

Village Survey Study in Gujarat
(Moti Khadol, Kheda District)

S. S. Kalamkar, K. M. Kapadia and T. B. Parihar

All India Study Coordinated by
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AERC VILLAGE RE-SURVEY REPORT 06

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Foreword

One of the important areas of research for the Agro-Economic Research Centres has been a systematic study of the content and direction of change taking place in the rural economy of India. The village surveys and then resurvey were conducted by the AERC network during the first two decades after independence to create a longitudinal panel data set, to capture the socio-economics of the village, conditions and structure of rural India as well as management and economics of farming. Subsequently, other government and non-government agencies at national as well as international level also started collecting the village data with interval time period. AERC network focus of research effort in the initial stage which was on comprehensive village surveys and resurveys was subsequently shifted to problem oriented studies and evaluation of schemes implemented by the Government of India from time to time. However, village data generated by the various government departments or the data generated through population censuses or through large scale nation-wide surveys done by the National Sample Surveys could not serve the essential purposes of understanding the broad general purpose of larger contexts. This realization led to change in focus back to undertake the comprehensive village surveys and resurveys by the Directorate of Economic and Statistics, Ministry of Agriculture and Farmers Welfare, Government of India through its AERC network. As our AERC is mandated to cover the states of Gujarat and Rajasthan, Ministry of Agriculture and Farmers Welfare, Government of India entrusted us to undertake 'Village Survey Study in Gujarat covering the Moti Khadol village, Kheda District of Gujarat.

The Charotar tract of Gujarat is known all over the country as the land of highly fertile soil and intelligent, enterprising and resourceful farmers who have made fortunes out of the business of cultivation. The prosperity of the region, as a whole, is due, in no small measure, to the cultivation of tobacco which is the chief commercial crop of the area and for which the soil of the region is particularly suited. Indeed, tobacco holds such an attraction among the farmers that it finds a place in the cropping pattern even of the very small cultivators. Because of pursuit of commercialized farming the adoption of improved agricultural practices has also been widespread and the use of chemical fertilizers and irrigation, in particular, has become very common.

The prosperity of the tract, however is also due, to a significant extent, to the pursuit of dairying as an important ancillary occupation. The establishment of "Amul" dairy has proved to be a very important factor in orienting dairying of this area to the market. The wide network of milk collection cooperatives set up all over the district provides an easily accessible anti a ready market for the milk produced in villages; the prompt payments in cash for milk deliveries put much needed cash in the hands of farmers; the

facilities for provision of veterinary, services and improved cattle feed at door-step of the dairymen have helped considerably in improving the health and vitality of the milch animals.

Moti Khadol village in the Nadiad taluka of the Kaira district is one of the many villages of the Charotar tract which had been fortunate in having a milk collection centre for supplying milk to "Amul, established within its boundaries. The other agricultural characteristics of the Charotar region described above exist in Moti Khadol also but what is more important and what is not so commonly found in most villages of our country is the leadership which is progressive, dynamic and dedicated to the work of village development. The leaders of Moti Khadol were young and fairly well educated and the various schemes which were undertaken under the auspices of the village panchayat, the cooperative service society and the cooperative milk producers' society in the village testify to their imagination and constructive abilities. The task of the leaders in Moti Khadol has been facilitated by a high proportion of literacy and education.

Even in such a progressive village the social harmony among the leading communities was lacking. The minority Christian community was harboring a feeling as neglect and apathy. This can easily give rise to social tension and jeopardise economic growth. The village leadership was made aware of the growing resentment among this section of the village community. It will be of interest to know how the village leadership reacts to this situation. It is to be hoped that steps will be taken to assuage the feelings of this minority group and the work of development which has been taken up so earnestly will be completed to the satisfaction and benefit of all sections of the village. How far this hope is realized will be revealed in the report on resurvey of the village which would be carried out after a reasonable period of time. In the meantime, we hope the present report will be found useful in getting a picture of the economic conditions of a typical village in the Charotar tract.

I am thankful to authors and their research team for putting in a lot of efforts to complete this excellent piece of work. I also thank the Directorate of Economics and Statistics, Ministry of Agriculture, Government of India for the unstinted cooperation and support. I hope this report will be useful for those who are interested in understanding the village survey in Gujarat.

