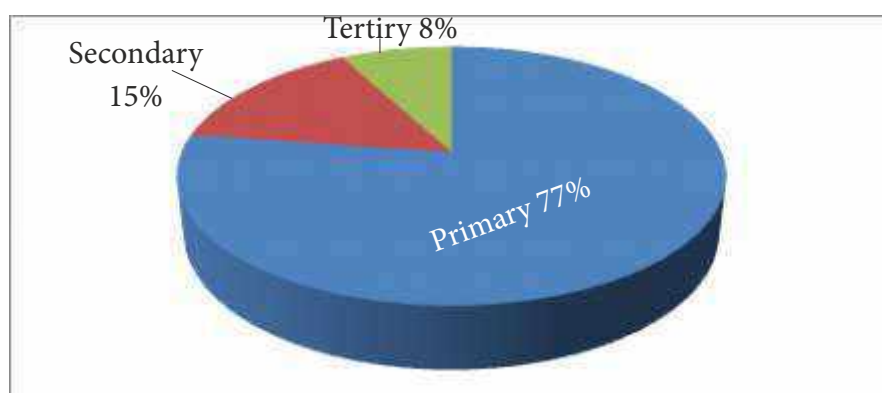
Fig. 3.8: Person engaged sector for their livelihood

Table 3.13: Villagers perform under various occupations for livelihood

Livelihoods Type	Male	Female	Total
Primary	363	159	522
Secondary	48	53	101
Tertiary	39	14	53
Overall	**450**	**226**	**676**
Percent to total			
Primary	69.54	30.46	100
Secondary	47.52	52.48	100
Tertiary	73.58	26.42	100
Overall	**66.57**	**33.43**	**100**

Source: Field survey

total population were found to got livelihood support from primary sector (77%) followed by secondary (15.00%) and tertiary (8%) sector. (Fig 3.8)

The majority of workers were found to be cultivators (27%) followed by casual labour(21%), marginal labours(19%), agriculture labours (9%) labours engaged in HH
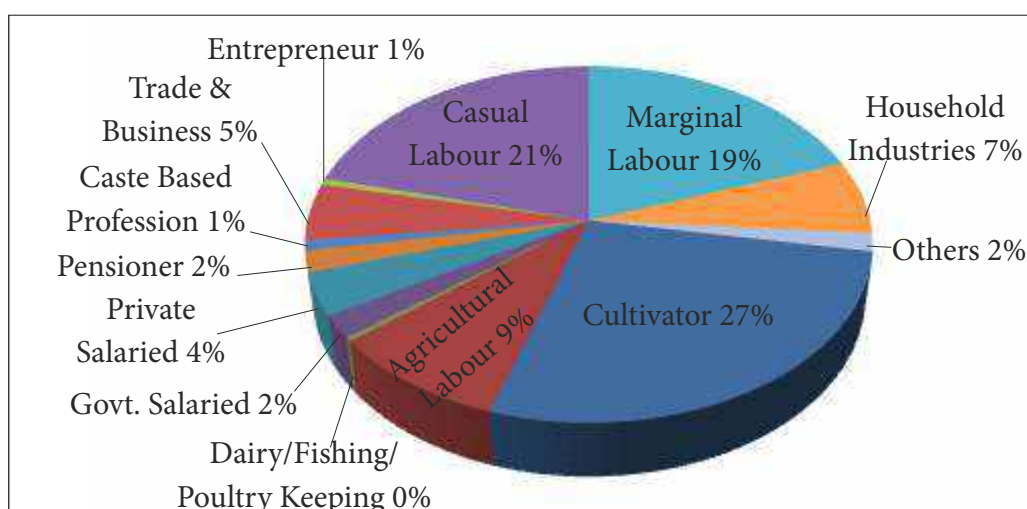
Fig. 3.9: Distribution of villagers across Livelihood groups

industries (7%), person engaged in trade in business (5%), private salaried person (4%), govt. salaried person (2%), pensioner (2%) entrepreneurs (1%), and person engaged in their caste based professions (1%) (Fig. 3.9).

Table 3.14: Distribution of villagers across Livelihood groups

Livelihood Groups	Male	Female	Total
Cultivator	184	0	184
Agricultural labour	16	46	62
Dairy/Fishing/Poultry keeping	1	1	2
Govt Salaried	11	3	14
Private Salaried	20	6	26
Pensioner	8	5	13
Caste based profession	4	2	6
Trade & business	24	11	35
Entrepreneur	3	1	4
Casual labour	79	63	142
Marginal labour	83	49	132
Household Industries	12	33	45
Others	5	6	11
Overall	**450**	**226**	**676**
Percent to Total			
Cultivator	100	0	100
Agricultural labour	25.81	74.19	100
Dairy/Fishing/Poultry keeping	50	50	100
Govt Salaried	78.57	21.43	100
Private Salaried	76.92	23.08	100
Pensioner	61.54	38.46	100
Caste based profession	66.67	33.33	100
Trade & business	68.57	31.43	100
Entrepreneur	75	25	100
Casual labour	55.63	44.37	100
Marginal labour	62.88	37.12	100
Household Industries	26.67	73.33	100
Others	45.45	54.55	100
Overall	**66.57**	**33.43**	**100**

Source: Field survey

Amongst different professions male were found to be dominated in all the professions except persons engaged in HH industries and other professions where females are dominated over males (Table 3.14).

3.2.3 Pattern of Migration

The migration according to caste and economic status is presented in table 3.15. It is observed from the data at overall level that only 0.92 per cent people were found to be migrated from the village for their livelihood security. The extent of migration was found to be more in BPL category as compared to APL.

Amongst different caste groups ST persons were found to be migrated more as compared to SC and OBC. None of the person belong to general category was found to be migrated from the village for his livelihood security (Table 3.15).

Table 3.15: Extent of migration by caste and economic status (% of respondents reported migration)

Particulars	Economic Categories			Overall/Total
	APL	MAPL	BPL	
General	-	-	-	-
OBC	-	-	1.44	0.63
Scheduled Caste	-	-	2	1.23
Scheduled Tribe	2.63	-	-	1.53
Minorities	-	-	-	-
All Categories	0.68	-	1.11	0.92

Source: Field survey

3.2.4 Agriculture Status of the Village

Land utilization, irrigation and cropping pattern with livestock resources in there identified for the study.

3.2.4.1 Land Utilization Pattern

The land use pattern of the Piprodh village in presented in table 3.16. The geographical area of village was found to be 495.64 ha.
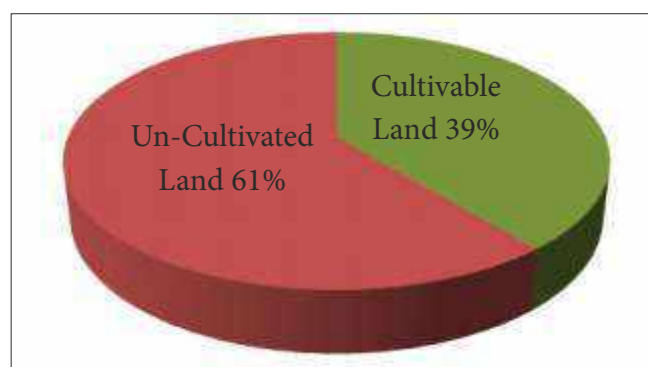
Fig. 3.10: Percent share of Cultivable & Uncultivable land in geographical area (495.64 ha)

Out of total geographic area (495.64) ha the uncultivated land (61.00%) was found to be more as compared to agriculture cultivated land (39.00%) (Fig3.10). Out of total agriculture/cultivable land (93.50 ha), the current fallow was found only 7.00 per cent (Fig 3.11). In uncultivable land (302.14 ha), the pasture & grazing land (39.00%) was found to be

Table 3.16: Land Use pattern in the village Piprodh (in ha)

S.No.	Particulars		Area (in ha)
A.	**Geographical area**		**495.64**
	1	Net sown area	180.37
	2	Current fallow	13.13
B.	**Cultivable Land (1to2)**		**193.50**
	1	Barren land	1.25
	2	Forest area	57.2
	3	Pasture and graz ing land	117.55
	4	Cultivable waste land	33.55
	5	Misc. trees & crops	6.6
	6	Other	85.99
C.	**Uncultivated Land (1 to 6)**		**302.14**
D.	Gross cropped area		325.37
E.	Cropping intensity (%)		180.39
F.	Net irrigated area		174
G.	Gross irrigated area		255.93
H.	Irrigation intensity (%)		147.09
I.	Area under irrigation over cultivated land (%)		89.92

Source: Field survey, Source: http://landrecords.mp.gov.in
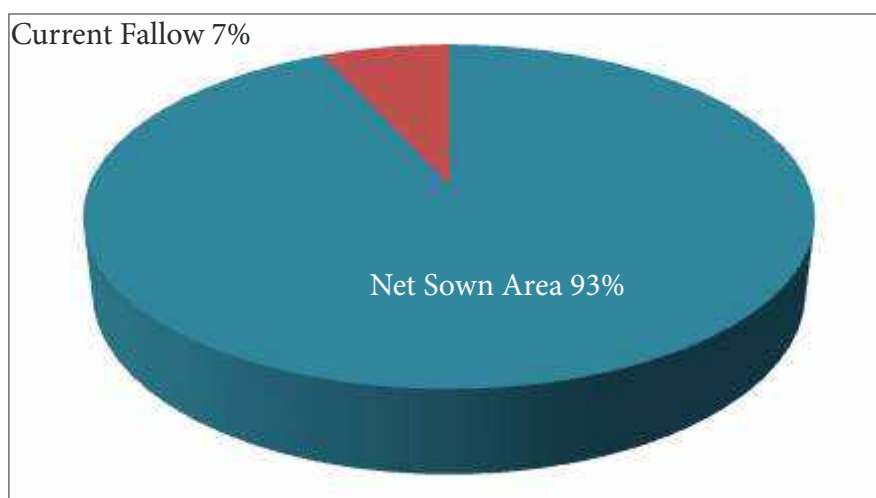
Fig. 3.11: Percent share of Current fallow & net sown area in Cultivable land (193.50ha)
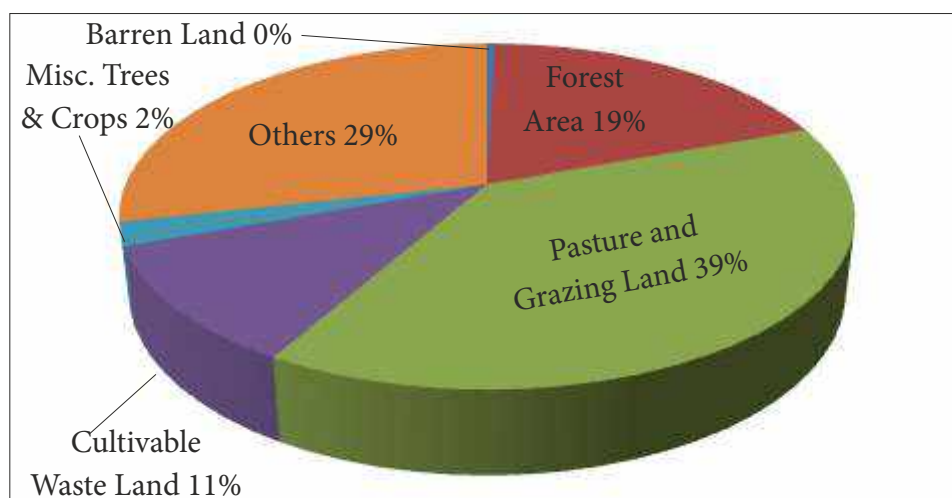
Fig. 3.12: Percent share of different parameters of Uncultivable land (302.14 ha)

more as compared to other (29%), forest (19%), cultivable waste land (11.00%), land under misc. trees & crops (2.00%) and barren land (0.42%) (Fig 3.12). The cropping intensity of Piprodh village was found to be 180.39%. (Table 3.16).

3.2.4.2 Irrigation

On an average 89.92 per cent area of net area sown was found under irrigation with irrigation intensity of 147.09 per cent per year (Table 3.17).

Table 3.17: Irrigation pattern in the Piprodh village

Irrigation pattern	Area (in ha.)
Net irrigated area	174
Gross irrigated area	255.93
Irrigation intensity (%)	147.09
Area under irrigation over cultivated land (%)	89.92

Source: Field survey

The main source of irrigation was found to be tube well (40.00%) followed by pond (23.34%), well (20.00%), nala (13.33%) and canal (3.33%) in Piprodh village. (Table 3.18)

Table 3.18: Sources of irrigation

Particulars	1972	Area (ha) 2019	% to Total
Tube well		69.6	40.00
Well	9.03	34.8	20.00
Pond		40.61	23.34
Nala		23.19	13.33
Canal	155.57	5.79	3.33
Total	**164.60**	**174**	**100.00**

Source: Field survey

3.2.4.3 Cropping Pattern

Cropping pattern of the village under irrigated and un-irrigated condition are presented in table 3.19.

The cropping pattern of Piprodh village was found to be dominated by irrigated condition as compared to rain-fed. In irrigated condition *Rabi* Season (56.66%) was found to be dominated over *Kharif* Season (40.38%), while in unirrigated condition *Kharif* season (96.99%)

was found to be dominated over *Rabi* season (2.13%) in the village. At overall basis the cultivators were found to grow more crops in Kharif season (52.00%) followed by rabi (45.00%) and perennial crop (3%) (Fig 3.13).

Gross cropped area of Piprodh village of Katni district was found to be 325.37 acres. Paddy (50.94%) followed by sesame, vegetables and black gram were found to be main Kharif crops cultivated by the cultivators. In *Rabi*
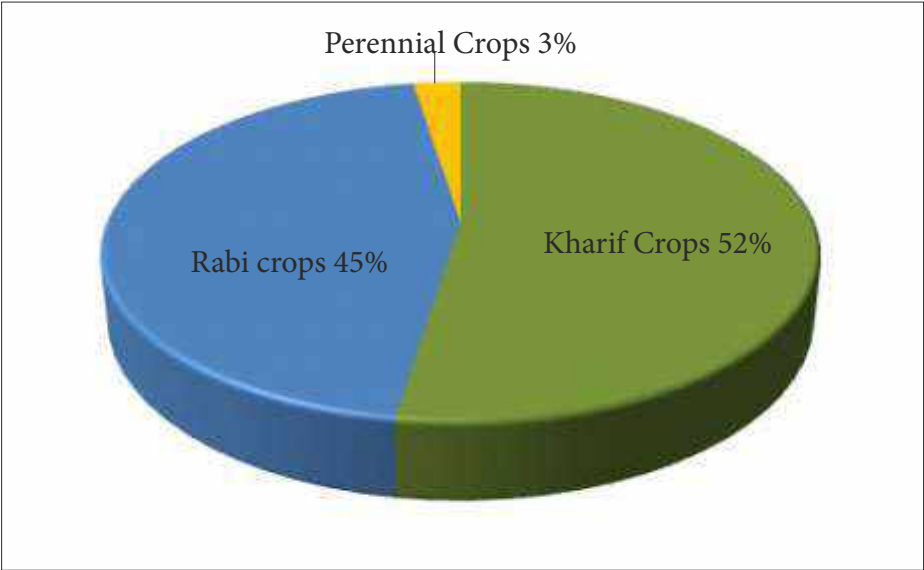
Fig. 3.13: Percent Area under different Seasons (Total Area 325.37 acre)
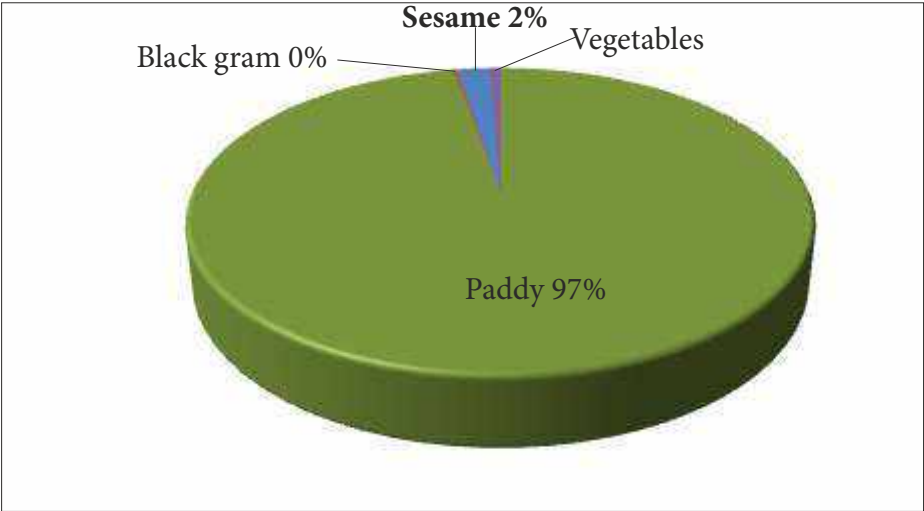
Fig. 3.14: Percent Area under Kharif Season (Total Area 170.697 acre)

Table 3.19: Cropping pattern in the village Piprodh in 2019 (in acre)

Crops	Irrigated	Un irrigated	Total
Paddy	103.19	62.55	165.74
Black gram	0	0.34	0.34
Sesame	0	3.4	3.4
Vegetable	0.15	1.06	1.21
Kharif area	**103.34**	**67. 35**	**170.69**
Wheat	133.25	0	133.25
Chickpea	5.75	0	5.75
Pea	0.1	0	0.1
Lentil	0.21	0.15	0.36
Mustard	0	1.33	1.33
Vegetables	5.13	0	5.13
Other crops	0.58	0	0.58
Rabi area	**145.02**	**1.48**	**146.5**
Perennial crop (Fruit)	7.57	0.61	8.18
Gross cropped area	**255 .93**	**69.44**	**325.37**
Percent to Total			
Paddy	62.26	37.74	100.00
Black gram	0.00	100.00	100.00
Sesame	0.00	100.00	100.00
Vegetable	12.40	87.60	100.00
Kharif area	**60.54**	**39.46**	**100.00**
Wheat	100.00	0.00	100.00
Chickpea	100.00	0.00	100.00
Pea	100.00	0.00	100 .00
Lentil	58.33	41.67	100.00
Mustard	0.00	100.00	100.00
Vegetables	100.00	0.00	100.00
Other crops	100.00	0.00	100.00
Rabi area	**98.99**	**1.01**	**100.00**
Perennial crop (Fruit)	92.54	7.46	100.00
Gross cropped area	**78.66**	**21.34**	**100.00**

Source: Field survey, Figures in parenthesis show per cent to total
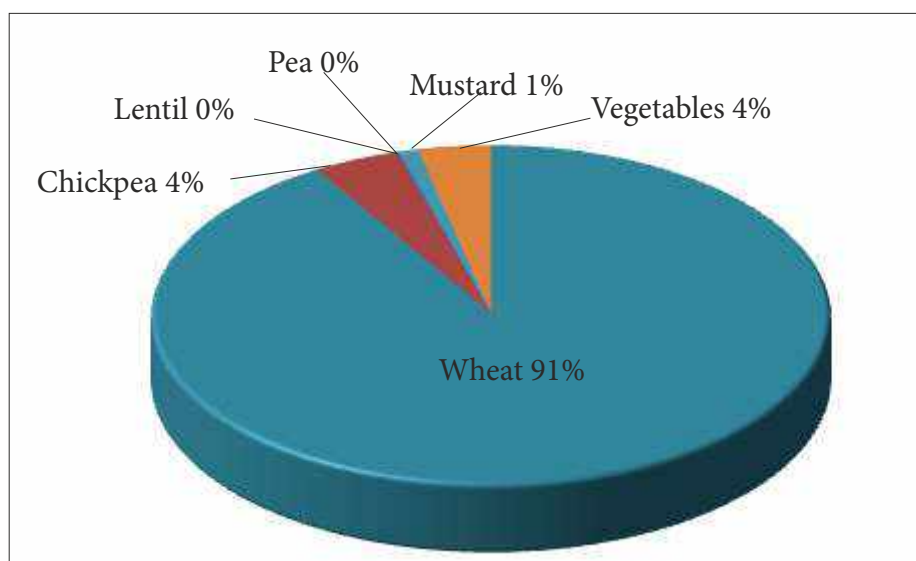
Fig. 3.15: Percent Area under Rabi Season (Total Area 146.57 acre)

Wheat (40.95%) followed by chickpea (4.00%), vegetable (4.00%) and Mustard (1.00%) were found to be major *Rabi* crops in the village. As the village is found to be well connected with the road hence, cultivators cultivate vegetables in both the seasons of the year. They also found to be devote their 2.51 per cent of total area under the production of fruits.

3.2.5   Livestock resources

The HHs of the village were also used to domesticate livestock on their farms in the village, they were found to domesticating 356

Table 3.20: Livestock resources

Livestock	Milch	Drought	Young stock	Total
Cow	128	45	16	189
Buffalo	35	2	60	97
Goat	40	12	18	70
Overall	**203**	**59**	**94**	**356**
Poultry Birds	-	-	-	35
Percent to Total				
Cow	67.72	23.81	8.47	100.00
Buffalo	36.08	2.06	61.86	100.00
Goat	57.14	17.14	25.71	100.00
Overall	**57.02**	**16.57**	**26.40**	**100.00**

Source: Field survey
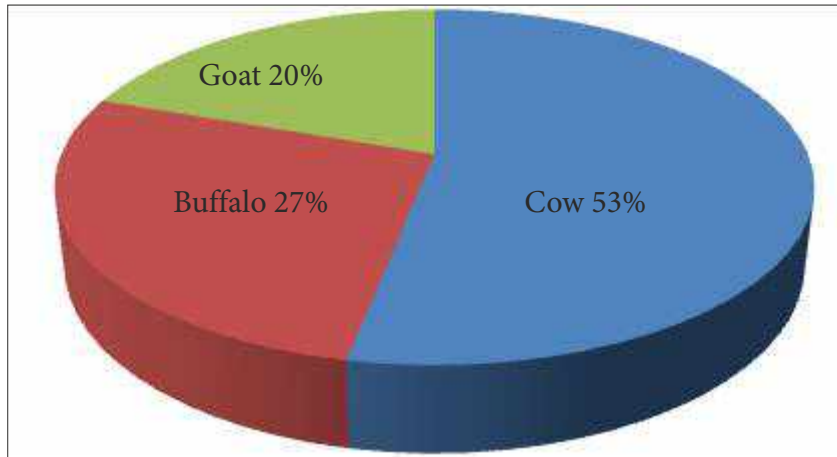
Fig. 3.16: Percent Share of different livestock to total (356)

number of animals in the village. Out of which number of cows (53.00%) were found to be more as compared to buffalos (27.00%) and goats (20.00%) (Fig 3.16) . The HHs were also found to rear poultry birds (35) in their farms (Table 3.20)

3.3 Developmental Institutions & Infrastructure

Panchayat, Co-operative Society, Schools, Financial Institutions and various Social organizations are studied for the village.