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We have benefited immensely from various scholars and officials from different government departments while carrying out this study. At the outset, we would like to thank **Prof. Shirish Kulkarni**, Vice Chancellor of our University and Chairman, AERC Governing Body for his constant encouragement and support for undertaking such research activity at the Centre. We also thank **Dr. Jyoti Tiwari**, Registrar (In-charge) and **Dr. Bhautik A. Patel** (Deputy Accountant) of our University for their administrative support for this project.

We are grateful to the coordinator of the study, **Prof. Bidhan Chandra Roy, Honorary Director**, Agro-Economic Research Centre, Visva-Bharati, Santiniketan, Birbhum Santiniketan, West Bengal for providing required support, study framework and necessary inputs in completing the study.

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List of Abbreviations

\$	- Dollar
AAY	Antodaya Anna Yojana
ACZ	- Agriculture Climatic zones
APL	Above Poverty Line
APMC	- Agricultural Produce Market Committee
ASER	Annual Status of Education Report
ATM	Automated Teller Machine
Av.	- Average
BCG	Bacille Calmette-Guerin
BJP	Bhartiy Janta Party
BMI	Body Mass Index
BPL	Below Poverty Line
BQ	Black quarter
BSP	Bahujan Swajwadi Party
CB	- Cross Breed
CCS	- Cost of Cultivation Scheme
CGR	- Compound Growth Rate
COC/CoC	- Cost of Cultivation
DCS	- Dairy Cooperative Society households
EI	Entropy Index
EIA	- End Implementing Agency
FGD	- Focus Group Discussion
GCA	- Gross Cropped Area
GDP	- Gross Domestic Product
GOI	- Government of India
ha	- Hectare
hh/HH	- Household
HI	- Herfindahl Index
HYV	High Yielding Varieties
ICDS	Integrated Child Development Services
INL	Indian National Lokdal
IPD	In-Patient Department
KCC	Kisan Credit Card
LF	Large Farmer
LTPD	- Litres per day
M.T./mt	- Metric Tone
MDF	Medium Farmer
MEI	Modified Entropy Index
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act"
MSP	- Minimum Support Price
NABARD	- National Bank for Agriculture and Rural Development
NCF	- National Commission on Farmers
NDR	Naurangdesar Distributary
NPA	Non-Performing Asset
NSA	- Net Sown Area

NSSO	- National Sample Survey Organization
NUDRA	Micro Units Development and Refinance Agency
OBC	Other Backward Class
OPD	Outpatient Department treatment
PMFBY	Pradhan Mantri Fasal Bima Yojana
PMKSY	Pradhan Mantri Krishi Sinchayee Yojana
PMKVY	Pradhan Mantri Kaushal Vikas Yojana
PPS	- Probability Proportional to Size
RajSWAN	Rajasthan State Wide Area Network
Rs.	- Rupees
RSCIT	Rajasthan State Certificate of Information Technology.
RSRTC	Rajasthan State Road Transport Corporation
SAS	- Situation Assessment Survey
SAUs	- State Agricultural University
SC	- Scheduled Caste
SF/MF/AL	- Small Farmer, Marginal Farmer, Agricultural Laborer
SHG	Self Help Group
SI	Simpson Index
Y	- Yield

Executive Summary

Village Survey Study in Gujarat-Moti Khadol, Kheda District

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1. Introduction:

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. 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 and useful source of basic information about villages. Thus, it is this realization that led to a spate (series) of village surveys by various Agro-Economic Research Centres of the Ministry located at different States of India, one among them is our Centre.