3.3.1 Panchayat

A traditional panchayat was found functioning in the village since long. It was replaced by a statutory panchayat in 1963. During the year 1971-72, the panchayat had its jurisdiction over four villages namely, Lakhapateri, Benda, Bichiya and Ghugra. Now Pirodh village Pachyat covers two villages; Piprodh and Ghaghara. According to government equality for village politics this seat

Fig. 3.17: Office of the Gram Panchayat

is reserved for ST female for this five year plan. One panchayat Secretary &Rojgar Sahayak was found to be appointed in the panchayat for its proper working. There were 11 ward members elected by the panchayat for village development.

3.3.2 Co-operative Society

The HHs of the village were found to show their interest in the Cooperative movement. A Service Cooperative Society was established in 1955 which worked till 30th June 1966. Thereafter, this Society, under the plan of reorganization the society was amalgamated with Service Cooperative Society of Jarwahi village. Further, a Better Cooperative Farming Society was established in 1957. This society was primarily function as primary Co-operative Credit Society in the village. This society used to provide critical inputs such as HYV seed, fertilizer, plant protection etc. to their member.

Fig. 3.18: Primary Credit Cooperative Society Ltd.

3.3.3 Schools

A primary school in the village was established in the year 1950 and it was converted into a Middle School in 1961. A High School was also established in the year 1994 and it was converted into Higher Secondary School in 2013. The childrens of nearby villages, such as, Paduwa, Matwari, Deori, Jarwahi and Lakhapatheri also take advantage of these schools. A TAVITE Private B.Ed. College is also providing education to the students in the village. This college also provideeducation to the students ofclass 8th to 12th. A library is also found in this college for students. There are found to be two playgrounds at schools premises were also available for various activities of the students of the village.

Fig. 3.19: Primary and Middle School

Fig. 3.20: Higher Secondary School

Fig. 3.21: TAVITE –A Private B.Ed College

Two Nationalized Banks viz. Allahabad Bank and Bank of Baroda were found to working in the village for financial support to the villagers of the village.

3.4 Village Infrastructure

The nearest organized market is at Katni. The other market centers are at Tewari, Niwar and Tikeri, where weekly markets are held. In addition to this so many shops are also working in the village for daily consumption items. These shops belong to people of *jain* community who also functions as money lenders. Besides these shops, 2 tea stall, 3 cycle/bike repairing shops, 2 small rice-mills and 3 flour mills also functioning in the village.

A sub-post office was found to be

Fig. 3.22: Sub-health Centre

Fig. 3.23: A Kachha House

established in the village in the year 1952. It is functioning only for few hours in a day and the working of post office depends on the caretaker of the post office. A daily dak-runner goes to katni for collecting the dak and deliver in the village.

With respect to medical facilities village is fortunate. An Ayurvedic Dispensary under the In-chargeship of a Doctor and a compounder with 2 mid- wives is functioning in the village. Besides this there are 4 untrained mid- wives also working successfully for attending the delivery cases in the villages. A sub-heath Center was also found to be working for villagers' for their health issues. A private doctor was also found to practice in the village. A medical shop was also situated in the village. A veterinary dispensary with a stockman and a helper was also functioning in the village. The village is well electrified, the first house was electrified in the year 1972.

Tap water connection from water tank was found to be available almost in all the houses. The private tube wells were also available for irrigation and drinking water. Three working hand pumps were also found to function in a good condition for drinking water and for daily needs. Two Public Distribution Shops (PDS) for providing ration to PDS holders are also running with the help of Co-operative Society in the village.

3.5   Cultural Profile of the Village

Holi, Diwali, Durga pooja during Dashara main festivals celebrated in the village. Mahaveer Jayanti and Paryushan Purv are main festivals of Jain community. As fairs Dangals are organized on Nag Panchmi and Kite flying on Makar Sankranti in the village.

Fig. 3.24: Religious activity (Bhagvatam)

There were total 6 temples of Lord Shiva, Goddess Durga ,Bajarangbali, Shanidev and two temples of Mahaveer Swami(Jainism) in the village.

Sareeis was found to be common dresses among women of the village. Dhoti, kurta, Paijama, Pants and Shirts is the popular dress-up amongst men. While shalwar suit was found to be more popular amongst younger generation of the women. Wearing ornaments and bangles etc. was found to be common among women of the villageHindi and Bagheli (local) languages were found to be spoken by the villagers.

75 per cent of the HHs of the village were found to be non-vegetarians and the remaining 25 per cent vegetarians in the village. Caste-wise

Fig. 3.25: Shiv Temple

Fig. 3.26: Jain Temple

ceremonies and rituals were found to be per form amongst different categories of HHs i.e. Burman, Patel, Kushwaha, Jain, Harijans and Adivasi on the occasions of marriages, worships and religious rituals in the village. Untouchability is not reported by any of the HH in the village. Dowry was not a very serious problem across castes of the village.

The village leadership was found to be confined to Jain community, influential person of this community provide purposeful and effective leadership. Jaiswal community is also have political influence in the village. Political parties such as BJP and Congress were found to be popular in the villagers. Playing card for money and alcohol drinking is a serious problem of the village. Lot of people chewing & smoking tobacco and its product.

MGNREGA, Pradhanmatri AwasYojna, Ladli Laxmi Yojana, Ujjawala Yojana, Mid-day meal, and Scholarship schemes for Children were found to be operated in the village. The problem of Natural Calamities was not found in the village. Droughts rarely occur in the village but damages are never measured by government or any agency for providing claim to villagers.

3.6 Uniqueness of the Village

Piprodh Village is a road side village of four lane National Highway (NH-30), connecting Katni and Jabalpur districts. A famous for TAVITE B.Ed College (TBEDTC) which is very famous in Katni and some other nearby districts is situated in the village. There were many students came here from Katni and other districts for study purpose. Krishi Vigyan Kendra (KVK) Katni is also established in the village since 2005.

Fig. 3.27: KrishiVigyan Kendra

Fig. 3.28::Restaurant (Agrwal Dhaba)

The officers of Agriculture and rural development department of the State Government used to visit the village regularly and provide benefits to the HHs of the village. A Restaurant (Dhaba) namely Agrwal Dhaba is located in the village which is famous between the people of Katni and passengers for its unique taste.

✦✦✦✦

SOCIAL DYNAMICS

This chapter deals with the change in population and households, sex composition and age, caste and religion wise distribution of population, literacy pattern by sex in 2019 as compared to 1972 with APL/BPL wise distributions, birth and death rate of village, enrollment and drop outs in different students and their educational levels, quality of basic education, food security & child nutrition and food security issues during last 12 months of the households in the village.

4.1   Population and HHs of Village

The number of households were found to be increased by 132.86 per cent in 2019 (326) as compared to 1972(140) in the village. The total population of male and female was found to be increased by 107.87 and 114.11 per cent respectively during this period. The adult population of male and female was found to be increased by 232.68 and 357.72 per cent respectively, while the population of male and female children (below 6 years) was found to be decreased by -38.65 and -45.30 per cent respectively during the year 2019 as compared to 1972 (Table 4.1).

The population of total male and female workers in the village was also found to be increased by 48.51and 8.65 per cent respectively, in 2019 as compared to 1972. The population of male (1085.71%) marginal workers was found to

be increased more as compared to female marginal workers (276.92%), while the population of male non workers (447.13%) was found to be increased more as compared to female non workers (286.44%) in the year 2019 as compared to 1972 in the village. The population of male main workers (-5.06%) and agricultural labours (-69.91%) was found to be decreased, while population of female main workers (16.46%) and agricultural labours (27.78%) were found to be increased during the period in the village. The population of male cultivators was found to be increased by 159.15 per cent.The female cultivators was not found during the year 2019, while during 1972 number of female cultivators were 39. (Table 4.1)

The population of literate female (1208.16%) was found to be more as compared to male literate (223.65 %) in the year 2019 as compared to 1972. The number of female over 1000 male were found to be increased by 2.84 per cent in 2019(942) as compared to 1972(916) in the village. (Table 4.1)

The growth in total population in village is little higher than 100 % but what the growth in marginal workers is more than 10 times due to the fact that the village is near the city , residents of the village have non-farm employment opportunities and most of the farmers sold out

their land as they were getting high prices of it resulting into the increase in marginal workers in the village as there were lots of opportunities to work nearby industries and since the village is located near the National Highway 30 it is very easy to move anywhere in search of good job.

Table 4.1: Population and HHs of village

Particulars	In 1972 (during last survey)		In 2019 (during current survey)	
	Male	Female	Male	Female
Number of households	140		326 (132.86)	
Total Population	356	326	740 (107.87)	698 (114.11)
Adult	153	106	509 (232.68)	482 (354.72)
Child (0-6)	139	117	85 (-38.85)	64 (-45.3)
Scheduled Caste	70	61	202 (188.57)	156 (155.74)
Scheduled Tribe	72	68	160 (122.22)	157 (130.88)
Total Workers	303	208	450 (48.51)	226 (8.65)
Main Worker	158	79	150 (-5.06)	92 (16.46)
Marginal Worker	7	13	83 (1085.71)	49 (276.92)
Cultivator	71	39	184 (159.15)	0 (-100)
Agricultural Laborer	53	36	16 (-69.81)	46 (27.78)
Workers in household industries	14	20	12 (-14.29)	33 (65)
Other workers	0	21	5 (0)	6 (-71.43)
Non worker	53	118	290 (447.13)	456 (286.44)
Literate population	186	37	602 (223.65)	484 (1208.10)
Illiterates' population	170	283	138 (-18.82)	214 (-24.38)
Literacy (%)	42.25	11.35	79.05 (87.10)	69.63 (515.48)
Sex Ratio	916		942 (2.84)	

Source: Field survey & Krishak Sangarna2016, Figures in parenthesis show percentage change over 1972

The female literacy has been increased by more than 6 times in the village during the period under study due to effective implementation of various educational programs of government of Madhya Pradesh as well as central government one private college is also located opened in the village.

The various programs which are being implemented by the State government towards improvement in female literacy are Ladli Lakshmi Yojana, Beti Bachao Abhiyan, Gaon ki beti Yojana, Balika Shiksha Protsahan Yojana, scheme for free of cost distribution of textbooks to the student of SC, ST's communities and to all girls of backward and general categories who are below poverty line and is studying in class 1 to 3, scheme for free of cost distribution of school uniform to the students, student safety insurance scheme, padhana badhna movement for literacy were found to be the some of the

interventions which are being taken up by the state government for increasing the female literacy in the state which has shown positive results.

4.2 Sex Composition and Age Distribution

The maximum positive change of 356.25% was found to be observed in person having age group(20-24) followed by 15-19 (345.24%), 35-45 (208.56%), 45-59(288.24%), 60-Over(186.49%), 25-29(150.94%), 30-34(90.16%) and 10-14(57.83%), while the persons in age group (0-4) and (5-9) years show negative change of -26.61,-6.82 per cent, respectively in the year 2019 over the year 1972.

The positive percentage change of male population was found to be more in age group 15-19, 20-24, and over 60 years as compared to female during the period, while in age group 10-14, 30-34, 35-44and 45-59 years. The positive
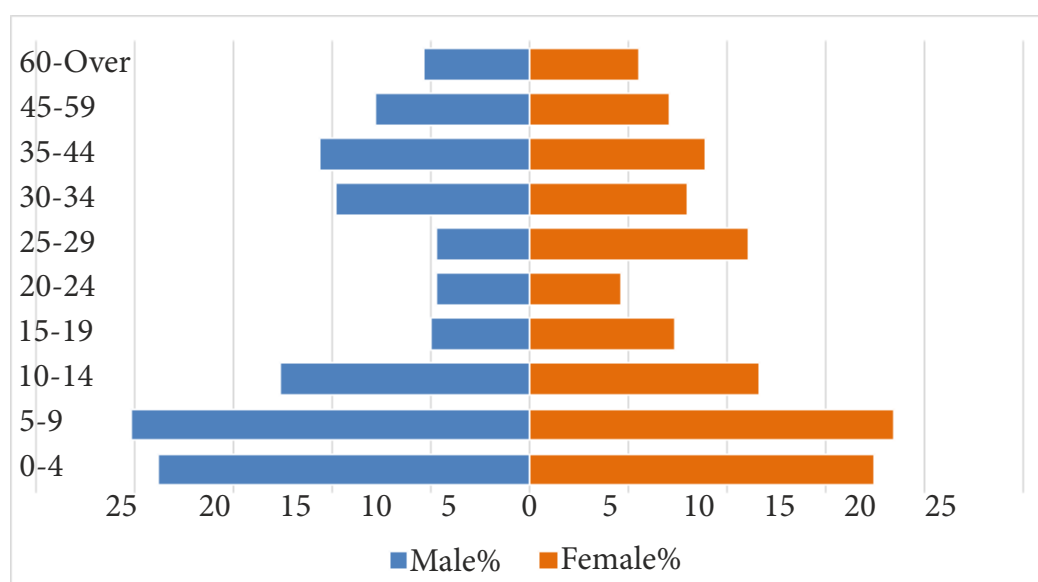
Fig. 4. 1: Population Pyramid of Piprodh village 1972

percentage change in female was found to be more as compared to male. The percentage change in female (114.11%) was found to be more than male (107.87%) and at overall level it

was found to be 110.85 per cent in the village. (Table 4.2)

It is observed from the table and population pyramid that the age distribution has

Table 4.2: Sex composition and age distribution

Age – Groups (Years)	1972			2019		
	Male	**Female**	**Total**	**Male**	**Female**	**Total**
0-4	67.00	57.00	124.00	49 (-26.87)	42 (-26.32)	91 (-26.61)
5-9	72.00	60.00	132.00	66 (-8.33)	57 (-5)	123 (-6.82)
10-14	45.00	38.00	83.00	64 (42.22)	67 (76.32)	131 (57.83)
15-19	18.00	24.00	42.00	96 (433.33)	91 (279.17)	187 (345.24)
20-24	17.00	15.00	32.00	71 (317.65)	75 (400)	146 (356.25)
25-29	17.00	36.00	53.00	66 (288.24)	67 (86.11)	133 (150.94)
30-34	35.00	26.00	61.00	63 (80)	53 (103.85)	116 (90.16)
35-44	38.00	29.00	67.00	106 (178.95)	101 (248.28)	207 (208.96)
45-59	28.00	23.00	51.00	101 (260.71)	97 (321.74)	198 (288.24)
60- Over	19.00	18.00	37.00	58 (205.26)	48 (166.67)	106 (186.49)
Total	**356.00**	**326.00**	**682.00**	**740 (107.87)**	**698 (114.11)**	**1438 (110.85)**

Source: Field survey
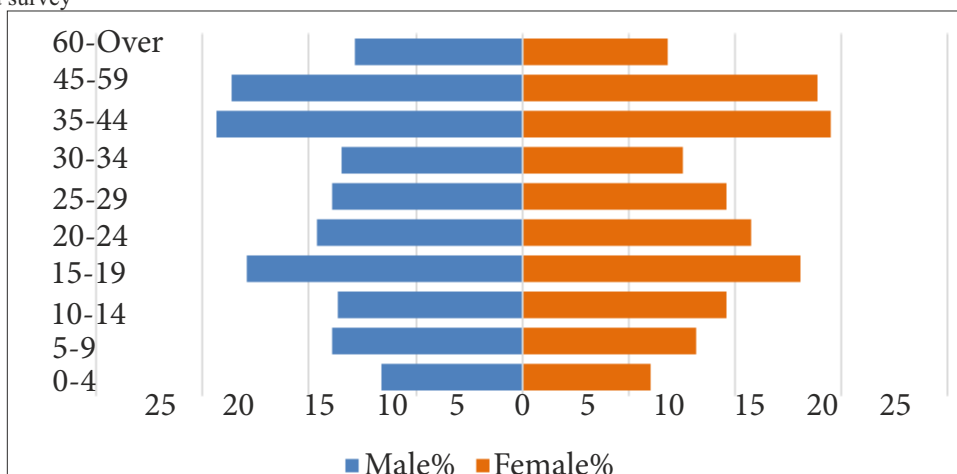
Fig. 4. 2: Population Pyramid of Piprodh village 2019

changed towards aged population due to so many factors such as increase in female literacy, effective implementation of family planning programmes, increase in medical health facilities, various programmes old age pension, widow pension, increase in non-farm employment opportunities, increase in marital age, marriage are performed at higher ages.

4.3   Caste wise Distribution

The caste wise distribution of Population across male, female, sex ratio, average size oh house hold change the year 1972 to 2019 are presented in table 4.3

Table 4.3: Caste wise distribution of population

Particulars	1972					2019				
	Male	Female	Total	Sex ratio	Average size of households	Male	Female	Total	Sex ratio	Average size of households
General	50	46	96	920	7	54 (8.00)	45 (-2.17)	99 (3.13)	833 (-9.46)	4 (-42.85)
Scheduled caste	70	61	131	871	5	182 (160)	175 (186.88)	357 (172.52)	961 (10.33)	4 (-20.0)
Scheduled tribe	72	68	140	944	4	155 (115.28)	146 (114.70)	301 (115.00)	942 (-0.21)	5 (25.0)
OBC	164	151	315	921	5	349 (112.80)	332 (119.86)	681 (116.19)	951 (3.25)	4 (-20.0)
Overall	**356**	**326**	**682**	**916**	**5**	**740 (107.87)**	**698 (114.11)**	**1438 (110.85)**	**943 (2.94)**	**5 (0.00)**

Source: Field survey, Figures in parenthesis show percentage change over 1972

The average size of family during the year 2019 (5) and 1972 (5) was found to be remain same in the village at overall level. Although, the average size of family of General, OBC and SC was found to be reduced by 42.85, 20 and 20 per cent, respectively from 7-4, 5-4 and 5-4 number, while numbers of family members in ST were found to be increased by 25 per cent from 4 (1972) to 5 (2019) members per family. At overall level the total population of the village was found to be increased by 110.85 per cent in the year 2019 (1438) as compared to 1972 (916). The population of all the caste categories was found to be increased during the period except General category, which remain almost same.

The population of female (114.11%) was found to be increased more as compared to male (107.87%) across caste categories at overall level. The population caste categories and gender was found to be increased over the period except in general category where population of female was found to be decreased by -2.17 per cent during the period. The population of female (186.88%) was also found to be increased as compared to male (160%) in SC category in the village. The sex ratio of other backward caste was found to be increased by 3.25. In case of schedule tribe and general it was found to be decreased by 0.21and 9.46 per cent, respectively while in case of schedule caste, it was found to be increased by

Table 4.4: Literacy Pattern by Sex of village

Educational Status	In 1972			In 2019		
	Male	Female	Total	Male	Female	Total
Illiterate	162.00	288.00	450	138 (-14.81)	214 (-25.69)	352
Able only to read or write	115.00	14.00	129	0 (-100)	0 (-100)	0
Up to Primary	15.00	13.00	28	189 (1160)	134 (930.77)	323
Up to Secondary	23.00	5.00	28	228 (891.3)	209 (4080)	437
Up to Intermediate	32.00	6.00	38	121 (278.13)	75 (1150)	196
Technical	-	-	0	17 (0.00)	21 (0.00)	38
Graduates	9.00	-	9	44 (388.89)	43 (0.00)	87
Post graduates & professionals	-	-	0	3 (0.00)	2 (0.00)	5
Total	356.00	326.00	682	740 (107.87)	698 (114.11)	1438

Source: Field survey, Figures in parenthesis show percentage change over 1972

10.33% in 2019 over the year 1972(Table 4.3).

4.4 Literacy Pattern by Sex of Village

The ratio of illiterate male and female was found to be decreased by 14.81 and 25.69 per cent, respectively in the year 2019 over 1972.In primary education, male have shown improvement of 1160 percent as compared to female (930%), while in secondary education, female (4080%) have shown higher percent change than male (891%).

Inter-mediate education has shown improvement in female (1150%) over male (278%). 388 percent male have shown improvement in graduate level. Hence, at overall level literacy level was found to be an increased

by 107.87 percent in male and 114.11 per cent in female in the village during 2019 as compared to 1972.

4.5 Birth and Death Rate of Village Population

Number of birth were found to be increased in all the categories of HHs viz. OBC, SC, ST as compared to number of death except in General category during the last five years (2016 to 2019). The birth rate of OBC (29) was found to be more as compared to ST (22) and SC (16). While the death rate of ST (17) was found to be more as compared to OBC (5), SC (2) and General (1) categories. The births of APL (44) were more as compared to BPL (23). The deaths

Table 4.5: Birth and death rate of Village Population (2016-19)

Particulars	Numbers of births/household				Numbers of deaths/household			
	APL	MAPL	BPL	Overall	APL	MAPL	BPL	Overall
General	-	-	-	-	-	-	1	1
OBC	19	-	10	29	5	-	-	5
Scheduled Caste	10	-	6	16	1	-	1	2
Scheduled Tribe	15	-	7	22	16	-	1	17
All Categories	44	-	23	67	22	-	3	25

Source: Field survey

were also observed more in APL (22) as compared to BPL (3) categories during last 5 years.

The births rate per HH was found to be more (67) as compared to death (25) at overall level. The birth rate of all the categories of HHs i.e. OBC (29),ST (22), SC (16) and General (2) were found to be more as compared to death i.e.OBC (5),ST (17), SC (2) and General (1) during the last 5 years (2016-19) in the village.

4.6   Enrollment in different Educational Level (Gender wise)

It is observed that the maximum number of male students was found to be enrolled in Govt. School in Vernacular (Hindi). The number of male enrolled was found to be more in Schedule Tribe (96.25%) followed by Scheduled Caste (84.76%), OBC (82.62%) and General (66.37%) category. While male students enrolled in Private School Vernacular (Hindi) were found to be more in General (22.95%)

followed by Schedule Caste(15.24%), OBC (13.12) and Schedule Tribe (3.75%).Male enrolled in English vernacular were found to be more in General(10.68%) and OBC (4.26%)categories. The female student enrolled in Govt. School in vernacular Hindi was found to be maximum in Schedule Tribe (96.00%) followed by Schedule Caste (92.56%), OBC (92.43%) and General (72.17%) categories as compared to Private School. Vernacular (Hindi and English) students were found to be maximum in general (25.05%) followed by Schedule Caste (7.44%), OBC (4.29%) and Schedule Tribe (4.00%) categories in female students.

Out of total students enrolled in the schools, the majority of them enrolled in Govt. Hindi medium schools (85.39 %) followed by Hindi medium Private School (11.98%) and English medium Private Schools (2.63%). Amongst different caste categories only 6.73 and

Table 4.6: Enrollment different educational level (Gender wise)(%)

Children categories	Govt. School		Private School		Other Schools	Out of School	Total
	Vernacular (Hindi)	English	Vernacular (Hindi)	English			
Male							
General	66.37	-	22.95	10.68	-	-	**100**
Scheduled Caste	84.76	-	15.24	-	-	-	**100**
Scheduled Tribe	96.25	-	3.75	-	-	-	**100**
OBC	82.62	-	13.12	4.26	-	-	**100**
Female							
General	72.17	-	25.05	2.79	-	-	**100**
Scheduled Caste	92.56	-	7.44	-	-	-	**100**
Scheduled Tribe	96	-	4	-	-	-	**100**
OBC	92.43	-	4.29	3.28	-	-	**100**
Over All							
General	69.27	-	24.00	6.73	-	-	**100**
Scheduled Caste	88.66	-	11.34	-	-	-	**100**
Scheduled Tribe	96.13	-	3.87	-	-	-	**100**
OBC	87.52	-	8.71	3.77	-	-	**100**
Overall	**85.39**	**-**	**11.98**	**2.63**	**-**	**-**	**100**

3.77 per cent students of General and OBC were found to be enrolled themselves in English medium Private Schools. The 24, 11.34, 8.71 and 3.87 per cent of General, SC, OBC and ST students were found to be enrolled in Hindi medium privates school, rest of them were found to be studied in Hindi medium Government School in village. Male students across all the caste categories were found to be enrolled more in Hindi and English medium Private Schools as compared to female students.

The Overall figures shows that maximum number of students enrolled in Govt. School (Hindi) vernacular were found to be of Schedule Tribe (96.13%) as compared to SC (88.66%), OBC (87.52%), and General (69.27%) categories (Table 4.6).

4.7   Level of Education

Level of education of children as regards to their reading and arithmetic competency in the age group of 5 to 15 years was observed for the village

4.7.1   Level of reading competency

The level of reading competency was also analyzed for the students by sex and by caste and type of school as per ASER Toolkit test.

4.7.1.1 Level of reading competency of children by sex

The level of reading competency of boys and girls across standard of classes was observed and presented in table 4.7.

It is observed from the data that, level of

Table 4.7:Level of reading competency of children by sex (%)

Class of Study	Boys					Girls				
	0	1	2	3	4	0	1	2	3	4
Pre school	100	0	-	-	-	100	0	-	-	-
Standard-I	55	27	18	0	-	53	36	19	0	-
Standard-II	32	12	36	20	0	34	13	35	18	0
Standard-III	0	24	38	35	3	0	22	40	37	5
Standard-IV	0	-	4	31	65	0	-	5	26	69
Standard-V	0	-	-	15	85	0	-	-	12	88
Standard-VI	0	-	-	-	100	0	-	-	-	100
Standard-VII	0	-	-	-	100	0	-	-	-	100
Standard-VIII	0	-	-	-	100	0	-	-	-	100
Standard-IX	0	-	-	-	100	0	-	-	-	100
Standard-X	0	-	-	-	100	0	-	-	-	100
All/Overall	**17**	**6**	**10**	**10**	**73**	**17**	**6**	**10**	**9**	**74**

Levels: 0=Nothing; 1=Can recognize letters; 2=Can recognize words; 3=Can read simple sentence; 4=Can read paragraphs, Source: Field survey

reading competency of all the students (100%) viz. boys and girls above standard V was found to be at scale 4, which means all the students of the villages above standard V were able to read paragraph of books. The 85 and 88 per cent of boys and girls respectively of students of class V were found to able to read paragraphs, while the 65 and 69 per cent of boys and girls respectively of class IV were able to read paragraph of the books. At overall level 73 and 74 per cent of boys and girls respectively of the villages were found to be able to read paragraph of books. The 17 per cent of boys and girls students of standard I and II of the village were not in position to recognize letters of Hindi. (Table 4.7)

Fig. 4.3 : Collection of the data from students

Table 4.8: Level of reading competency of children by caste and school types

Categories of Students	Government School					Private School				
	0	**1**	**2**	**3**	**4**	**0**	**1**	**2**	**3**	**4**
Boys										
General	2.34	8.18	11.22	13.24	65.02	1.33	5.21	6.52	18.51	68.43
Scheduled Caste	5.68	14.99	18.44	23.11	37.78	4.14	11.42	16.63	21.83	45.98
Scheduled Tribe	6.30	16.12	23.18	19.14	35.26	4.52	18.76	12.57	17.61	46.54
OBC	3.15	9.10	13.25	13.16	61.34	2.69	8.28	11.31	14.55	63.17
Overall	**4.37**	**12.10**	**16.52**	**17.16**	**49.85**	**3.17**	**10.92**	**11.76**	**18.13**	**56.03**
Girls										
General	1.50	8.14	10.16	15.24	64.96	1.28	7.16	8.17	12.27	71.12
Scheduled Caste	6.75	15.18	19.21	21.26	37.60	4.26	14.79	17.02	18.04	45.89
Scheduled Tribe	7.31	17.34	24.48	17.29	33.58	4.12	14.45	22.68	21.67	37.08
OBC	3.94	10.24	11.29	15.32	59.21	2.92	8.36	9.39	10.44	68.89
Overall	**4.88**	**12.73**	**16.29**	**17.28**	**48.84**	**3.15**	**11.19**	**14.32**	**15.61**	**55.75**
All Children										
General	1.92	8.16	10.69	14.24	64.99	1.31	6.19	7.35	15.39	69.78
Scheduled Caste	6.22	15.09	18.83	22.19	37.69	4.20	13.11	16.83	19.94	45.94
Scheduled Tribe	6.81	16.73	23.83	18.22	34.42	4.32	16.61	17.63	19.64	41.81
OBC	3.55	9.67	12.27	14.24	60.28	2.81	8.32	10.35	12.50	66.03
Overall	**4.62**	**12.41**	**16.40**	**17.22**	**49.34**	**3.16**	**11.05**	**13.04**	**16.87**	**55.89**

Levels: 0=Nothing; 1=Can recognize letters; 2=Can recognize words; 3=Can read simple sentence; 4=Can read paragraphs, Source: Field survey

4.7.1.2 Level of reading Competency of Children by Caste and School Type

The level of reading competency of boys, girls and total students across caste categories studying in govt. and private schools were analyzed at 0-4 scale and presented in Table 4.8. It is observed from the data that at overall level the reading competency of majority of student of govt. (49.34%) as well as private school (55.89%) at scale 4 which means about 50 per cent of children of the school were found to be able to read paragraph of books. The level of reading competency at scale 4 of General and OBC caste categories of total students was found to be more as compared to SC and ST students both in Govt. as well as private schools. The level of reading competency at overall level of boys at scale 4 was found to be more of private school (56.03%) as compared to boys of Govt. School (49.85%) revealed that boys of private school were found to be more competent in reading of paragraph of books than boys of Govt. schools.

The level of reading competency at scale 4 of boys of Govt. and Private School across caste

categories was also analyzed and found that the level of reading competency of boys related to general and OBC categories was found to be more as compared to SC and ST in both Private and Govt. Schools revealed that boys of General and OBC categories were found to be more competent to read paragraph of books than boys of SC & ST categories.

The level of reading competency at overall level of girls at scale 4 was found to be more of private school (55.75%) as compared to girls of Govt. school (48.84%) revealed that girls of private school were found to be more competent in reading of paragraph of books than girls of Govt. schools. The level of reading competency at scale 4 girls of Govt. and private

school across caste categories was also analyzed and found that the level of reading competency of girls related to General and OBC categories was found to be more as compared to SC and ST in both private and Govt. schools revealed that girls of General and OBC categories were found to be more competent to read paragraph of books than girls of SC and ST categories. It is also observed from the data that boys were found to be more competent to read paragraph of books at scale 4 than the girls of Private and Govt. Schools in the village (Table 4.8).

4.7.2 Level of Arithmetic Competency

The level of arithmetic competency was also analyzed for the students by sex and by caste and type of school as per ASER Toolkit test.

Table 4.9: Level of Arithmetic Competency of Children by sex (%)

Class of Study	Boys					Girls				
	0	1	2	3	4	0	1	2	3	4
Pre school	100	-	-	-	-	100	-	-	-	-
Standard-I	39.12	33.15	27.73	0	-	34.82	39.44	25.74	0	-
Standard-I I	13.26	3.59	58.13	25.02	-	9.14	4.25	60.16	26.45	0
Standard-III	0	-	27.64	59.16	13.2	0	-	24	63.43	12.57
Standard-IV	0	-	5.27	25.81	68.92	0	-	6.24	22.42	71.34
Standard-V	0	-	-	10.46	89.54	0	-	-	12.87	87.13
Standard-VI	0	-	-	-	100	0	-	-	-	100
Standard-VII	0	-	-	-	100	0	-	-	-	100
Standard- VIII	0	-	-	-	100	0	-	-	-	100
Standard-IX	0	-	-	-	100	0	-	-	-	100
Standard-X	0	-	-	-	100	0	-	-	-	100
All/Overall	13.85	3.34	10.80	10.95	61.06	13.09	3.97	10.56	11.38	61.00

Levels: 0=Nothing; 1=Can recognize numbers (0-9); 2=Can recognize numbers (10-99); 3=Can do simple subtraction; 4=Can do simple division, Source: Field survey

4.7.2.1 Level of Arithmetic Competency of Children by Sex

The level of arithmetic competency of student across standard of classes was also observed and found that the level of arithmetic competency of all the boys and girls students (100%) above class V was found to be at scale 4 which means all the standard of the village were found to be able to recognize numbers (0-9 & 10-99)and able to do simple subtraction and simple division.

The 89.54 and 87.13 per cent of boys and girls of class V were also found to do simple division, while 68.92 and 71.34 per cent of boys and girls of class IV were able to do simple division. At overall level about 60 per cent of students found to be able to do simple division. Only about 13 per cent of boys and girls of standard were found to be do simple division. Cent percent of students of pre-school were found to at scale 0 means they were not in position to even recognize numbers. (Table 4.9).

Table 4.10: Level of arithmetic competency of children by caste and school types (%)

Categories of students	Government school					Private School				
	0	1	2	3	4	0	1	2	3	4
Boys										
General	2.42	9.15	10.36	15.26	62.81	1.33	5.21	6.52	18.51	68.43
Scheduled Caste	6.12	17.54	19.26	22.08	35.00	4.14	11.42	16.63	21.83	45.98
Scheduled Tribe	7.15	17.89	24.71	17.25	33.00	4.52	18.76	12.57	17.61	46.54
OBC	3.85	10.16	12.35	14.57	59.07	2.69	8.28	11.31	14.55	63.17
Overall	**4.89**	**13.69**	**16.67**	**17.29**	**47.47**	**3.17**	**10.92**	**11.76**	**18.13**	**56.03**
Girls										
General	1.50	8.14	10.16	15.24	64.96	2.25	8.89	8.8	11.36	68.7
Scheduled Caste	7.04	17.51	19.99	21.17	34.29	5.17	16.24	17.3	17.32	43.97
Scheduled Tribe	8.36	20.54	22.85	16.85	31.40	5.03	15.91	22.66	20.06	36.34
OBC	4.70	11.37	11.39	15.41	57.13	3.86	10.05	9.61	9.97	66.51
Overall	**5.40**	**14.39**	**16.10**	**17.17**	**46.95**	**4.08**	**12.77**	**14.59**	**14.68**	**53.88**
All children										
General	1.96	8.65	10.26	15.25	63.89	1.79	7.05	7.66	14.94	68.57
Scheduled Caste	6.58	17.53	19.63	21.63	34.65	4.66	13.83	16.97	19.58	44.98
Scheduled Tribe	7.76	19.22	23.78	17.05	32.20	4.78	17.34	17.62	18.84	41.44
OBC	4.28	10.77	11.87	14.99	58.10	3.28	9.17	10.46	12.26	64.84
Overall	**5.14**	**14.04**	**16.38**	**17.23**	**47.21**	**3.62**	**11.85**	**13.18**	**16.40**	**54.96**

Levels: 0=Nothing; 1=Can recognize numbers (0-9); 2=Can recognize numbers (10-99); 3=Can do simple subtraction; 4=Can do simple division, Source: Field survey

4.7.2.2 Level of Arithmetic Competency of Children by Caste and School Type

The level of arithmetic competency of boys & girls and all children's across caste categories in Govt. as well as private schools of the village were analyzed at 0-4 scale and presented in table 4.10. It is observed from the data that at overall level the level of arithmetic competency at level 4 of the scale was found to be more in children related to private (54.96%) as compared to Govt. schools (47.21%). The level of arithmetic competency at 4 level was found to be more in General and OBC category as compared to SC and ST categories in both private and govt. schools.

As regards to boys the level of arithmetic competency at level 4 was also found to be more in boys of private schools (56.03%)as compared to Govt. school (47.47%). Across caste categories the level of arithmetic competency at level 4 was also found to be more in General and OBC category as compared to SC and ST both in privet and Govt. school.

As regards to girls the level of arithmetic competency at level 4 was also found to be more in girls of private schools (53.88%) as compared to Govt. school (46.95%). Across caste categories the level of arithmetic competency at level 4 was also found to be more in General and OBC category as compared to SC and ST both in privet and Govt. school.

The level of arithmetic competency at level 4 was found to be more in boys as compared to girls both in private as well as Govt. schools across all caste categories and at overall level. Hence, it can be concluded that about 50% of boys and girls and total students of both private and Govt. schools are able to recognize number from 0-99 and do simple subtraction and division in the village. Although, boys were found to be more competent in level of arithmetic competency as compared to girls in the village (Table 4.10).

The level of arithmetic competency was found to be more in the students of General and OBC as compared to SC and ST category students in the village. Basic arithmetic power is the fundamental building blocks of learning. The students of SC and ST categories were found to be little weaker than the general and OBC caste categories in terms of their level of competency in reading and basic mathematics which might be due to the pact that they pay less attention towards studies and more towards work. To overcome this, it is required to plan extra classes for this particular group and there is need to form peer learning group involving intelligent, average and below average students in the small- small groups for improvising the performance of each and every student of the class.

Table 4.11:Food security & child nutrition (BMI) (Number of children and % in particular category)

Categories of Children	Severely Underweight	Underweight	Normal	Overweight	Obesity	Total
Male Children						
General	0 (0)	0 (0)	32 (76.19)	10 (23.81)	0 (0)	42 (100)
Scheduled Caste	0 (0)	14 (29.79)	30 (63.83)	3 (6.38)	0 (0)	47 (100)
Scheduled Tribe	2 (6.25)	8 (25)	22 (68.75)	0 (0)	0 (0)	32 (100)
OBC	4 (5.97)	5 (7.46)	54 (80.6)	4 (5.97)	0 (0)	67 (100)
Female Children						
General	0 (0)	1 (16.67)	4 (66.67)	1 (16.67)	0 (0)	6 (100)
Scheduled Caste	2 (8.7)	6 (26.09)	14 (60.87)	1 (4.35)	0 (0)	23 (100)
Scheduled Tribe	8 (21.62)	12 (32.43)	17 (45.95)	0 (0)	0 (0)	37 (100)
OBC	2 (2.7)	12 (16.22)	46 (62.16)	12 (16.22)	2 (2.7)	74 (100)
Overall						
General	0 (0)	1 (2.08)	36 (75)	11 (22.92)	0 (0)	48 (100)
Scheduled Caste	2 (2.86)	20 (28.57)	44 (62.86)	4 (5.71)	0 (0)	70 (100)
Scheduled Tribe	10 (14.49)	20 (28.99)	39 (56.52)	0 (0)	0 (0)	69 (100)
OBC	6 (4.26)	17 (12.06)	100 (70.92)	16 (11.35)	2 (1.42)	141 (100)

BMI categories for children (kg/m2): Severely underweight= less than 16.5; Underweight=16.5 to less than 18.5; Normal=18.5 to less than 25; Overweight=25 to less than 30; Obesity=30 and ab, Source: Field survey

4.8 Food Security & Child Nutrition

The number of total male and female children in different categories of population in Piprodh village were categorized in underweight (<16.5 kg), underweight (>16.5-18.5kg), normal (18.5-25kg), overweight (25kg) and obesity (30kg).Out of the total population of male children under General category, the majority of them were normal (76.19%)followed by overweight (23.81%). The majority of male

children related to Schedule Caste were also found to be normal (63.82%) followed by underweight (29.79%) and overweight (6.38%). The majority of total population of Schedule Tribe was also found to be normal (68.75%) followed by underweight (25.00%), severely underweight (6.25%) in the village in the year 2019 (Table 4.11).

Out of total population of OBC of male children, the majority of them were found to be normal (80.60%) followed by underweight (7.46%), overweight (5.97%) and severely underweight (5.97%).

As regards to total population of female children under General category, the majority of them were found to be normal (66.67%) followed by overweight (16.67%) and underweight (16.67%). The majority of female children population of Schedule Caste were also found to be normal (60.87%) followed by underweight (26.09%), severely underweight (8.7%) and overweight (4.35%). The majority of total female population of Schedule Tribe was also found to be normal (45.95%) followed by underweight (32.42%) and severely underweight (21.62%).In the total OBC population the maximum children were also found to be normal (62.16%) followed by underweight (16.25%) and overweight(16.25%), severely underweight (16.25) and obesity (2.7%) in year 2019.

At overall level, the majority of total population related to General category was found to be normal (75%) followed by overweight (22.92%) and underweight (2.08%), while the majority of total population related to OBC category was found to be normal (70.92%) followed by underweight (12.06%), overweight (11.35%), severely underweight (4.26%) and obesity (1.42%). The majority of total population related to SC Caste was found to be normal (62.86%) followed by underweight (28.57%), overweight (5.71%) and severely underweight (2.86%), while the majority of total population related to ST category was found to be normal (56.52%) followed by underweight (28.99%) and severely underweight (14.49%).

4.9   Food Security Issues

Out of total number of HHs, the majority of them reported that they never went a whole day and night without eating due to poverty (90.18%), never went to sleep hungry due to inability to purchase food (91.41%), never worried that the households would not have enough food (52.45%), never went for outside eating in hotel/restaurant(64.72%), and never eating too much packed food/purchased food like ice-cream, cold-drinks, etc. (74.23%). The majority of them also reported that they rarely not able to eat the kind of food that they preferred (68.40%) and sometimes they worried

Table 4.12: Food Security Issues at Village Level during last 12 Months (%)

Statements	Never	Rarely	Sometimes	Often	Total
Went a whole day and night without eating due to poverty?	90.18	7.98	1.84	0.00	100
Went to sleep hungry due to inability to purchase food?	91.41	7.36	0.92	0.31	100
Ever worried that the households would not have enough food?	52.45	6.44	40.80	0.31	100
Ate some poor quality foods that you really did not like?	45.09	16.87	34.36	3.68	100
We're not able to eat the kind of food you preferred?	8.90	68.40	22.70	0.00	100
Did you offered food to your neighbors and guests?	33.13	17.18	44.17	5.52	100
Went for outside eating in hotel/restaurant? Are you eating too much packed	64.72	19.33	15.64	0.31	100
food/purchased food like ice-cream, cold drinks, etc.?	74.23	11.35	14.11	0.31	100

Source: Field survey

that they would not have enough food (40.80%) and offered food to neighbors and guests (44.17%) Table 4.12.

It is observed that ever worried that the households would not have enough food maximum response of majority never (52.45%) followed by sometimes (40.80%), rarely (6.44%) and often (0.31%). About 45.09 per cent majority was not fount to eat some poor quality foods that they really did not like followed by sometimes (34.36%), rarely(16.87%) and often(3.68%) in year 2019.

The 68.40 per cent population reported that they were not able to eat the kind of food

they preferred followed by sometimes (22.70%) and never (8.90%). The 44.17 per cent HHs of Piprodh village some time offered food to their neighbors and guests followed by never (33.13%), rarely(17.18%) and often (5.52%) only. The majority of HHs were never went to outside for eating in hotel & restaurant (64.72%) followed by rarely (19.33%), sometimes (15.64%) and often (0.31%). The(74.23%) majority accepted never ate too much packed food/purchased food like ice-cream, cold-drinks, etc. followed by sometimes (14.11%), rarely(11.35%) and often(0.31%) respectively in the year 2019.

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ECONOMIC SYSTEMS

This chapter deals with the livelihood and employment status, annual income, land use pattern, distribution of land holding, cropping pattern, irrigated area, productivity of crops and nature and extent of crop diversification of the village.

5.1 Livelihood and Employment Status

The livelihood status of HHs is presented in Table 5.1. It is observed from the data that out of total HHs, the majority of them belong to OBC (47.85%) followed by SC (24.85%), ST (20.25%) and General categories (7.06%). Similar trend was observed across all the livelihood groups except caste based professions and entrepreneurs, where all the HHs were found to be related to OBC. None of the HHs was found to involve in dairy, fisheries and poultry keeping activity as an enterprise.

As regards to their professions the majority of them were found to be casual labour (25%) followed by cultivators (23%), marginal labour (17%) and agricultural laborers (12%). Same of them were also found to be engaged in household industries (6%), private jobs (4%), government (2%), trade & business (6%), cast based profession (1%) and other activities (1%). The 4 per cent of HHs were found to be pensioners in the village.

The distribution of adult population according to their livelihood groups is presented
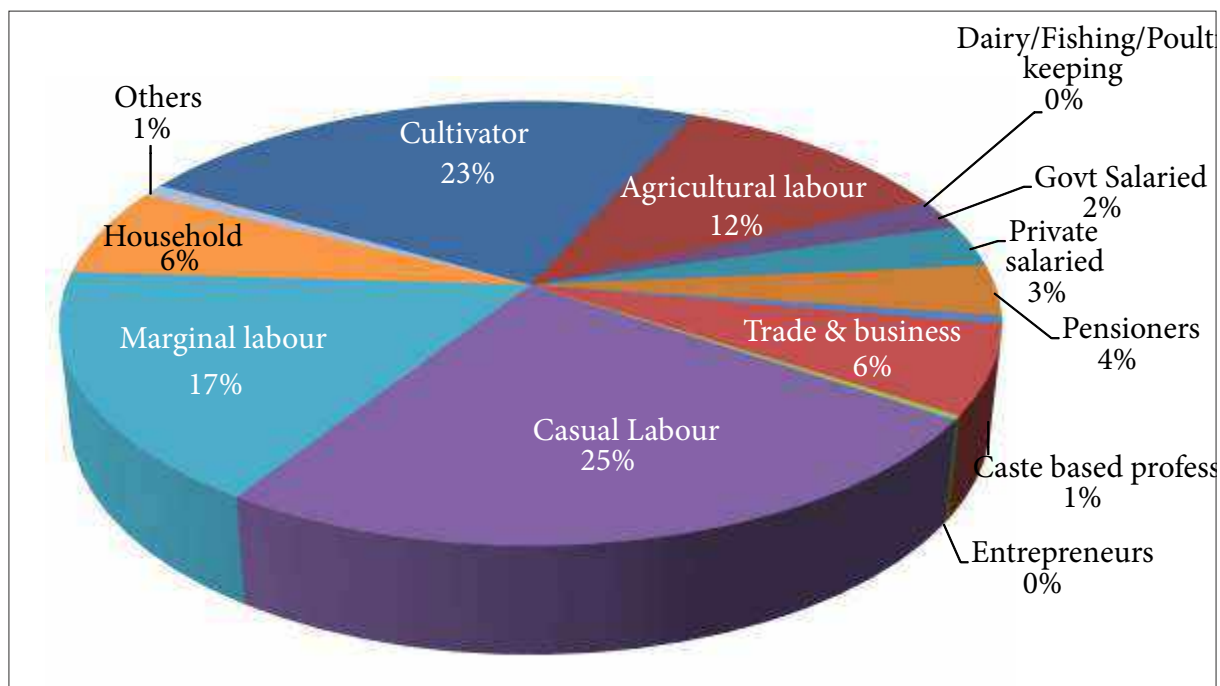
Fig. 5.1: Distribution of households by occupations

Table 5.1: Distribution of households by occupations/livelihood

Livelihood groups	General	SC	ST	OBC	Total
Cultivator	9	15	13	39	76 (23.31)
Agricultural labour	0	12	9	17	38 (11.66)
Dairy/Fishing/Poultry keeping	0	0	0	0	0 (0)
Govt Salaried	2	0	2	3	7 (2.15)
Private salaried	1	0	1	8	10 (3.07)
Pensioners	0	3	1	8	12 (3.68)
Caste based profession	1	0	0	1	2 (0.61)
Trade &business	7	2	2	10	21 (6.44)
Entrepreneurs	0	0	0	1	1 (0.31)
Casual Labour	1	27	23	29	80 (24.54)
Marginal labour	0	18	12	25	55 (16.87)
Household	2	3	3	13	21 (6.44)
Others	0	1	0	2	3 (0.92)
Overall	**23**	**81**	**66**	**156**	326 (100)
Percent to Total					
Cultivator	11.84	19.74	17.11	51.32	**100**
Agricultural labour	0.00	31.58	23.68	44.74	**100**
Dairy/Fishing/Poultry keeping	0.00	0.00	0.00	0.00	**0.00**
Govt Salaried	28.57	0.00	28.57	42.86	**100**
Private salaried	10.00	0.00	10.00	80.00	**100**
Pensioners	0.00	25.00	8.33	66.67	**100**
Caste based profession	50.00	0.00	0.00	50.00	**100**
Trade & business	33.33	9.52	9.52	47.62	**100**
Entrepreneurs	0.00	0.00	0.00	100.00	**100**
Casual Labour	1.25	33.75	28.75	36.25	**100**
Marginal labour	0.00	32.73	21.82	45.45	**100**
Household	9.52	14.29	14.29	61.90	**100**
Others	0.00	33.33	0.00	66.67	**100**
Overall	**7.06**	**24.85**	**20.25**	**47.85**	**100**

Source: Field Survey
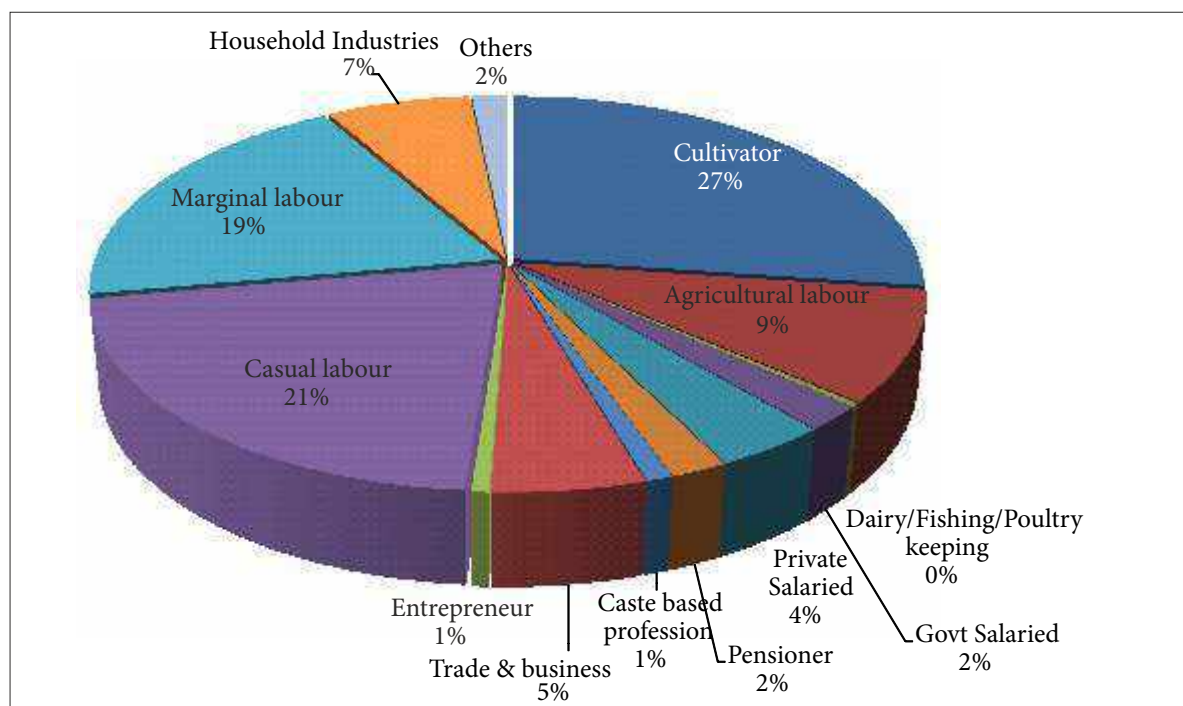
Fig. 5.2: Distribution of adult population by occupation

in table 5.2. It is observed from the data that the majority of adult population were also found to be related to OBC (44.67%) followed by SC (25.89%), ST (23.22%)and general (6.2%) category, which was found to be more or less similar across all the livelihood groups with minor variation except entrepreneurs in which all the adult population were found to be related to OBC category.

In case of caste based profession 50 per cent of adults of SC & OBC categories were found to be related to it in the village. The majority of adults were found to receive more income for their livelihood as cultivators (27%) followed by casual labour (21%), marginal labour (19%), agriculture labour (9%), HHs industries (7%) and trade & business (5%) in the village. The adults were also found to receive income for the livelihood from govt. (2%) and private enterprises (4%) and pension (2%). Only 1 per cent of adults were found to become entrepreneurs in the village (Fig 5.2).

5.2   Annual Income

The composition of annual income of the HHs in the village through different livelihood groups was also observed and found that an average HH used to earn Rs. 44870/- per year in the village. An average HH used to earn more income from primary (Rs. 30100/year) as compared to secondary (Rs. 7600/year) and tertiary (Rs. 7170/year) sources. He was found to generate more income from non-form (Rs. 34200/year) as compared to farm (Rs.10470/year) and off farm (Rs.200/year) sources (Table 5.3).

Table 5.2: Distribution of adult population by occupation

Livelihood Groups	General	SC	ST	OBC	Total
Cultivator	26	27	23	108	184
Agricultural labour	0	29	18	15	62
Dairy/Fishing/Poultry keeping	0	1	1	0	2
Govt salaried	3	3	4	4	14
Private salaried	2	4	1	19	26
pensioners	0	4	1	8	13
Caste based profession	2	2	0	2	6
Trade & business	7	5	2	21	35
entrepreneurs	0	0	0	4	4
Casual labour	0	53	67	22	142
Marginal labour	0	39	29	64	132
Household	2	7	9	27	45
Others	0	1	2	8	11
Overall	**42**	**175**	**157**	**302**	**676**
Percent to Total					
Cultivator	14.13	14.67	12.50	58.70	100
Agricultural labour	0.00	46.77	29.03	24.19	100
Dairy/Fishing/Poultry keeping	0.00	50.00	50.00	0.00	100
Govt salaried	21.43	21.43	28.57	28.57	100
Private salaried	7.69	15.38	3.85	73.08	100
pensioners	0.00	30.77	7.69	61.54	100
Caste based profession	33.33	33.33	0.00	33.33	100
Trade & business	20.00	14.29	5.71	60.00	100
entrepreneus	0.00	0.00	0.00	100.00	100
Casual labour	0.00	37.32	47.18	15.49	100
Marginal labour	0.00	29.55	21.97	48.48	100
Household	4.44	15.56	20.00	60.00	100
Others	0.00	9.09	18.18	72.73	100
Overall	**6.21**	**25.89**	**23.22**	**44.67**	**100**

Source: Field Survey

The per capita per year income received by an average HH was found to be more in case of General categories (Rs. 73320/-) as compared to OBC (Rs. 58050/-), ST (Rs. 25650/-) and SC (Rs. 22455/-)categories in the village (Table 5.3).

5.3   Land Use Pattern

The changes occurred in land use pattern in the year 2019 over the year 1972 was observed

Table 5.3: Composition of annual income of the HHs in the village

Livelihood Groups	Farm Income	Off-Farm Income	Non-Farm Income	Total
By Livelihood Groups				
Primary	9300	100	20700	30100
Secondary	450	50	7100	7600
Tertiary	720	50	6400	7170
Overall	**10470**	**200**	**34200**	**44870**
On Basses Caste				
General	1800	20	71500	73320
Scheduled Caste	5125	180	17150	22455
Scheduled Tribe	6050	200	19400	25650
OBC	29000	50	29000	58050
Overall	**10494**	**113**	**34263**	**44869**

Source: Field Survey

and found that the net area sown was found to be increased by 3.76 per cent in the year 2019 (180.37ha) over the year 1972 (173.84ha)in the village. The area under current fallow(-48.14%), barren land (-85.05%), forest (-34.35%), pasture & grassing land(-1.96%), cultivable waste land (-15.77%) was found to be decreased, while the area under net irrigation (13.25%), gross cropped area (19.77%) was found to be increased during the period. With the result of this the cropping intensity and irrigation intensity of the village was found to be increased by 24.12 and 17.84 per cent respectively. The main source of irrigation was found to be canal in the year 1972 which was shifted to tube-well in the year 2019.

5.4   Distribution of Land Holding

The changes occurred in distribution of land holding in different size of farms i.e. marginal, small, medium and others in the year 2019 over the year 1972 were also observed and found that the number of holdings were found to be increased by 105.56 per cent in the year 2019 (185)over the year 1972 (90)in the village. The maximum percentage change was observed in number of small holdings(260.0%) as compared to marginal(-37.97%), medium and other

Table 5.4: Land use pattern in the village

S. No.	Particulars	1972	2019	% Change
A.	**Geographical Area**	**495.64**	**495.64**	**0.00**
1	Net Sown Area	173.84	180.37	3.76
2	Current Fallow	25.45	13.13	-48.41
B.	**Cultivable land (1 to 2)**	**199.29**	**193.50**	**-2.91**
1	Barren Land	8.36	1.25	-85.05
2	Forest Area	87.13	57.2	-34.35
3	Pasture and Grazing Land	119.9	117.55	-1.96
4	Cultivable Waste	39.83	33.55	-15.77
5	Misc. Trees & Crops	2.62	6.6	151.91
6	Other	23.11	85.99	272.09
C.	**Uncultivated area (1 to 6)**	**280.95**	**302.14**	**7.54**
D.	Gross Croppe d Area	271.66	325.37	19.77
E.	Cropping Intensity (%)	156.27	180.39	24.12
F.	Net Irrigated Area	164.6	174	5.71
G.	Gross Irrigated Area	205.45	255.93	24.57
H.	Irrigation Intensity	124.82	147.09	17.84
I.	Area under irrigation (%)	76.67	89.92	13.25
J.	Agricultural land in geographical area (%)	43.32	39.04	-4.28
K.	Current fallow in geographical area (%)	5.13	2.65	-2.48
L.	Main sources of irrigation	Canals	Tube well	

Source: Field Survey
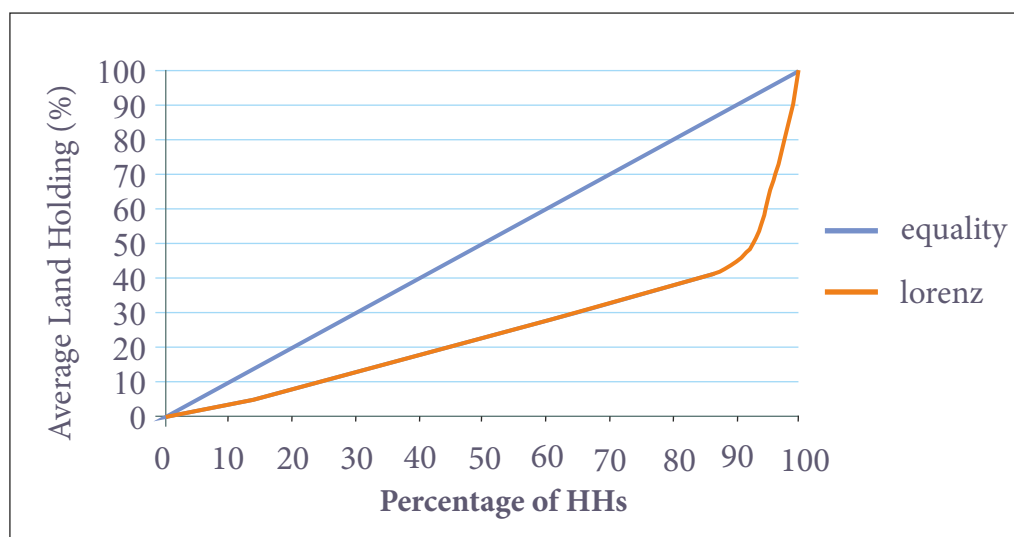
Fig. 5.3: Area distribution under lorenz curve in 1972

Table 5.5: Distribution of land holding in the village Piprodh

Particulars	1972	2019	% Change
Total Number of Holdings			
Marginal farms	79	49	-37.97
Small farms	5	18	260.00
Medium & others	6	9	50.00
All Farms	**90**	**76**	-15.56
Total Area Operated (ha.)			
Marginal farms	52.09	22.27	-57.25
Small farms	12.34	33.76	173.58
Medium & others	59.68	56.59	-5.18
All Farms	**124.11**	112.62	-9.26
Average Size of Holdings			
Marginal farms	0.66	0.45	-31.82
Small farms	2.47	1.88	-23.89
Medium & others	9.95	6.29	-36.78
All Farms	1.38	1.48	7.25
Gini co -efficie nt of land holding distribution*	0.46	0.21	-54.35

Source: Field Survey
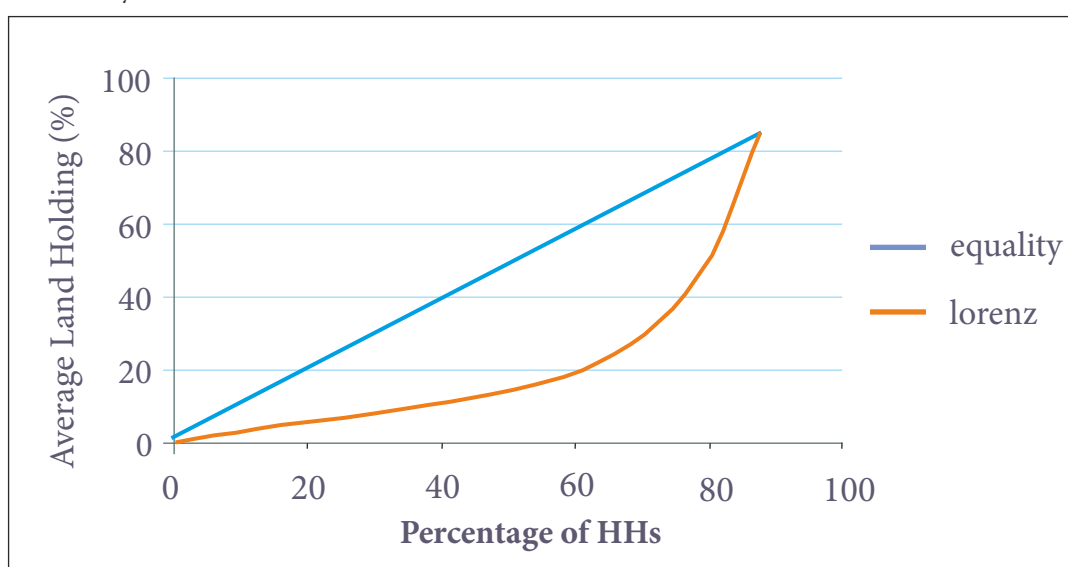
Fig. 5.4: Area distribution under lorenz curve in 2019

holdings (50.00%). As regards to changes occurred in total area operated in these holdings, it was found that the area under small holdings (173.58%) was found to be increased, while the area under marginal (-57.25%) and medium and others holding (-5.18%) was found to be decreased during the period in the village.

The average size of holdings of these farms was also found to be increased by 7.25 per cent in the year 2019 (1.48 ha) over the year 1972 (1.38 ha). The maximum negative percentage change was found to be observed in case of medium and other farms (-36.78%) followed by marginal (-31.82%) and small farms (-23.89%) in the year 2019 over the year 1972. With the result of this the Gini co-efficient of land holding distribution was found to be increased 0.21 (2019) from 0.46 (1972) in the village which means the equity in man land ratio was found to be decreased in 2019 as compared to 1972 (Table 5.5).

5.5   Cropping Pattern

The average annual growth rate of different crop groups during the period 1972 to 2019 for the village was also analyzed. The growth of area under oil seed (123.67%/year) was found to be increased more as compared to pulses (3.03%/year) and cereals (0.36%/year). The area under fruits showed infinite change in growth because of the area under fruits in 1972 was nil. The growth of area under vegetables was found to be decreased with the average annual growth rate of 2.13% per year in the village (Table 5.6).

The changes occurred in the area of different crops grown under irrigated and un-irrigated condition in 2019 as compared to 1972 was also been observed and found that due to introduction of irrigation, area of crops under irrigated condition was found to be increased by 55.45 per cent while the area under crops under un-irrigated condition was found to be decreased by 35.14 per cent in the year 2019 as compared to 1972 in the village.

In irrigated condition, the area under all the crops was found to be increased except oilseeds during the period. The maximum change in area under crops was found to be observed in pulse (1682.35%)followed by paddy(67%), wheat (34.73%) and vegetables (62.46%). In case of un-irrigated condition, area

Table 5.6: Trends in different crop groups in Piprodh village during 1972 to 2019

Crops	1972	2019	% Change	AAGR in Area (%/year)
Cereal Crops	256.37	299.57	16.85	0.36
Pulses	2.7	6.55	142.59	3.03
Oilseeds	0.08	4.73	5812.50	123.67
Vegetables	8.34	6.34	-23.98	-0.51
Fruits	0	8.18	0.00	
Others	4.17	0	-100.00	-2.13
Total	**271.66**	**325.37**	**19.77**	**0.42**

Source: Field Survey

Table 5.7: Change in cropping pattern in Piprodh Village

Particulars	1972	2019	% Change
Irrigated			
1. Cereal Crops			
Paddy	61.79	103.19	67.00
Wheat	98.9	133.25	34.73
Other Cereals	0	0.58	0.00
2. Pulses	0.34	6.06	1682.35
3. Oilseeds	0.04	0	-100.00
4. Vegetables	3.25	5.28	62.46
5. Fruits	0	7.57	0.00
6. Others	0.28	0	-100.00
Overall	**164.6**	**255.93**	**55.49**
Un-Irrigated			
1. Cereal Crops			
Paddy	48.61	62.55	28.68
Wheat	41.26	0	-100.00
Other Cereals	5.81	0	-100.00
2. Pulses	2.36	0.49	-79. 24
3. Oilseeds	0.04	4.73	11725.00
4. Vegetables	5.09	1.06	-79.17
5. Fruits	0	0.61	0.00
6. Others	3.89	0	-100.00
Overall	**107.06**	**69.44**	**-35.14**

Source: Field Survey

under all the crops was found to be decreased except oilseed and paddy. A drastic change of 11725 per cent was found to be observed in oil seed under un-irrigated condition in the year 2019 as compared to 1972. This might be due to introduction of soybean in the village during the period (Table 5.7).

5.6   Irrigated Area

The change in area under irrigation with different sources of irrigation (174 ha.) was also found to be increased by (5.70%) in the year 2019 over the year 1972 (164.6ha). The area under irrigation was found to be increased through all the sources of irrigation except canal (-96.28%) in the year 2019 as compared to 1972. The area

irrigated through tube-well, pond and nala showed infinite change due to the reason that there was no area under these categories in the year 1972 (Table 5.8).

5.7   Productivity of Crops

The productivity of all the crops under irrigated and un-irrigated was found to be increased in the year 2019 as compared to 1972.

Table 5.8: Source wise irrigated area (ha)

Particulars	1972	2019	% Change
Tubewell	0	69.6	
Well	9.03	34.8	285.38
Pond	0	40.61	
Nala	0	23.19	
Canal	155.57	5.79	-96.28
Total	**164.6**	**173.99**	**5.70**

Source: Field Survey

Fig. 5.5:A well for irrigation purpose
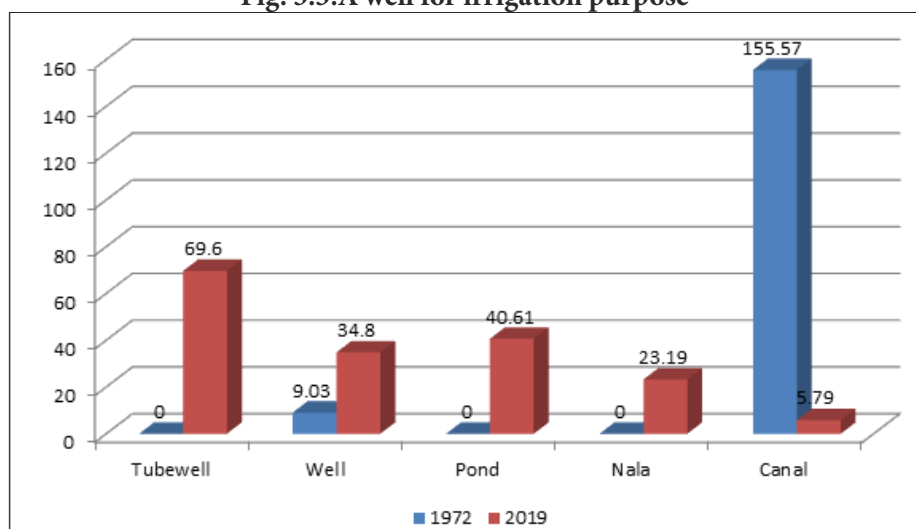
Fig. 5.6: Source wise Irrigated area

In irrigated condition the maximum increases in the productivity of vegetables (356.92%) followed by paddy (101.59%), wheat (52.51%), chickpea (43.39%), lentil (29.92%) and oilseeds (20.16%) was observed in the village. Under un-irrigated condition the maximum change was also observed in productivity of vegetables

(381.32%) followed by paddy (157.35%), oilseeds (96.60%), black gram (71.43%), wheat (70.92%), and lentil (27.78%) (Table 5.9)

5.8 Nature and Extent of Crop Diversification

The farmers were found to grow Paddy, black gram & vegetables in Kharif and wheat,

Table 5.9: Yield of Major Crops in the Village Piprodh(q/ha)

Particulars		1972	2019	% Change
Irrigated				
1. Cereal Crops	Paddy	18.23	36.75	101.59
	Wheat	19.29	29.42	52.51
2. Pulses	Chickpea	8.85	12.69	43.39
	Lentil	7.12	9.25	29.92
3. Oilseeds		6.45	7.75	20.16
4. Vegetables		16.25	74.25	356.92
5. Fruits		0	112.2	0.00
6. Other		8.23	18.25	121.75
Un-Irrigated				
1. Cereal Crops	Paddy	12.24	31.5	157.35
	Wheat	12.55	21.45	70.92
2. Pulses	Black gram	3.5	6	71.43
	Lentil	4.5	5.75	27.78
3. Oilseeds		4.12	8.1	96.60
4. Vegetables		15.79	76	381.32
5. Fruits		0	105	0.00

Source: Field Survey

chickpea & vegetables in *Rabi* season. The cropping pattern of the village was not found to be change in during the last five years, however 5 per cent farmers were found to replace crop varieties of major crops with the experience that new varieties used to provide more yield and have disease resistance. The Simpson crop diversification index during kharif season was found to be 0.61,0.64 and 0.69 while during *rabi* season it was found to be 0.43, 0.67 and 0.67 in case of marginal small and medium size categories, respectively. At overall level, it was found to be 0.65 during kharif and 0.62 during

rabi season which shows that across all the categories crop diversification was observed in the area under study. The crop diversification seems to be directly proportional to the size of holding. Involving various crops grown by the respondents the Simpson crop diversification index was found be varied between 0.76 to 0.85 across various size of holding with 0.82 at overall level. The Simpson Index of Diversification (SID) ranges between 0 to 1, wherein the value closer to 1 indicates high diversification and the value closer to 0, indicates no diversification.

Table 5.10: Nature and extent of crop diversification

Particulars	Marginal Farms	Small Farms	Medium & others	Overall
Simpson Index of Crop Diversification (Ratio)				
Kharif Season	0.61	0.64	0.69	0.65
Rabi Season	0.43	0.67	0.67	0.62
Summer/Zaid/Boro	-	-	-	-
Overall*	**0.76**	**0.83**	**0.85**	**0.82**
Average Numbers of Crop Grown				
Kharif Season	3	3	3	3
Rabi Season	3	3	3	3
Summer/Zaid/Boro	-	-	-	-
Overall*	**6**	**6**	**6**	**6**
Share of staple food crops area in gross cropped area (%)	99.50	99.00	98.00	98.84
Main three Crops Cultivated				
Kharif Season	Paddy, Black Gram, Vegetables	Paddy, Black Gram, Vegetables	Paddy, Black Gram, Sesame	Paddy, Black Gram, Sesame
Rabi Season	Wheat, Chickpea, Vegetables	Wheat, Chickpea, Vegetables	Wheat, Chickpea, Lentil	Wheat, Chickpea, Lentil, Vegetables
Summer/Zaid/Boro	-	-	-	-
Overall	**Paddy, Black Gram, Wheat, Chickpea, Vegetables**	**Paddy, Black Gram, Wheat, Chickpea, Vegetables**	**Paddy, Black Gram, Wheat, Chickpea, Vegetables**	**Paddy, Black Gram, Wheat, Chickpea, Sesame, Vegetables**
% Farmers Changed Cropping pattern during last 5 years	0	0	0	0
% Farmers Changed crop varieties of major crops	2	4	10	5.34
Main three reasons for crop diversification	-	-	-	-
Main tree reasons for changing crop varieties	Disease resistant, More yield	Disease resistant, More yield	Disease resistant, More yield	Disease resistant, More yield

Note: * Overall includes perennial crops & Source: Field survey

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ECOLOGY, VULNERABILITY AND SUSTAINABILITY

This chapter deals with natural resource profile, natural & manmade disasters and perception of various groups in the village about ecological changesin the village detail.

6.1   Natural Resource Profile

In natural resource profile, flora and fauna, natural (land, water, soil, forest) and livestock resources, ground water level and pollution and input use were considered for the village.

Table 6.1 : Flora of the village

S. No.	Common Name of Plants	Scientific name
	Plants/Trees	
1	Bel	*Aeglemarmelos*
2	Custard Apple (Sitaphal)	*Annonasqumosa*
3	Achar	*Buchananialanzan*
4	Tendu	*Diospyrosmelanoxylon*
5	Mahua	*Madhucalongifolia*
6	Mango	*Mangiferaindica*
7	Aonla	*Phyllanthusemblica*
8	Jamun	*Syzygiumcumini*
9	Imli	*Tamarandusindica*
10	Babul	*Acacia nilotica spp. Indica*
11	Khair	*Acacia catechu*
12	Palas	*Buteamonosperma*
13	Arjun	*Terminaliaarjuna*
14	Sagon	*Tectonagrandis*
15	Amaltas	*Cassia fistula*
16	Shisham	*Dalbergialatifolia*
17	Pipal	*Ficusreligiosa*
18	Banyan tree	*Ficusbenghalensis*
19	Guava	*Psidiumguajava*
20	Banana	*Musa paradisiaca*
21	Pomegranate	*Punicagranatum*
22	Nilgiri (eucalyptus)	*Eucalyptus globulus*
23	Gulmohar	*Delonixregia*
24	Maringa	*Moringaoleifera*
25	Neem	*Azadirachtaindica*
26	Baboo	*Bambusa vulgaris*

Source: Field Survey

6.1.1 Flora and Fauna

After the keen observation of the Piprodh village, it is found that the village have rich in flora and fauna. The details of flora and fauna available in the village are given below in Table 6.1.

6.1.2 Natural and Livestock Resources

In natural and livestock resources; Natural

	Shrubs	
1	Karonda	*Carissa carandus*
2	Sage	*Lantana camera*
3	Aak	*Calotropisgigantea*
4	Satyanashi (prickly Poppy)	*Argem onemexicana*
5	Jharberi	*Ziziphusnummularia*
	Crops	
1	Paddy	*Oryza Sativa*
2	Wheat	*Triticumaestivum*
3	Chickpea	*Ciceraritinum*
4	Lentil	*Lens esculantum*
5	Pea	*Pisumsativum*
6	Pigeon Pea	*Cajanuscajan*
7	Lathyrus	*Lathyrus Sativa*
8	Brinjal	*Solanummelongena*
9	Potato	*Solanumtuberosum*
10	Tomato	*Lycopersiconesculentum*
	Weeds	
1	Bathua	*Cinopodium album*
2	Nut grass	*Cyprus rotundus*
3	Striga	*Strigalutea*
4	Kaans	*Saccharumspontaneum*
5	Dub ghas	*Cynodondactylon*
	Aquatic Plants of the pond	
1	Lotus	*Nelumbo nucifera*
2	Water cress	*Eichhorniacrassipes*
3	Mosquito fern	*Azollapinnata*
	Flowers	
1	Rose	*Rosaindica*
2	Jasmine	*Jasminum*
3	Marigold	*Calendula officinalis*
4	Crepe jasmine (Chandani)	*Tabernaemontanadivaricata*

Source: Field Survey

(Land, water, Soil, Forest) and Livestock resources are included for the study.

Table 6.2: Fauna of the village

The residential and cultivated land of the village was found to be mostly flat, somewhere

S. No.	Name	Scientific Name
Livestock		
1	Cow	*Bosindicus*
2	Buffalo	*Bubalusbubalis*
3	Goat	*Capra aegagrus*
Pet Animal		
1	Dog	*Canis lupus*
Others		
1	Pig	*Susscrofadomesticus*
2	Cat	*Feliscatus*
	Mouse	*Musmusculus*
3	Squirrels	*Sciuridae species*
Wild Animals		
1	Rabbit	*Lepusnigricollis*
2	Fox	*Vulpesvulpes*
3	Monkey	*Bonnet macaque*
4	Deer	*Cervidae species*
Birds		
1	Poultry Birds	*Gallus gallus*
2	Owl	*Strigiformes species*
3	Sparrow	*Passer domesticus*
4	Cuckoo	*Eudynamysscolopaceus*
5	Crow	*Corvus species*
6	Parrot	*Psittaculaeupatria*
7	Pigeon	*Columbidae species*
Aquatic Organisms of Ponds		
1	Fish	*Labeorohita*
2	Crabs	*Brachyura species*
3	Frog	*Anura species*
4	Micro organisms	-

Source: Field Survey

undulated. There are some plateaus in the village, there surrounded by the forest and some fallow land. The village has clay- loam type black and yellow colour, soil popularly known as 'Dumatta'. Owing to its structure is sub-angular blocky. The soil is suitable for crops like paddy, wheat, gram, lentil and vegetables. Whenever, wet soil dry up its getting cracked when it dry. The pieces of cultivated land, which were brought under the command area of the canal intensively cultivated the with help of bullocks 1972 and currently tractor and leveler for cultivation of crops for being used. In the year 1972 open wells were the main source for drinking water as well as irrigation purpose. Canal and some ponds were also available in1972 for daily needs and irrigation

purpose. During the current survey the main source of drinking water was found to be tap water, bore wells and hand pumps for daily use. Four open wells were found in working condition, which are being used for daily needs. The area under forest was found to be 87.13 ha, which is declined by 34.35 percent and remained only 57.2 ha. In the earlier survey forest was very dense and now it is become scattered. Villagers were found to fulfill their requirement from the forest of firewood, timber, grazing of livestock etc. People who were found to belong to below poverty line used to collect gum, regains, anola, mahua, tendu patta etc. from the forest as Common Property Resources and earn money.

Fig. 6.1: Flora in the Village

6.1.2.2 Livestock Resources

The milch animal population was found to be increased in village in recent survey. The percentage increase in milch animals (cow and buffalo)in the year 2019over 1972was found to be around 12.28 and 169.23 per cent respectively. The goats were found to be increased only by 2.94 percent in village. The number of bullocks were found to be declined72.51percent in village as agricultural work is now being completed with

machinery like tractors and other implements, whereas in previous survey bullocks were helping in agriculture activities from sowing to harvesting of the crops. The poultry birds were also found to be declined by 92.13 percent (Table 6.3).

6.1.3 Ground Water Level and Pollution

Ground water samples were examined for physio-chemical, heavy metals and bacteriological parameters in order to assess the effect of industrial and other activities on ground water.

Table 6.3: Livestock status of Piprodh village

S.No.	Animal class	1972	2019	Percentage change
1	Drought	171	47	-72.51
2	Cows	114	128	12.28
3	Buffalo	13	35	169.23
4	Young livestock	98	76	-22.45
5	Goat	68	70	2.94
Poultry Birds				
1	Poultry	445	35	⁻92.13

Source: Field survey

According to Central Ground Water Board Depth to Water levels ranged between 0.83 to 49.40 m below ground level in the Mudwara block of Katni. This village is road side village, because of this so many vehicles are crossing every time, so noise and air pollution are major problems. Sanitation was also a major problem in this village. There was no proper arrangement for sanitation. Due to this reason, mosquito and house fly flourished and causing diseases among the people of the village.

6.1.3.1 Ground Water Resources

Katni district is underlain by Vindhyan sand stone, Bijawar Alluvium and Basalticlava flows of Deccan trap and. Dynamic ground water resources of the district have been estimated for base year -2008/09 on block-wise basis. Out of 4, 89,400 ha of geographical area, 4,66,648 ha (95 %) is ground water recharge worthy area and 22,752 ha (5%) is hilly area. There are six number of assessment units (block) in the district which fall under non-command (94 %) and command (6.%) sub units. All the blocks of the district are categorized as safe. Vijairaghogarh block of the district with highest stage of groundwater development is computed as 63.3 % in Murwara

(Katni). The net ground water availability in the district is 35,508 ham and ground Water draft for all uses is 15,457ham, making stage of ground water development 45 % (37 % in 20030/4) as a whole for district. After making allocation for future domestic and industrial supply for next 25years, balance available ground water for future irrigation would be 18,067 ham.

6.1.3.2 Quality of Ground water for Drinking

EC (Electric Conductivity) and F value of ground water varies from 60-1075, 1.2-81, 0.02-0.87 respectively. High nitrate in the village area was appears due to excessive use of fertilizers and agricultural waste. The total hardness of the ground water in the district is under safe limit as per Bureau of Indian Standards (BIS) Standards.

6.1.3.3 Quality of water for Irrigation

High Sodium adsorption ratio (SAR) is not good for irrigation as it leads to Sodium Hazard. Water samples in the district generally fall in C1S1, C2S1 and C3s'1 classes of US Salinity diagram. However ground water in the district general is sage for irrigation but proper drainage system is required where EC is more than 1500 us

Table 6.4: Block Wise Ground Water Resource Estimation Data & Katni District

Annexure III D - (cont.) ASSESSMENT OF DYNAMIC GROUND WATER RESOURCES OF MADHYA PRADESH Type of Assessment Unit : Block (As on March, 2009)							
District/ Assessment Unit	Sub-unit Command/ Non-command	Net annual Ground Water Availability (ham*) (1)	Existing Gross Ground water draft for irrigation (ham) (2)	Existing Gross Ground water Draft for Domestic & Industrial water Supply (ham) (3)	Existing Gross Ground water Draft for all uses (3+4)(ham) (4)	Provision for domestic, and industrial requirement supply to next 25 year (2033) Ham (5)	Net Ground water Availability for future irrigation development (ham) (6)	Stage of ground water Development {(4/1)*100} (%)
Katni								
Badwara	Command	1329	126	19	145	45	1159	11
	Non-command	6393	3051	402	3453	518	2824	54
	Block Total	**7723**	**3177**	**421**	**3598**	**563**	**3983**	**47**
Bohanriband	Command	1300	55	41	96	65	1180	7
	Non-command	6101	2031	370	2402	587	3483	39
	Block Total	**7402**	**2086**	**411**	**2497**	**652**	**4664**	**34**
Dhimarkheda	Command	-	-	-	-	-	-	-
	Non-command	4369	951	384	1335	493		31
	Block Total	**4369**	**951**	**384**	**1335**	**493**	**2926**	**31**
Murwara	Command	1315	136	109	245	177	1002	19
	Non-command	4384	2523	322	2845	441	1420	65
	Block Total	**5699**	**2659**	**431**	**3090**	**618**	**2422**	**54**
Rithi	Command	380	27	22	48	33	320	13
	Non-command	3516	1116	240	1357	387	2013	39
	Block Total	**3895**	**1143**	**262**	**1405**	**420**	**2333**	**36**
Vijayraghogarh	Command	-	`-	-	-	-	-	-
	Non-command	5419	2985	546	3531	694	1740	65
	Block Total	**5419**	**2985**	**546**	**3531**	**694**	**1740**	**65**
District Total		**34508**	**13000**	**2457**	**15457**	**3440**	**18067**	**45**

Source- District Ground Water Information Booklet, Katni District, Madhya Pradesh, Ham-Hydra geochemical Assessment Model

cm -1 .Geogenic problems: Fluoride in the district generally below 1.5 mgl-1, however groundwater in the district is safe for drinking. More than 1.5 mgl. Fluoride is responsible for bone deformation. No arsenic has been detected in the district.

6.1.3.4 Status of ground water development

Ground water is min source for drinking of irrigation in the Katni district. About 54.57% of irrigation in the district is form ground water source through level of irrigation is the district is only 30% there are 910 tube wells and 10696 dug wells for irrigation in the district. There are 13827 electric connections for agriculture purpose.

Depth of dug wells in the district ranger from 8 to 18 lps, depending on hydro geological situations is the area.

A part from private sources, hand pumps are main source of rural water supply in district and out of 911 villages 854 village have tube wells/hand pump facility while 98 villages have tap water supply. Water supply of Katni town is from Katni river.

6.1.4 Input Use

In the beginning of Green Revolution, during the last survey 1972-73, only few farmers

were use fertilizers, that too in very small quantity. Farmers were found to start using fertilizers and chemicals in the right doses since 90s'.Fertilizer and pesticides were found to be sold in the market by different companies of various (chemical compositions)due to which it becomes very difficult to find appropriate rate of these pesticides. In present time rates of pesticides were also found to be increased considerably resulting into increase in cost of cultivation of crops.

It is observed during the investigation that due to the availability of irrigation water chemical fertilizer and pesticide were found to be used in high proportion for high production in the village while during previous survey most of the farmer's were using farm yard manure with minimum doses of chemical fertilizers for getting high production.During current survey, the majority of farmers were found to use mainly two fertilizers i.e. Urea (46%N) and D.A.P. (18%N, 46%P). As government provided subsidy for purchasing of

NPK fertilizers, some farmers were also using micro nutrients. The recommend doses and actual application of fertilizers are given in the table 6.4. The imbalanced use of NPK in case of Paddy and Wheat is due to the fact that these crops are fertilizer responsive and there is clear-cut impact of nitrogenous fertilizers on the crop growth. Further, nitrogenous fertilizers are cheaper than any other fertilizers therefore, farmers apply these fertilizers in little bit more quantity than the recommended fertilizers in the area under study.

6.2   Natural and Manmade Disasters

The very erratic rainfall was found in the village during last 5 years according to vulnerability of rural group. The most vulnerable groups were the farmers & labours. Businessmen and trade persons were the least vulnerable groups among the villagers. The most vulnerable crops were field crops and vegetables, while fruits were least vulnerable crops in the village (Table 6.5).

Table 6.5: Crop wise fertilizer use vis-a-vis recommended doses as per Soil Health Cards (Kg/ha)

Major Crops	Recommended Doses				Actual Application			
	Nitrogen	Phosphorous	Potash	Total	Nitrogen	Phosphorous	Potash	Total
Paddy	100	60	40	**200**	175	40	20	**235**
Wheat	100	60	40	**200**	150	50	25	**225**
Black Gram	20	40	20	**80**	18	46	-	**64**
Chickpea	20	40	20	**80**	18	46	-	**64**
Pea	60	60	40	**160**	100	40	20	**160**
Lentil	20	40	20	**80**	9	23	-	**32**
Sesame	60	40	20	**120**	10	25	-	**35**
Mustard	60	40	30	**130**	25	40	-	**65**
Vegetables	120	60	40	**220**	100	50	30	**180**
Potato	80	60	20	**160**	80	60	20	**160**

Source: Field survey

Table 6.6: Frequency of extreme events during last 5 years and exposures to shocks

Extreme Events	Change in Occurrence (Increased/Decreased/ No Change)	Frequency during Last 5 Years	Most Vulnerable Groups*	Least Vulnerable Groups*	Most Vulnerable Crops or Enterprises	Least Vulnerable Crops or Enterprises
Drought	No Change					
Flood	No Change					
Cyclone	No Change					
Erratic rainfall	Increased	Often	3	3	Field crops	Vegetable & fruits
Heat wave	No Change					
Cold wave	No Change					
Land slides	No Change					
Epidemic	No Change					
Major accident	No Change					
Suicide	No Change					
Robbery	No Change					
Violence	No Change					
Loss of job	No Change					
Price crush	No Change					
Any others	No Change					

Note: Rank (0=Nil; 1=Negligible; 2= Low; 3=Moderate; 4=High; 5=Extreme); Consider only relevant shocks if there was any during last 5 years
Most vulnerable groups*=Farmers and Labourers, Least vulnerable groups*= Business & trade
(Include only those extreme events which occurred during last 5 years i.e., between 2014-2019), Source: Field Survey

6.3 Perception of various groups in the Village about Ecological Changes

The change in rainfall pattern (drought, flood, heat & cold waves),changes in incidence of diseases & medical expenditure, availability, timeliness and accuracy of weather forecasting & warning for extreme events and adequacy and efficiency of relief measures after calamity events during last 5 yearswere observed for the study.

6.3.1 Change in rainfall

The majority of the households reported change in rainfall pattern over the period of last five years. The degree of hardship faced (vulnerability) during last five years is presented in the (Table6.6). The damage of crop due to erratic rainfall was found to be moderate. While hardship to poor was low and remaining aspects it hardship of small ruminant, damages to fisheries, hardship to children, and hardship to aged people were found to be negligible.

6.3.2 Changes in incidence of diseases and medical expenditure

According to persons of the village, villagers never faced any type of epidemic and severe diseases in the village. After coming Ayurveda Hospital (1965) health facilities was found to be implemented in the village. Now it is known as AYUSH (Ayurveda, Yoga and

Naturopathy, Unani, Siddha and Homoeopathy) but currently this Centre found to provide only ayurvedic treatment. Other dimensions will start soon. One sub-health center was providing medical facilities to villagers. One Registered Medical Practitioner, Aganwandi and one medical store also provide health facility to villagers. Even the villagers have not faced any severe disease or epidemic but the some peoples of the village suffered from seasonal diseases like Malaria, viral fever, cough & cold. On the other hand few persons were reported diabetic, heart diseases in the village. Some villagers were surviving sickness due to old age. The residents of the village were of the opinion that now medical facilities are expensive. They said that on an average 3 to 5 percent of their annual income is spent on medical treatment.

6.3.3 Timeliness and accuracy of weather forecasting and warning for extreme events

Even in the absence of weather-related incidences like flood, land slide etc. villages were found to have access of news about weather forecasting through radio, newspapers and fallow farmers at the time of previous survey (1972). During current survey almost all the villagers were found to have their own T.V. and majority of them have their owned android mobile. So villagers found to access any type of news related to weather forecasting and warnings through multimedia and other social networking.

Table 6.7: Degree of hardship faced (vulnerability) during last 5 years (in 0-5 scale)

Climate Extremes	Damages to Crops	Hardship to Cattle	Hardship to Small Ruminants	Damages to Fisheries	Hardship to Poor	Hardship to Children	Hardship to Aged People	Hardship to Women
Drought	0	0	0	0	0	0	0	0
Flood	0	0	0	0	0	0	0	0
Cyclone	0	0	0	0	0	0	0	0
Erratic Rainfall	3	1	1	1	2	1	1	1
Heat wave	0	0	0	0	0	0	0	0
Cold wave	0	0	0	0	0	0	0	0
Land slides	0	0	0	0	0	0	0	0
Epidemic	0	0	0	0	0	0	0	0
Major accident	0	0	0	0	0	0	0	0
Suicide	0	0	0	0	0	0	0	0
Robbery	0	0	0	0	0	0	0	0
Violence	0	0	0	0	0	0	0	0
Loss of job	0	0	0	0	0	0	0	0
Price crush	0	0	0	0	0	0	0	0
Any others	0	0	0	0	0	0	0	0

Note: Rank (0=Nil; 1=Negligible; 2= Low; 3=Moderate; 4=High; 5=Extreme); Consider only relevant shocks if there was any during last 5 years
(Include only those extreme events which occurred during last 5 years i.e., between 2014-2019, Source: Field Survey

Table 6.8: Major coping strategies at household level for different extreme events

Extreme Events	Crop farming Community	Dairy Farmers	Fish Farmers	Labour Class	Poorest Peoples	Others 1 (..............)	Others2 (............)
Drought	-	-	-	-	-	-	-
Flood	-	-	-	-	-	-	-
Cyclone	-	-	-	-	-	-	-
Erratic Rainfall	5	-	-	-	-	-	-
Heat wave	-	-	-	-	-	-	-
Cold wave	-	-	-	-	-	-	-
Land slides	-	-	-	-	-	-	-
Epidemic	-	-	-	-	-	-	-
Major accident	-	-	-	-	-	-	-
Suicide	-	-	-	-	-	-	-
Robbery	-	-	-	-	-	-	-
Violence	-	-	-	-	-	-	-
Loss of job	-	-	-	-	-	-	-
Price crush	-	-	-	-	-	-	-
Any others	-	-	-	-	-	-	-

Note: 1=Mortgaged assets; 2=Sold assets; 3=Used savings; 4=Migration; 5=Borrowing; 6=Reduced consumption; 7=Rely on help/relief; 8=Postpone family festivals; 9=Increase working hours; 10=Change crop/livelihood; 11=Change lifestyle; 12=Passive sufferings; 13=Suicide; 14= any other (specify)

(Include only those extreme events which occurred during last 5 years i.e., between 2014-2019), Source: Field Survey

6.3.4 Availability, adequacy and efficiency of relief measures after calamity events

The major copping strategies reported by the crop farming community is to take loan from cooperatives societies and nationalized bank hence, area under was found to be increased, while taking crop loan. Some farmers also used their saving in this condition. Remaining other issues were faced negligible degree of hardship so they did not adopt any type coping strategies at household level.

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POLICY AND GOVERNENCE

This chapter deals with the household prescription about coverage of different government sponsored scheme, relative status in the village power structure and reasons thereof, advice/decision approach, perception about deprivation, rainfall and medical expenditure, opinion of HHs about rural change, problems faced by HHs and suggestions for overall development of the Village.

7.1 Coverage under Government Schemes

The coverage under different government sponsored schemes in the village are presented in table 7.1.

Table 7.1: Coverage under different government sponsored schemes

Name of the Scheme	Number of Entitled Households	No of Households Beneficiaries Availed the Facility	% Coverage	% of Beneficiaries Satisfied with the Scheme
1. BPL Card	139	139	100	96.40
2. KCC Card	76	12	15.79	100.00
3. Public Health Insurance Card	180	15	8.33	50.00
4. Soil Health Card	76	59	77.63	30.00
5. MGNAREGA Job Card	212	140	66.04	65.35
6. ICDS/Mid Day Meal	106	104	98.11	72.12
7. Govt.Scholarship Schemes	132	110	75.00	100.00
8. Govt. Housing Scheme (IAY/PMAY)	211	165	78.20	100.00
9. Crop Insurance: PMFBY/Others	76	15	19.74	0.00
10. Irrigation: PMKSY/Others	76	12	15.79	35.00
11. Seed Minikits scheme	76	15	19.74	18.00
12. Farm machinery or implements	76	0	0.00	0.00
13. Life Insurance (Govt sponsored)	326	168	51.53	35.00
14. CG Farm Income Support (PM KISAN)	48	48	100	95.20
16. Old Age Pension Schemes	31	31	100	100.00
17. Farm Pension Scheme (PM KMY)	0	0	0.00	0.00
18. Widow Pension Scheme	13	13	100	78.00
19. Farm Loan Waiver Scheme	76	2	2.63	20.00
20. LPG scheme (PM-UJJWALA)	149	149	100	100.00
21. PMKVY/Organic Farming	76	0	0.00	0.00
22. MSP/PM-AASHA Scheme	76	58	76.32	100.00
23. Ladli Laxmi Yojana	84	84	100	100.00

Source: Field Survey

It is observed from the data that coverage of BPL Card, PM Kishan, Old age pension, Widow Pension, PM Ujjala and Ladli Laxmi Yojna Schemes was reported to be 100%in the village. The cent-per cent HHs related to KCC Card, Govt. Scholarship Scheme, Govt. housing Scheme, Old age pension Scheme and PM Ujala and MSP/PM AASHA Scheme were reported that they were satisfied with the facilities provided under these government sponsored schemes (Table 7.1).

Apart from these schemes the majority of HHs were also satisfied with Public Health Insurance Card (50%), Soil Health Card (30%), MGNAREGA Job Card (65%), Mid-Day Meal (72.12%), PMKSY (35%), Life Insurance (35%), PM Kishan (95.20%), Widow Pension Scheme (78%) and Farm Loan Waiver Scheme (20%).

Fig. 7.1: A house built under PradhanMantri Awash Yojana

None of the HHs reportedhis satisfaction related to Farm Pension Scheme, PMFBY, Farm Machinery and Implements and PMKBY (Organic Farming) Schemes in the Village.

7.2 Category wise household coverage under government Scheme

The category wise household coverage under different government schemes are presented in table 7.2 It is observed from the data presented in table 7.2 that out of the total KCC card (12), soil health cards (59) and crop insurance PMFBY (15), the SC and ST were found to be 17 & 8%, 14 & 20% and 13 & 20% which indicates that farming was not a main occupation of SC & ST categories. The maximum number of respondents who insured their life by government was found to be 168, out of which only 2% were of general categories and

Table 7.2: Category wise household coverage under government Scheme

S. No.	Name of Scheme	SC	ST	OBC	Gen.	Total
1	BPL Card	62 (45)	40 (29)	30 (22)	7 (5)	139 (100)
2	KCC Card	2 (17)	1 (8)	3 (25)	6 (50)	12 (100)
3	Public Health Insurance Card	5 (33)	2 (13)	3 (20)	5 (33)	15 (100
4	Soil Health Card	8 (14)	12 (20)	26 (44)	13 (22)	59 (100)
5	MGNAREA Job Card	64 (46)	40 (29)	34 (24)	2 (1)	140 (100)
6	ICDS/Mid-day Meal	34 (33)	36 (35)	30 (29)	4 (4)	104 (100)
7	Govt. Scholarship Scheme	44 (40)	42 (38)	24 (22)	0 (0)	110 (100)
8	Govt. Housing Scheme (IAY/PMAY)	67 (41)	48 (29)	50 (30)	0 (0)	165 (100)
9	Crop Insurance: PMFBY/Others	2 (13)	3 (20)	6 (40)	4 (27)	15 (100)
10	Irrigation:PMKSY/Others	4 (33)	2 (17)	2 (17)	4 (33)	12 (100)
11	Seed Minikit Scheme	2 (13)	8 (53)	4 (27)	1 (7)	15 (100)
12	Farm machinery or implements	0 (0)	0 (0)	0 (0)	0 (0)	0 (100)
13	Life Insurance (Govt. Sponsored)	72 (43)	65 (39)	28 (17)	3 (2)	168 (100)
14	CG Farm Income Support (PM KISHAN)	18 (38)	15 (31)	13 (27)	2 (4)	48 (100)
15	Old Age Pension Scheme	4 (13)	7 (23)	18 (58)	2 (6)	31 (100)
16	Farm Pension Scheme (PM-KMY)	0 (0)	0 (0)	0 (0)	0 (0)	0 (100)
17	Widow Pension Scheme	6 (46)	2 (15)	4 (31)	1 (8)	13 (100)
18	Farm Loan Waiver Scheme	1 (50)	1 (50)	0 (0)	0 (0)	2 (100)
19	LPG scheme (PM-UJJWALA)	48 (32)	52 (35)	45 (30)	4 (3)	149 (100)
20	PMKVY/Organic Farming	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
21	MSP/PM-AASHA Scheme	18 (31)	15 (26)	19 (33)	6 (10)	58 (100)
22	Ladli Laxmi Yojna	12 (14)	25 (30)	38 (45)	9 (11)	84 (100)

Figure in parenthesis shows percentage to total

17% of OBC's. The households of general category were not found to be benefited by government housing scheme. Altogether 149 respondents were found to be benefited from LPG scheme and 140 by MGNREGA job card out of which 3% and 1% were found to be of general categories.

The 5% respondents of general category were found to have BPL cards with them out of 139 respondents. None of the general category respondents was found to have Government scholarship, only 4% respondents of general category were found to avail facility of ICDS/mid day meal. Out of 84 respondents who got benefit of ladli Lakshmi Yojana 11% general and 14% SC respondents were found to get advantage of it. The respondents of SC and ST categories were found to be deprived most in case of taking advantage of KCC card, soil health card, crop insurance seat minute is scheme old age pension, widow pension scheme and ladli Lakshmi Yojana only because they were found to be released every year about the schemes and farming is not their main occupation.

7.3 Relative status in the Village Power Structure and Reasons their Off

The majority of the HHs were found under low power structure (34.05%) as compared to medium (25.77%), top (20.25%), high (11.04%) and very low power structure (8.90%) in the village. The main reason of top power structure was found to be qualification (41.25%) followed by economic condition (28.40%), caste (16.20%) and political affiliation (14.15%) as reported by the majority of HHs(Table 7.3).

The reason of high power structure as reported by the majority of HHs was found to be caste (45.20%) followed by political affiliation (24.08%), economic condition (18.47%) and qualification (12.25%). The reason of medium power structure as reported by the majority of HHs was found to be political affiliation (70.22%) followed by and qualification (13.40%), caste (8.25%) and economic condition (8.13%), while the reason of low village power structure was found to be caste (46.10%) followed by qualification (20.40%), economic

Table 7.3: Relative status in the village power structure and Reasons their off

Particulars	Top	High	Medium	Low	Very low
Perception of HH	20.25	11.04	25.77	34.05	8.9
Reasons for the Above (%)					
I Caste	16.2	45.2	8.25	46.1	48.65
II Qualification	41.25	12.25	13.4	20.4	6.6
III Political affiliation	14.15	24.08	70.22	16.26	32.62
IV Economic Condition	28.4	18.47	8.13	17.24	12.13

Source: Field Survey

condition (17.24%) and political affiliation (32.62%) as reported by majority of HHs. The reason of very low power structure as reported by the majority of HHs was found to be caste (48.65%) followed by political affiliation (32.62%), economic condition (12.13%) and qualification (6.60%). Hence, caste, political affiliation and qualification play a significant role to decide power structure of HH.

7.4 Advice/Decision Approaches

The majority of HHs found to be taken advice related to their livelihood and Social problems from relatives followed by friends, neighbour and subject specialist, while issues related to education and legal problems,the majority of them taken advice from Subject Matter Specialist followed by relative, friends and neighbours (Table 7.4).

Table 7.4: Advice/decision approaches of the village (%)

For any advice/ decision whom do you approach	Neighbour	Relative	Subject Specialist	O ther (Friend)
Livelihood Specific	20	35	17	28
Social	10	55	15	20
Education	5	32	45	18
Legal	2	32	59	7

Source: Field Survey

7.5 Perception about Deprivation, Rainfall and Medical Expenditure

The majority of HHs reported that their caste/gender/political deprivation (58%) was found increase and incidence of disease, and medical expenditure also increased in the family (81%) during last five years but no change in rainfall pattern/air pollution (73%) was observed in the village (Table 7.5)

Table 7.5: Perception about deprivation, rainfall and medical expenditure during last 5 years(%)

Particular	Yes	No
Is caste/gender/political deprivation in the village	58	42
Is There any change in rainfall pattern or heat/cold waves or air pollution in your village during last 10 years	27	73
Is there increase incidence of disease and medical expenditure in your family during last 5 years	81	19

Source: Field Survey

7.6 Opinion of HHs about Rural Change

The majority of HHs reported that the economic condition of family (91.25%) and their members (65.84%) was found to be increased over a period of time. The majority of them reported the improvement in village infrastructure (70.44%) during the period. The agriculture status was also found to be improved during the period as reported by 54.61 per cent of HHs of the village (Table 7.6).

Table 7.6 : Opinion of HHs about rural change

S. No.	Particulars	Percent Response		
		Improved	Detoriotion	No Change
1	Change in economi c condition of the HHS	91.25	1.2	7.55
2	Change in Village Infrastructure	70.44	8.46	21.1
3	Change in Agriculture Sector Status	54.61	10.87	34.52
4	Change in Economic Condition of the Family member	65.84	5.35	28.81

Source: Field Survey

7.7   Problems faced by HHs

The problems faced by the HHs are presented in table 7.7.It is observed from the data that lack of cottage &small scale industries (60.20%), huge increase of alcohol consumption, playing cards and other illegal activities (60.00%), specialized farming (55.50%),   low cropping intensity (52.50%), poor economic condition (44.48%),   absence of FPOs/SHGs (40.00%),   poor management of crop and live

Table 7.7: Major socio-economic problem of the village (%)

S. No.	Particulars	HHs Perceptions
1	Un-employment	31.7
2	Poor economic condition of HHs	44.48
3	Low cropping intensity	52.5
4	Poor management of crop and livestock farms	36.7
5	Specialized farming	55.5
6	Lack of cottage and small-scale industry	60.2
7	Lack of technical knowledge about crop and livestock technologies	28
8	Absence of FPOs/SHGs	40
9	Poor sanitation and sewage system	25.2
10	Alcohol consumption, playing cards and other illegal activities	60
11	Panic of stray animals	12
12	Terror of wild beasts	15
13	Trouble with dirt in and around ponds and canal	18
14	Lack of street light facility	5
15	Absence of boundary wall in middle school and Aaganwadi	12
16	Irregular water supply of water through Tap	14
17	Dilapidated building of sub health & Ayush center	38

stocks (36.70%), un-employment (31.70%), lack of technical knowhow regarding crop & livestock management (28.00%), poor sanitation and sewage system in the village (25.20%), trouble with dirt in and around the ponds & canal (18.00%), dilapidated building of sub health & Ayushcenter (18.00%), terror of wild beasts specially monkies (15.00%), irregular supply of water through tap (14.00), panic of stray animals (12.00%), and Lack of street light facility (5.00%) were found to be major problems

of the village as reported by the majority of HHs.

7.8 Suggestions for Overall Development of the Village

The remedial measures which were suggested by HHs to solve these problems are presented in table 7.8. It is observed from the data that proper implementation of govt. scheme (70.11%) followed by strong administration (66.13%), training to village secretary regarding all the government & other schemes related to agriculture and rural development (65.92%),

Table 7.8: Suggestions for overall development of the village (%)

S. No.	Parti culars	HHs Perceptions
1	Proper implementation of govt. scheme	70.11
2	Strong administration	66.13
3	Training to village secretory for all the government & other scheme related to agriculture and rural development	65.92
4	Establishment of processing units for paddy and wheat	55.88
5	Introduction of more value crops in *Rabi, Kharif* & Summer seasons	55.36
6	Strong extension services provided for crop & livestock enterprises	54.78
7	Wild animal issue in agriculture needs to be solve	48.22
8	Batter management of sanitation and sewage	35.29
9	Introduction of integrated farming system to enhance family income	32.45
10	Establishment of SHGs/FPOs for rural youth and women	30.35
11	Re-constructionof dilapidatedbuildings of sub health and Ayush Centre	20.71
12	Kanji house for stray animal	20.35
13	Introduction of agroforestry & organic farming	15.63
14	MSME or other employment schemeare required forestablishment of cottage & small scale industries in the village	10.64
15	Continue supply of electricity	10.28

Source: Field Survey

establishment of processing units for paddy and wheat (55.88%), introduction of more value crops in *rabi*, *kharif* & summer seasons (55.36%), strong extension services provided for crop & livestock enterprises (54.78%), wild animal issue in agriculture needs to be solved (48.22%), better management of sanitation and sewage (35.29%), introduction of integrated farming system to

enhance family income (32.45%), establishment of SHGS/FPOS for upliftment of rural youth and women (30.35%), re-construction of dilapidated buildings of sub-health and Ayush centre (20.71%), establishment *kanji* house for stray animal (20.35%), introduction of agro-forestry & organic farming (15.63%) in the village, introduction of MSME or other employment scheme required for establishment of cottage & small scale industries in the village (10.64%) and continue supply of electricity for farm and industries (10.28%) were the remedial measure to solve problems reported by the majority of HHs.

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SUMMARY AND CONCLUSIONS

The planning commission gave maximum attention to solve the social problems of rural India with the help of village studies. From village studies, various aspects of rural life, for example, the extent of sub-division and fragmentation of holdings, the nature of rural credit, the conditions of landless labourers etc. are derived. It helps in planning rural reconstruction. Village studies provide detailed information regarding various aspects of rural life. In these studies, either the holistic nature of the village communities is discussed or certain specific aspects of rural life are focused.

These village surveys includes all the aspects of the life of the whole village, examine the land utilization pattern, profits and losses of living, migration and immigration and incidence of debt and so on and so forth. Apart from these village surveys an attempt on demographical, educational and various other statistical and time series surveys were done.

These surveys highlight the conditions which enable villages to survive through ups and downs in their socio-economic and political strength as well as constraints of village communities and sustainable developments can be brought forward by such survey to enable the policy formulators for planning suitable policies. Keeping the aforesaid facts this particular study to create a longitudinal panel dataset & capture the socio-economic dynamics of the village and to focus on agricultural changes and changing pattern of rural livelihoods and its implication for future development.

This study was based on both primary and secondary data. The required primary data were collected by survey method through the pre-tested interview schedules specifically structured by the Coordinating Center.. The required secondary data were collected from the offices of State, District, Tehsil, Development Block, Village and Village Level Institutions. During the course of present investigation in the village, all the functionaries like Village Sarpanch, Aaganwari workers, School teachers, Ward-workers, Village Patwari, Panchayat Secretary and RozgarSahayak were consulted for collection of primary data. The personal observations of all the hamlets (3) of village Piprodh was keenly done by the investigators. The survey was conducted at three levels viz. Village Level Information, Group Level Information and Household Level Information.

The group level information's for the present village were collected through the three types of Group Discussion Schedules i.e. (1) Group Discussion Schedule – I, (2) Group Discussion Schedule – II and (3) Group Discussion Schedule – III optional (BMI and ASER – Test). Under Group Discussion Schedule – I the information relating to the frequency and exposures to shocks and degree of hardship faced by

village during the last 5 years (2014-19), main coping strategies at household level in the village, adaptation strategies by different stakeholders and natural disaster management and relief operations during the last 5 years were collected with the help of Block officials and other stakeholders. Under Group Discussion Schedule – II all the issues of the village related to irrigation resources, pollution in surface and ground water, crop-wise use of NPK, use of pesticides in crops, use of the varieties of crops, proportion of indigenous and improved Cattles, Marketing channel and procurement system, major farming systems and major group perceptions were collected and Under Group Discussion Schedule – III optional the malnutrition through BMI (Body Mass Index) was calculated with the help of the ICDS workers as well as school teachers using the height and weight of children and relating it with their age.The quality of basic education through ASER (Annual Status of Education Report) toolkit with the help of ICDS workers and school teachers in the format provided by coordinating centre on the class of study, type of school, ASER math level and ASER-reading level of the children of the sample households of Piprodh village was also done for the study.

The household level information were collected through the Household Schedules in two parts. In Household Schedule – Part-I the general information of the sample households, employment pattern of working family members birth and deaths during last 5 years, school dropout of children, socio-economic status, ownerships of assets, income and expenditure details, food security issues, savings and borrowings, governance & policy issues and perceptions about changes and in the Household Schedule- II the area under cultivation, cropping pattern, crop-diversification along with profit/loss and marketed surplus like information's for farmers have been collected for the study.

Growth rates, tabular analysis, livelihood matrix, diversification indices, Gini coefficient & lorenz curve, average annual growth rate (AAGR),body mass index (BMI), Annual Status of Education Report (ASER) and crop diversification index were used for analysis of data to drawn conclusions from the study.

8.1 Major Findings

The major findings emerged from an present situation of the village, social dynamics, economic system, ecology, vulnerability & sustainability and policy & governance in the village are as follows:

8.1.1 Present Situation

- Piprodh is situated in Katni district of Madhya Pradesh. The longitude and latitude of Piprodh village is 80° 25' 14.1924" E and 23° 50' 1.3812" N, respectively with height of 381.25 meter from mean sea level. The village situated in the Murwada tehsil of Katni district of Madhya Pradesh and lies on the Mumbai-Calcutta National

Highway 30. Piprodh is situated at a distance of 78 Km. from Jabalpur towards north and 22 km from Katni towards south. Sub-tropical climate is reported in Piprodh village. It is fall under Kymore Plateau and Stapura Hills Agro-Climate Region of Madhya Pradesh. The average annual rainfall of Piprodh is 1171.4 mm. Village received maximum rainfall during south-west *monsoon* period (95%). The normal maximum temperature received during the month of May (44.30⁰c) and minimum during the month of December/January (8.50⁰C). During the south-west monsoon season the relative humidity generally exceeds to 99.5 per cent.

📖 The soil of the villages is clay-loam having black and yellow colour, popularly known as 'Dumatta'. The structure is sub-angular blocky. The majority of which is medium (60%) followed by light (23%) and heavy (17%). The soil is deficient in Nitrogen and Phosphorus and high Potash content. The water holding capacity of soil is found between 35 to 45 percent and has a tendency to crack when dry.

📖 There is a sub-post office also in the village for communication & financial facilities. Jio, Idea, Airtel and BSNL companies' are providing telecommunication services in the village under study. The village is well connected with the outside world.

National Highway-30 is going on the west direction of the village on which regular buses are available for transportation. On the east of the village at Jabalpur-Katni railway line and the nearest railway line situated and the nearest railway station for the villagers is Niwar, which lies only a distance of 5.5 km. The nearest airport is in Jabalpur which is 95 Km far away from the village.

📖 A small forest found in outside of the village. This forest is mixed forest where Bamboo, Teak, Amaltash, Anola etc. trees. So many grasses are also found there. People of village depends on forest for firewood and grazing their livestock. Some of villagers also found to be collect Anola, Mahua, Tendupatta etc. from the forest. Monkey, Rabbits, Squirrels, mongoose etc. are the animals found in the forest. There are 2 ponds situated in the village having sufficient water. The total population of the village was found to be 1438 HHs, Out of which 51.46 per cent (740) are male and rest are female (48.54%). The adult, children and senior citizen were found to be 68.92 (991), 10.36 (149) and 20.72 (298) per cent, respectively in the village. The sex ratio of female over 1000 male was found to be 942 and number of HHs in the village were 326 only. Out of total population (1438) OBC (47.29%) were found to be maximum as compared to SC (24.83%),

ST (21.00%) and General (6.88%). Amongst SC male and female were 52.82 and 47.18 per cent, while in case of ST they were 47.39 and 52.61 per cent, respectively reside in the village.

📖 Out of total population (1438) total workers were found to be 676 (47.01%). Out of which male (60.35%) were found to be more as compared to female (39.65%) worker. In total worker the cultivators (27.00%) were found to be more followed by casual labour(21.00%), marginal labour (19.00%), agriculture labours (9.00%) labour engaged in HHs industries (7.00%), persons engaged in trade and business (5.00%), private salary person (4.00%), govt. salary persons (2.00%), pensioner (2.00%), caste based professional (1.00%) and entrepreneurs (1.00%).

📖 As far as age and sex of population in concerned, the maximum number of persons were found to be in the age group of 35-44 year (14.39%) followed by 45-59 (13.77%), 15-19 (13%), 22-24(10.15%), 25-29 (9.25%) , 10-14 (9.11%), 5-9 (8.55%), 30-34 (8.07%) over 60 years(7.37%) and less than 4 years (6.33%).

📖 Across family size was found to be maximum in family size of 4 (90) followed 5 (76), 3 (45), 2 (38) and 6 (32) members. The 60 % HHs of the village have the family size of 4 to 6 members.

📖 At overall level the total literacy rate in Piprodh village was reported to be 75.52 per cent, while the average literacy percentage among male & female was reported to be 51.46 & 48.54 per cent, respectively in the village. At overall level 30.00 per cent people were found to be educated at higher secondary level (30%) followed by primary (22.00%), intermediate (14.00%), graduate (6.00%) and technical (3%). The 25 per cent of total population was found to be illiterate in the village.

📖 The households belongs to OBC (48%) were found to be maximum followed by SC (25%), ST(20%) and general category (7%).

📖 In total 55.52 per cent population was found under Above Poverty Line (APL) category. The majority of them were found to belongs to general (100%) followed by OBC (55.77%), ST (60.61%) and SC (38.27%). In B.P.L. (Below Poverty Line) category, the majority of them were found to be SC (61.73%) followed by OBC (44.23%) and ST (39.39%) category.

📖 At overall level an average HH was found to earn maximum annual income from their non-farm resources (Rs.131385/year) followed by farm income (Rs.8692/year) and off-farm income (Rs.7577/capita/annum) during the survey period. The majority of total population were found to got livelihood support from primary sector

(77%) followed by secondary (15.00%) and tertiary (8%) sector. The majority of workers were found to be cultivators (27%) followed by casual labour (21%), marginal labours (19%), agriculture labours (9%) labours engaged in HH industries (7%), person engaged in trade in business (5%), private salaried person (4%), govt. salaried person (2%), pensioner (2%) entrepreneurs (1%), and person engaged in their caste based professions (1%).

📖 Out of total geographic area (495.64) ha the uncultivated land (61.00%) was found to be more as compared to agriculture cultivated land (39.00%). Out of total agriculture/cultivable land (93.50 ha), the current fallow was found only 7.00 per cent. In uncultivable land (302.14 ha), the pasture & grazing land (39.00%) was found to be more as compared to other (29%), forest (19%), cultivable waste land (11.00%), land under misc. trees & crops (2.00%) and barren land (0.42%). The cropping intensity of Piprodh village was found to be 180.39%.

📖 On an average 89.92 per cent area of net area sown was found under irrigation with irrigation intensity of 147.09 per cent per year. The main source of irrigation was found to be tube well (40.00%) followed by pond (23.34%), well (20.00%), nala (13.33%) and canal (3.33%) in Piprodh village.

📖 The cropping pattern of Piprodh village

was found to be dominated by irrigated condition as compared to rain-fed. In irrigated condition *Rabi* Season (56.66%) was found to be dominated over *Kharif* Season (40.38%), while in unirrigated condition *Kharif* season (96.99%) was found to be dominated over *Rabi* season (2.13%) in the village. At overall basis the cultivators were found to grow more crops in Kharif season (52.00%) followed by rabi (45.00%) and perennial crop (3%). Gross cropped area of Piprodh village of Katni district was found to be 325.37 acres. Paddy (50.94%) followed by sesame, vegetables and black gram were found to be main Kharif crops cultivated by the cultivators. In *Rabi* Wheat (40.95%) followed by chickpea (4.00%), vegetable (4.00%) and Mustard (1.00%) were found to be major *Rabi* crops in the village. As the village is found to be well connected with the road hence, cultivators cultivate vegetables in both the seasons of the year. They also found to be devote their 2.51 per cent of total area under the production of fruits.

📖 The HHs of the village were also used to domesticate livestock on their farms in the village, they were found to domesticating 356 number of animals in the village. Out of which number of cows (53.00%) were found to be more as compared to buffalos (27.00%) and goats (20.00%). The HHs were also

found to rear poultry birds (35) in their farms.

📖 Panchayat, Co-operative Society (batter co-operative society), Schools (a high secondary school, a private B. Ed college,), library, Financial Institutions (Allahabad Bank, Bank of Badodra), rice mill, flour mill and Ayurveda dispensary, a sub-health centre, a veterinary dispensary and Public Distribution soap (2) were found to be present in the village. Village is well electrified and tap water connection available almost in all the Hhs.

📖 Holi, Diwali, Durgapooja during Dushahara are main festivals celebrated in the village. Mahaveer Jayanti and Paryushan Purv are main festivals of Jain community. As fairs Dangals are organized on Nag Panchmi and Kite flying on Makar Sankranti in the village. There were total 6 temples of Lord Shiva, Goddess Durga, Bajarangbali, Shanidev and two temples of Mahaveer Swami(Jainism) in the village. Sareeis was found to be common dresses among women of the village. Dhoti, kurta, Paijama, Pants and Shirts is the popular dress-up amongst men. While shalwar suit was found to be more popular amongst younger generation of the women. Wearing ornaments and bangles etc. was found to be common among women of the village Hindi and Bagheli (local) languages were found to be spoken by the villagers. 75 per cent of

the HHs of the village were found to be non-vegetarians and the remaining 25 per cent vegetarians in the village. Caste-wise ceremonies and rituals were found to be perform amongst different categories of HHs i.e. Burman, Patel, Kushwaha, Jain, Harijans and Adivasi on the occasions of marriages, worships and religious rituals in the village. Untouchability is not reported by any of the HH in the village. Dowry was not a very serious problem across castes of the village.

8.1.2 Social Dynamics

📖 The number of households were found to be increased by 132.86 per cent in 2019 (326) as compared to 1972 (140) in the village. The total population of male and female was found to be increased by 107.87 and 114.11 per cent respectively during this period. The adult population of male and female was found to be increased by 232.68 and 357.72 per cent respectively, while the population of male and female children (below 6 years) was found to be decreased by -38.65 and -45.30 per cent respectively during the year 2019 as compared to 1972.

📖 The population of total male and female workers in the village was also found to be increased by 48.51and 8.65 per cent respectively, in 2019 as compared to 1972. The population of male (1085.71%) marginal workers was found to be increased more as

compared to female marginal workers (276.92%), while the population of male non workers (447.13%) was found to be increased more as compared to female non workers (286.44%) in the year 2019 as compared to 1972 in the village. The population of male main workers (-5.06%) and agricultural labours (-69.91%) was found to be decreased, while population of female main workers (16.46%) and agricultural labours (27.78%) were found to be increased during the period in the village.

- The population of literate female (1208.16%) was found to be more as compared to male literate (223.65 %) in the year 2019 as compared to 1972. The number of female over 1000 male were found to be increased by 2.84 per cent in 2019(942) as compared to 1972(916) in the village.

- The positive percentage change of male population was found to be more in age group 15-19,20-24, and over 60 years as compared to female during the period, while in age group 10-14, 30-34, 35-44 and 45-59 years. The positive percentage change in female was found to be more as compared to male. The percentage change in female (114.11%) was found to be more than male (107.87%) and at overall level it was found to be 110.85 per cent in the village.

- The average size of family during the

year 2019 (5) and 1972 (5) was found to be remain same in the village at overall level. Although, the average size of family of General, OBC and SC was found to be reduced by 42.85, 20 and 20 per cent, respectively from 7-4, 5-4 and 5-4 number, while numbers of family members in ST were found to be increased by 25 per cent from 4 (1972) to 5 (2019) members per family.

- The ratio of illiterate male and female was found to be decreased by 14.81 and 25.69 per cent, respectively in the year 2019 over 1972. In primary education, male have shown improvement of 1160 per cent as compared to female (930%), while in secondary education, female (4080%) have shown higher percent change than male (891%).

- Number of birth were found to be increased in all the categories of HHs viz. OBC, SC, ST as compared to number of death except in General category during the last five years (2016 to 2019). The birth rate of OBC (29) was found to be more as compared to ST (22) and SC (16). While the death rate of ST (17) was found to be more as compared to OBC (5), SC (2) and General (1) categories. The births of APL (44) was more as compared to BPL (23). The deaths were also observed more in APL (22) as compared to BPL (3) categories during last 5 years.

- The maximum number of male students were found to be enrolled in

Govt. School in Vernacular (Hindi). The number of male enrolled were found to be more in Schedule Tribe (96.25%) followed by Scheduled Caste (84.76%), OBC (82.62%) and General (66.37%) category. While male students enrolled in Private School Vernacular (Hindi) were found to be more in General (22.95%) followed by Schedule Caste (15.24%), OBC (13.12) and Schedule Tribe (3.75%). Male enrolled in English vernacular were found to be more in General (10.68%) and OBC (4.26%) categories.

- Out of total students enrolled in the schools, the majority of them enrolled in Govt. Hindi medium schools (85.39 %) followed by Hindi medium Private School (11.98%) and English medium Private Schools (2.63%).

- Level of reading competency of all the students (100%) viz. boys and girls above standard V was found to be at scale 4, which means all the students of the villages above standard V were able to read paragraph of books.

- At overall level the reading competency of majority of student of govt. (49.34%) as well as private school (55.89%) at scale 4 which means about 50 per cent of children of the school were found to be able to read paragraph of books. The level of reading competency at scale 4 of General and OBC caste categories of total students was found to be more as compared to SC and ST students both in

Govt. as well as private schools. The level of reading competency at overall level of boys at scale 4 was found to be more of private school (56.03%) as compared to boys of Govt. School (49.85%) revealed that boys of private school were found to be more competent in reading of paragraph of books than boys of Govt. schools.

- The level of arithmetic competency of all the boys and girls students (100%) above class V was found to be at scale 4 which means all the standard of the village were found to be able to recognize numbers (0-9 & 10-99) and able to do simple subtraction and simple division.

- At overall level about 60 per cent of students found to be able to do simple division. Only about 13 per cent of boys and girls of standard were found to be do simple division. Cent percent of students of pre-school were found to at scale 0 means they were not in position to even recognize numbers.

- The level of arithmetic competency at level 4 was found to be more in boys as compared to girls both in private as well as Govt. schools across all caste categories and at overall level. Hence, it can be concluded that about 50% of boys and girls and total students of both private and Govt. schools are able to recognize number from 0-99 and do simple subtraction and division in the village. Although, boys were found to be

more competent in level of arithmetic competency as compared to girls in the village. The level of arithmetic competency was found to be more in the students of General and OBC as compared to SC and ST category students in the village.

📖 Out of the total population of male children under General category, the majority of them were normal (76.19%) followed by overweight (23.81%). The majority of male children related to Schedule Caste were also found to be normal (63.82%) followed by underweight (29.79%) and overweight (6.38%). The majority of total population of Schedule Tribe was also found to be normal (68.75%) followed by underweight (25.00%), severely underweight (6.25%) in the village in the year 2019. Out of total population of OBC of male children, the majority of them were found to be normal (80.60%) followed by underweight (7.46%), overweight (5.97%) and severely underweight (5.97%).

📖 Out of total number of HHs, the majority of them reported that they never went a whole day and night without eating due to poverty (90.18%), never went to sleep hungry due to inability to purchase food (91.41%), never worried that the households would not have enough food (52.45%), never went for outside eating in hotel/restaurant(64.72%), and never

eating too much packed food/purchased food like ice-cream, cold-drinks, etc. (74.23%). The majority of them also reported that they rarely not able to eat the kind of food that they preferred (68.40%) and sometimes they worried that they would not have enough food (40.80%) and offered food to neighbors and guests (44.17%).

📖 The majority of them belong to OBC (47.85%) followed by SC (24.85%), ST (20.25%) and General categories (7.06%). This was found to be same across all the livelihood groups except caste based professions and entrepreneurs, where all the HHs was found to be related to OBC. None of the HHs was found to involve in dairy, fisheries and poultry keeping activity as an enterprise.

8.1.3 Economic System

📖 The majority of them belong to OBC (47.85%) followed by SC (24.85%), ST (20.25%) and General categories (7.06%). Similar trend was observed across all the livelihood groups except caste based professions and entrepreneurs, where all the HHs were found to be related to OBC. None of the HHs was found to involve in dairy, fisheries and poultry keeping activity as an enterprise.An average HH used to earn Rs. 44870/- per year in the village. An average HH used to earn more income from primary (Rs. 30100/year)

as compared to secondary (Rs. 7600/year) and tertiary (Rs. 7170/year) sources. He was found to generate more income from non-form (Rs. 34200/year) as compared to farm (Rs.10470/year) and off farm (Rs.200/year) sources. The per capita per year income received by an average HH was found to be more in case of General categories (Rs. 73320/-) as compared to OBC (Rs. 58050/-), ST (Rs. 25650/-) and SC (Rs. 22455/-) categories in the village.

📖 The net area sown was found to be increased by 3.76 per cent in the year 2019 (180.37 ha)over the year 1972 (173.84 ha) in the village. The area under current fallow(-48.14%), barren land(-85.05%), forest (-34.35%), pasture & grassing land(-1.96%), cultivable waste land (-15.77%) was found to be decreased, while the area under net irrigation(13.25%), gross cropped area (19.77%) was found to be increased during the period. With the result of this the cropping intensity and irrigation intensity of the village was found to be increased by 24.12 and 17.84 per cent respectively. The main source of irrigation was found to be canal in the year 1972 which was shifted to tube-well in the year 2019.

📖 The changes occurred in distribution of land holding in different size of farms i.e. marginal, small, medium and others in the year 2019 over the year 1972 were

also observed and found that the number of holdings were found to be increased by 105.56 per cent in the year 2019 (185)over the year 1972 (90) in the village. The maximum percentage change was observed in number of small holdings (260.0%) as compared to marginal (-37.97%), medium and other holdings (50.00%). As regards to changes occurred in total area operated in these holdings, it was found that the area under small holdings (173.58%) was found to be increased, while the area under marginal (-57.25%)and medium and others holding (-5.18%)was found to be decreased during the period in the village. The average size of holdings of these farms was also found to be increased by 7.25 per cent in the year 2019 (1.48 ha) over the year 1972(1.38 ha). The maximum negative percentage change was found to be observed in case of medium and other farms (-36.78%) followed by marginal (-31.82%) and small farms (-23.89%)in the year 2019 over the year 1972.

📖 Due to introduction of irrigation, area of crops under irrigated condition was found to be increased by 55.45 per cent while the area under crops under un-irrigated condition was found to be decreased by 35.14 per cent in the year 2019 as compared to 1972 in the village. In irrigated condition, the area under all the crops was found to be increased

except oilseeds during the period. The maximum change in area under crops was found to be observed in pulse (1682.35%) followed by paddy (67%), wheat (34.73%) and vegetables (62.46%). In case of un-irrigated condition, area under all the crops was found to be decreased except oilseed and paddy.

- The growth of area under oil seed (123.67%/year) was found to be increased more as compared to pulses (3.03%/year) and cereals (0.36%/year). The area under fruits showed infinite change in growth because of the area under fruits in 1972 was nil. The growth of area under vegetables was found to be decreased with the average annual growth rate of 2.13% per year in the village.

- The productivity of all the crops under irrigated and un-irrigated was found to be increased in the year 2019 as compared to 1972. In irrigated condition the maximum increases in the productivity of vegetables (356.92%) followed by paddy (101.59%), wheat (52.51%), chickpea (43.39%), lentil (29.92%) and oilseeds (20.16%) was observed in the village. Under un-irrigated condition the maximum change was also observed in productivity of vegetables (381.32%) followed by paddy (157.35%), oilseeds (96.60%), blackgram (71.43%), wheat (70.92%), and lentil(27.78%).

- The complete specialization of crop areas different size of farms was found in the village. The farmers were found to grow in Kharif (Paddy, black gram & vegetables) and in Rabi season (wheat, chickpea & vegetables). The cropping pattern of the village these was found to be no change in cropping pattern of the village during the last five years, however 5 per cent farmers were found to replaced crop varieties of major crops with the experience that new varieties used to provided more yield and have disease resistance.

8.1.4 Ecology, Vulnerability and Sustainability

- The village have rich in flora and fauna. In flora **Plants** (Bel, Custard Apple (Sitaphal) , Achar, Tendu, Mahua, Mango, Aonla, Jamun, Imli, Babul, Khair, Palas, Arjun, Sagon, Amaltas, Shisham, Pipal, Banyan tree, Guava, Banana, Pomegranate, Nilgiri (eucalyptus), Gulmohar, Maringa, Neem&Baboo), **Shrubs** (Karonda,Sage, Aak, Satyanashi (prickly Poppy) & Jharberi), **Crops** (Paddy, Wheat, Chickpea, Lentil, Pea, Pigeon Pea, Lathyrus, Brinjal, Potato & Tomato), **Weeds** (Bathua, Nut grass, Striga, Kaans& Dub ghas), **Aquatic Plants** (Lotus, Water cress & Mosquito fern) and **Flowers** (Rose, Jasmine, Marigold &Crepe jasmine (Chandani)) are present, while in founa**Livestock** (Cow, Buffalo & Goat), **Pet Animal** (Dog),

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Others (Pig , Cat , Mouse & Squirrels), **Wild Animals** (Rabbit, Fox, Monkey & Deer), **Birds** (Poultry Birds, Owl, Sparrow, Cuckoo, Crow, Parrot & Pigeon) and **Aquatic Organisms** (Fish, Crabs, Frog &Micro organisms) are present in the village.

- The village was found to be mostly flat, somewhere undulated. There are some plateaus in the village which were found in the forest and fallow land. The village has clay- loam type black and yellow colour, soil popularly known as 'Dumatta'. Owing to its structure is sub-angular blocky. The soil is suitable for crops like paddy, wheat, gram, lentil and vegetables. Villagers were found to fulfill their requirement from the forest of firewood, timber, grazing of livestock etc. People who were found to belong to below poverty line used to collect gum, regains, anola, mahua, tendupatta etc. from the forest as Common Property Resources and earn money.

- The milch animal population was found to be increased in village in recent survey. The percentage increase in milch animals (cow and buffalo) in the year 2019over 1972was found to be around 12.28 and 169.23 per cent respectively. The goat were found to be increased only by 2.94 per cent in village. The number of bullocks were found to be declined 72.51 per cent in village as agricultural work is now being completed with machinery like tractors and other implements, whereas in previous survey bullocks were helping in agriculture activities from sowing to harvesting of the crops. The poultry birds were also found to be declined by 92.13 per cent.

- In the beginning of Green Revolution, during the last survey 1972-73, only few farmers were use fertilizers, that too in very small quantity. Farmers were found to start using fertilizers and chemicals in the right doses since 90s'. Fertilizer and pesticides were found to be sold in the market by different companies of various (chemical compositions) due to which it becomes very difficult to find appropriate rate of these pesticides. In present time rates of pesticides were also found to be increased considerably resulting into increase in cost of cultivation of crops.

- Due to the availability of irrigation water chemical fertilizer and pesticide were found to be used in high proportion for high production in the village while during previous survey most of the farmer's were using farm yard manure with minimum doses of chemical fertilizers for getting high production. During current survey, the majority of farmers were found to use mainly two fertilizers i.e. Urea (46%N) and D.A.P. (18%N, 46%P). As government provided subsidy for purchasing of NPK fertilizers, some farmers were also using micro

nutrients.

- The very erratic rainfall was found in the village during last 5 years according to vulnerability of rural group. The most vulnerable groups were the farmers &labours. Businessmen and trade persons were the least vulnerable groups among the villagers. The most vulnerable crops were field crops and vegetables, while fruits were least vulnerable crops in the village.

- The villagers never faced any type of epidemic and severe diseases in the village. After coming Ayurveda Hospital (1965) health facilities was found to be implemented in the village. Now it is known as AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy) but currently thiscentre found to provide only ayurvedic treatment. Other dimensions will start soon. One sub-health center was providing medical facilities to villagers.

- Even the villagers have not faced any severe disease or epidemic but the some peoples of the village suffered from seasonal diseases like Malaria, viral fever, cough & cold. On the other hand few persons were reported diabetic, heart diseases in the village. Some villagers were surviving sickness due to old age. The residents of the village were of the opinion that now medical facilities are expensive. They said that on an average 3 to 5 percent of their annual income is spent on medical treatment.

8.1.5 Policy and Governance in the Village

- The coverage of BPL Card, PM Kishan, Old age pension, Widow Pension, PM Ujjala and Ladli Laxmi Yojna Schemes was reported to be 100%in the village. The cent-per cent HHs related to KCC Card, Govt. Scholarship Scheme, Govt. housing Scheme, Old age pension Scheme and PM Ujala and MSP/PM AASHA Scheme were reported that they were satisfied with the facilities provided under these government sponsored schemes.Apart from these schemes the majority of HHs were also satisfied with Public Health Insurance Card (50%), Soil Health Card (30%), MGNAREGA Job Card (65%), Mid-Day Meal (72.12%), PMKSY (35%), Life Insurance (35%), PM Kishan (95.20%), Widow Pension Scheme (78%) and Farm Loan Waiver Scheme (20%). None of the HHs reported his satisfaction related to Farm Pension Scheme, PMFBY, Farm Machinery and Implements and PMKBY (Organic Farming) Schemes in the Village.

- The majority of the HHs were found under low power structure (34.05%) as compared to medium (25.77%), top (20.25%), high (11.04%) and very low power structure (8.90%) in the village. The main reason of top power structure was found to be qualification

(41.25%) followed by economic condition (28.40%), caste (16.20%) and political affiliation (14.15%) as reported by the majority of HHs. The majority of HHs found to be taken advice related to their livelihood and Social problems from relatives followed by friends, neighbour and subject specialist, while issues related to education and legal problems, the majority of them taken advice from Subject Matter Specialist followed by relative, friends and neighbours. The majority of HHs reported that their caste/gender/political deprivation (58%) was found increase and incidence of disease, and medical expenditure also increased in the family (81%) during last five years but no change in rainfall pattern/air pollution (73%) was observed in the village.

□ The lack of cottage &small scale industries (60.20%), huge increase of alcohol consumption, playing cards and other illegal activities (60.00%), specialized farming (55.50%), low cropping intensity (52.50%), poor economic condition (44.48%), absence of FPOs/SHGs (40.00%), poor management of crop and live stocks (36.70%), un-employment (31.70%), lack of technical knowhow regarding crop & livestock management (28.00%), poor sanitation and sewage system in the village (25.20%), trouble with dirt in and around the ponds & canal (18.00%),

dilapidated building of sub health & Ayush center (18.00%), terror of wild beasts specially monkies (15.00%), irregular supply of water through tap (14.00), panic of stray animals (12.00%), and Lack of street light facility (5.00%) were found to be major problems of the village as reported by the majority of Hhs.

□ Proper implementation of govt. scheme (70.11%) followed by strong administration (66.13%), training to village secretary regarding all the government & other schemes related to agriculture and rural development (65.92%), establishment of processing units for paddy and wheat (55.88%), introduction of more value crops in *rabi, kharif* & summer seasons (55.36%), strong extension services provided for crop & livestock enterprises (54.78%), wild animal issue in agriculture needs to be solved (48.22%), better management of sanitation and sewage (35.29%), introduction of integrated farming system to enhance family income (32.45%), establishment of SHGS/FPOS for upliftment of rural youth and women (30.35%), re-construction of dilapidated buildings of sub-health and Ayushcentre (20.71%), establishment *kanji* house for stray animal (20.35%), introduction of agro-forestry & organic farming (15.63%) in the village, introduction of MSME or

other employment scheme required for establishment of cottage & small scale industries in the village (10.64%) and continue supply of electricity for farm and industries (10.28%) were the remedial measure to solve problems reported by the majority of HHs.

8.2 POLICY IMPLICATION

Looking to the above findings following policy suggestions emerge from the study:-

⌖ Cultural, sound and sport activities should be organized time to time in the school involving all the students. The population of children was found to be declined during the period under study in the village which shows that there is an effective implementation of family planning in the village.

⌖ The population of cultivators was also found to be declined in the village due to availability and accessibility of non- farm and off- farm employment near the village. There is a need to form the SHGs for connecting cultivators and making them aware about various business activities.

⌖ The sex ratio was found to be improved during the period under study in the village due to effective implementation of the Betibachao Betipadhao scheme of the State Government

⌖ The birth rate among APL was found to be increased as compared to BPL during the period under study in the village which shows that there is a need to make BPL families aware about the various child care schemes of the Government of Madhya Pradesh and India.

⌖ The students of private schools were found to be superior than government school in both the vernacular languages (Hindi and English), which shows that efforts should be made to a need to strengthen the standard of government schools as good over and above private schools to improve the competency of the students in the village.

⌖ The reading as well as arithmetic componentency beyond 5th and 6th standard was found to be hundred per cent in the students of private as well as Government schools, respectively in the village during the period under study. The reading competency of boys and girls was found to be at-par across schools and vernacular languages in the village. In case of arithmetic competency the students of private schools were found to be superior to the government school and boys were performed better than the girls. Altogether 50% students across boys and girls can read paragraph and do simple division.

⌖ Education standard of the government schools is required to be enhanced with all respects particularly be 100 per cent attendance of teachers as well as students

should be ensured. Best quality mod day meal with day to day variation in taste should be provided keeping In view the balanced diet of the standards.

⌇ Online portal of government seed distribution agency needs to be created to show the variety wise and class wise availability of seed with the facility of online purchase/booking.

⌇ Literacy must be pre-requisite while selecting the members for program related to agriculture and rural development. Hence some key persons should be involved for effective implementation of the programme.

⌇ Labour for agriculture is becoming serious problem now a day in the State due to implementation of the MGNREGA and other social welfare schemes. There is a need to stop the MGNREGA work during the critical labour intensive activities of the agriculture and need to stop social welfare schemes which are making persons lazy/ idle and creating the environment of no work culture which ultimately leads to inculcate antisocial practices amongst them which will create the problem for social harmony in the long run.

⌇ Need based training programme based on the agriculture related problem of the

area must be organized for the field staff of the agriculture department followed by producer before the start of the season in the KVK. The whole training must be designed taking the view of the field staff and producers of the area which will directly reflect into the productivity of crops.

⌇ It is also found during the course of investigation the field staff was not able to achieve the targets related to productivity mission due to duplicity of same work viz. distribution oh HYVs seeds, formation of SHGs etc. by the field staff of other departments viz. agriculture, horticulture, veterinary etc.

⌇ Efforts should be made to introduce need based integrated farming system. At least a farmers Producer Company and a Custom Hiring Centre are required to be established in the village.

⌇ Proper awareness of various govt. scheme among the students, rural youth and farm women are required to be created in the area.

⌇ All the developmental programme/ activities must be covered under an umbrella of the village in the leadership of panchayat secretary with proper convergence and synergy between the line departments.

ANNEXURE-I

COMMENTS AND ACTION TAKEN ON THE REPORT SUBMITTED BY

Agro-Economic Research Centre, Jabalpur Madhya Pradesh

1.	**Title of report**	Village Study in Katni District of Madhya Pradesh (Piprodh Village)
2.	**Date of receipt of the draft report**	26 June 2021
3.	**Date of dispatch of the comments**	03 August 2021

4. **Comments on the Title of the Study**

In order to maintain symmetry and as discussed in the methodology workshop a uniform pattern of Title should be used. Thus the title may please be revised as: *Village Survey Study in Madhya Pradesh (Piprodh Village)*

Action : Corrected as suggested

5. **Comments on the objectives**

The specific objectives framed for the study are in the tune of overall objectives supplied by the Coordinating Centre (AERC, Visva-Bharati).

6. **Comments on the methodology**

Methodology followed in the study is, by and large, in tune with the stated objectives and as supplied by the co-coordinating centre. This village re-survey has been one of complete enumeration of 326 households (out of 332 households in the village). The study has used all the suggested analytical tools including ASER tool kit for assessing the educational attainment of children.

Action : Correction made as suggested

7. **Comments on analysis, organization, presentation, etc.**

a. The overall presentation of the report is very good. Detailed and worthy presentation is undertaken as to the overview of the Piprodh Village. A brief review of literature on the earlier works done along with base line background information for the village is provided. Also, detailed analysis is undertaken and organized as required to satisfy the objectives of the study.

b. However, following corrections are needed:

I. The study has generated huge database that are well presented too. But the discussion on the findings requires more in-depth interpretations, particularly for the driving forces of changes over time. For example:

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Village Survey Study in Madhya Pradesh (Piprodh Village)

✓ In Table 4.1, the growth in total population in the village is a little higher than 100%, but why the growth in marginal workers is more than 10 times? What are the implications of such changes in occupational pattern?

Action : Corrected as suggested

✓ Any explanation for why there is severely adverse sex ratio (772) for SC households but the same is very favorable for OBC communities (1048)?

Action : Corrected as suggested

✓ It is seen that the female literacy has increased by more than six times. What are the driving forces? Please give some explanations.

Action : Incorporated as suggested

✓ The changes in the structure of population (age group-wise distribution) are better presented with standard graphs. In order to improve the visual presentation, and if possible, please try to present through age-distribution graph (population pyramid). A distribution in favor of younger population has a significant demographic dividend. It seems from the findings that the age distribution has changed towards aged population. Interpret the findings accordingly.

Action : Incorporated as suggested

✓ Reading and basic arithmetic are fundamental building blocks of learning. The main purpose of using ASER toolkit is to identify the learning gap/deficiency among the school going students. Based on field experience, find out the group/categories of students with higher level of deficiencies, know the reasons and please suggest how to overcome the problem.

Action : Incorporated as suggested

✓ In Table 5.10, the average number of crops grown per household is 3 to 6. Then, Simpson Index cannot be zero. A Simpson Index of zero indicates only mono-cropping round the year. Please check and rework the whole table. Further use of crop diversification indices at household level is having different meaning than at village level. Individual farmers may be specialized farmer in one particular crop, but that does not restrict a village to be diversified.

Action : Corrected as suggested

✓ Since one of the purposes of this study is to provide longitudinal data, in 6.1.3 and if possible, please include the water quality parameters too for the recent year. The CGWB reports having such information (well wise in every block).

Action : Incorporated as suggested

✓ The reason behind very high imbalance use of N, P, K (in Table 6.4) in wheat and paddy need some explanation.

Action : Incorporated as suggested

✓ Table 7.1 shows differential performances of different schemes in the village both in terms of coverage as well as level of satisfaction among the beneficiaries. Please mention, the group/categories of households who are deprived most and why?

Action : Incorporated as suggested

ii. There are a few typographical errors in write-up that needs correction. For example:

• In 3.1.7.1 sub-section it is written as 1438 HHs, which should be total population.

Action : Corrected made as suggested

• Mention the unit used in Table 5.10.

Action : Corrected as suggested

• Table 7.2 may be missing. Other-wise check the Table numbers.

Action : Incorporated as suggested

iii. The executive summary is missing. Please add the same.
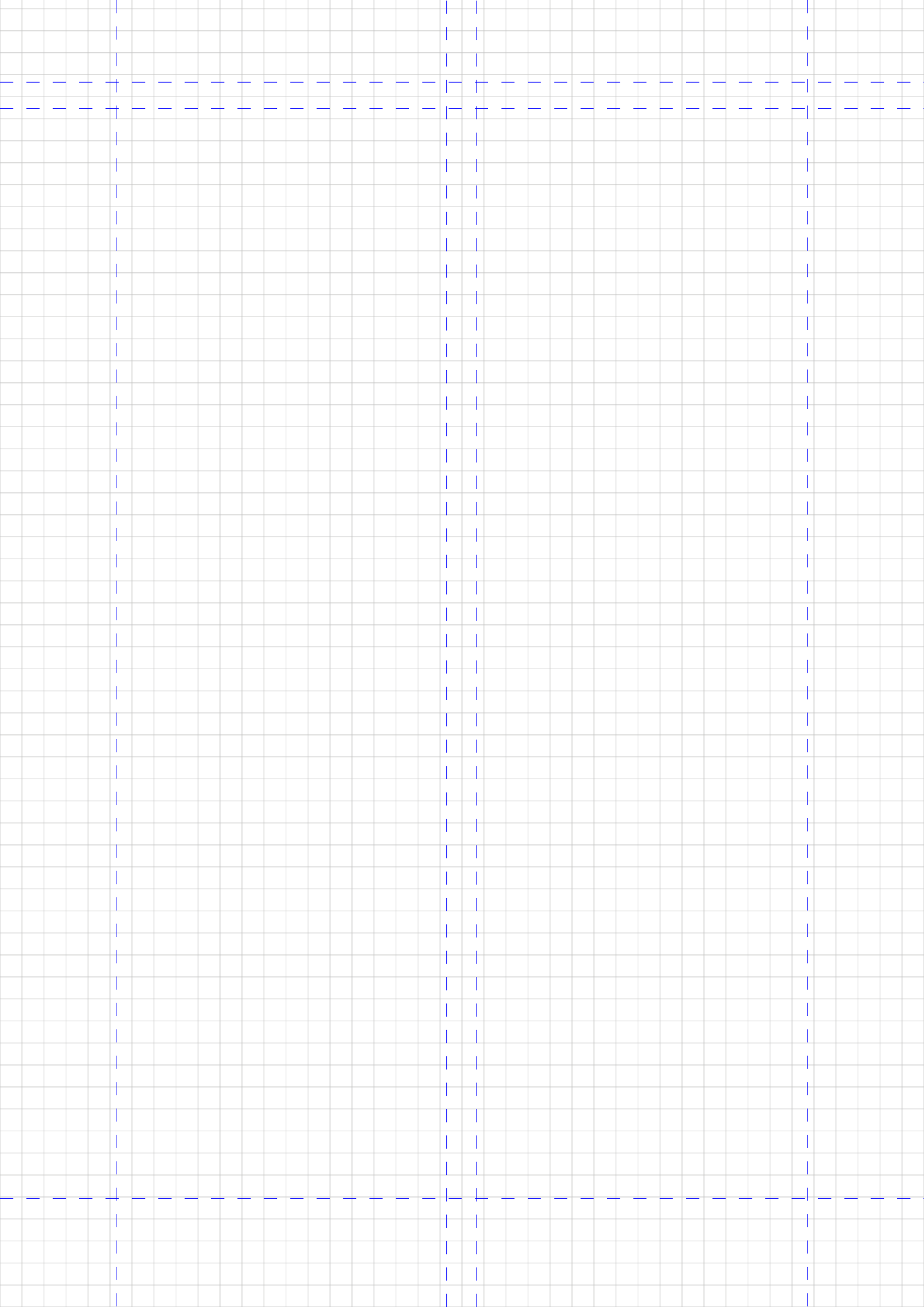
Action : Incorporated as suggested

8. Overall view on acceptability of report

The overall quality of the report is very good and covered most of the issues decided during the Initiation Workshop held at IEG, Delhi and in the Methodology Workshop held at AERC, Visva- Bharati, Santiniketan. The report is very informative and the researchers have collected huge amount of information. The research team deserves credit for conducting the field survey even under Covid-19 situation. The report may be accepted after making necessary corrections as suggested above.
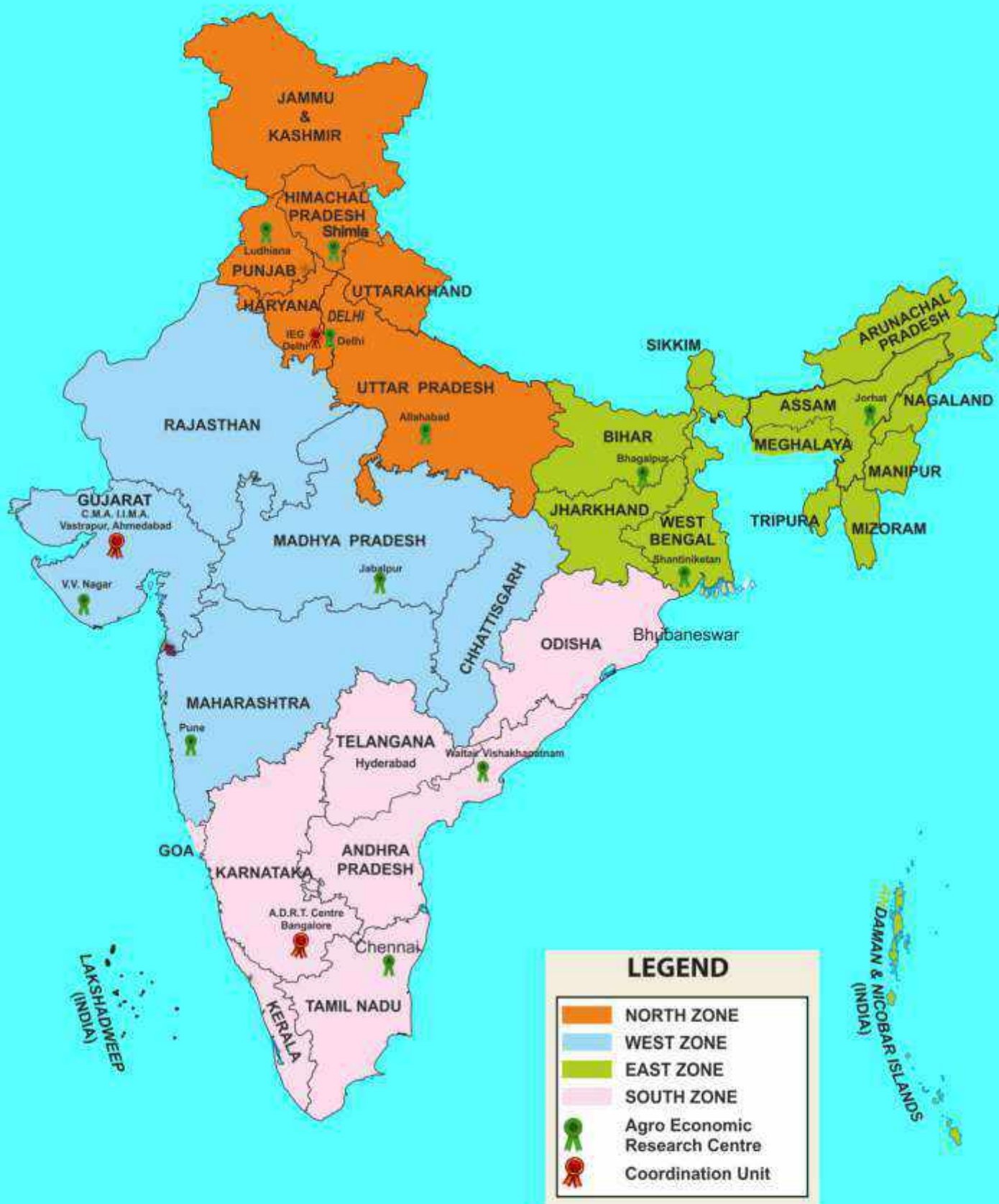
Bidhan Chandra Roy

Hony. Director

AERC, Santiniketan

LEGEND

- NORTH ZONE
- WEST ZONE
- EAST ZONE
- SOUTH ZONE
- Agro Economic Research Centre
- Coordination Unit

Agro-Economic Research Centre for Madhya Pradesh & Chattisgarh

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