The present village resurvey work was undertaken in the village of Moti Khadol of Mauda tehsil of Kheda district of Gujarat which was first surveyed in 1964 (Desai, 1967) covering data year 1962-63. Initially it was planned to conduct a bench-mark survey of social and economic condition of Moti Khadol village prior to the establishment of a Milk Producers' Cooperative Union under the auspices of the Kaira District Cooperative Milk Producers' Union (or popularly known as "Amul") in the village in 1962-63 in order to study the impact of this milk marketing agency on dairying in particular and on the village economy in general through a resurvey of the same village after about five years. This, however, could not be done because the Union had not chalked out a definite programme of the villages which it would cover during the coming few years. As the second best alternative the villages in which the Cooperative Milk Marketing Societies had just been organized was considered. Accordingly, out of three villages (Moti Khadol in Nadiad Taluka, Lasalwada and Ishwarpura in Kapadwanj taluka) where the societies had just begun and which satisfied the general condition for inclusion in the programmes (viz, the manageable size, approachability, potentiality of growth, etc.), Moti Khadol was selected for the comprehensive socio-economic survey and survey was conducted with data year 1962-63. This is re-survey report of same village conducted in 2019-20.

2. Data and Methodology:

This study is based on both primary and secondary level data. The secondary data were collected from the government publications (Primary Census Abstracts, Agricultural Census, Livestock Census, etc.), online databases and published reports

and research papers and related websites. The required secondary data were also collected from the offices of State, district, tehsil, development block, village and village level institutions. The primary data were collected from the village households of selected village by survey method through five types of survey schedules.

As per the study designed suggested by the Coordinator of the study, one village from the list of villages already surveyed before and was moderately developed was selected. As mentioned in earlier chapter, initially it was planned to conduct a bench-mark survey of social and economic condition of Moti Khadol village prior to the establishment of a Milk Producers' Cooperative Union under the auspices of the Kaira District Cooperative Milk Producers' Union (or popularly known as "Amul") in the village in 1962-63 in order to study the impact of this milk marketing agency on dairying in particular and on the village economy in general through a resurvey of the same village after about five years. This, however, could not be done because the Union had not chalked out a definite programme of the villages which it would cover during the coming few years. As the second best alternative the villages in which the Cooperative Milk Marketing Societies had just been organized was considered. Accordingly, out of three villages (Moti Khadol in Nadiad Taluka, Lasalwada and Ishwarpura in Kapadwanj taluka) where the societies had just begun and which satisfied the general condition for inclusion in the programmes (viz, the manageable size, approachability, potentiality of growth, etc.), Moti Khadol was selected for the comprehensive socio-economic survey and survey was conducted in 1964 covering data year 1962-63 and report was published in 1967 (Desai, 1967). This is re-survey report of same village conducted in the year 2019-20 and report submitted in 2021.

3. Profile of the Selected Village

Moti khadol is one of the 41 villages in the Mahuda Taluka in the Kheda district of Gujarat State.. Moti Khadol village is situated 5 km away from sub-district headquarter Mahudha and 23 km away from district headquarter. From Nadiad, the village is at a distance of 22.4 kilometers in the north-east direction while from Mahudha, the thana headquarters and the nearest marketing centre (for food crops) and the railway station the village is only 5.6 kilometers in the east. The geographical area of the village is 278.7 ha. Moti Khadol village is situated in semi-arid climate in middle agro-climate zone of the Gujarat. The climate here is considered to be a local steppe climate. The average minimum temperature during winter season (November to January) was around 29 °C in year 2019 while during summer season; temperature was around 49 °C. May month is always hottest month and January is the coldest month of the year. The annual temperature of the Moti Khadol village ranges between 30 to 45 per cent. Temperatures vary considerable from season to season. As per climatological data of nearest Indian Meteorological Department (IMD) Station at Ahmedabad (Latitude 23°04' N: Longitude 72°38' E), the summers are generally hot and winters are cool. Means maximum temperatures ranges between 28.4°C during January to about 41.8°C during May and the mean minimum temperatures vary between 11.7°C during January and 27°C during June. The relative humidity in Anand as per IMD varies between 32 per cent during March and 79 per cent during August. The wind velocity in the district varies from about 74km/d during November and 174 km/d during June. There is not much rainfall in Kheda all year long. The annual rainfall is 788 mm.

3.1 Demographic Profile of the Village

Moti Khadol is a medium size village located in Mahudha Taluka of Kheda district, Gujarat with total 221 families residing having total population of 965 of which 495 were males while 470 were females as per Population Census 2011. Out of the total population, schedule Caste (SC) constitutes hardly 0.93 per cent of total population of village while village did not have any Schedule Tribe (ST) population. The population of children with age 0-6 was 102 which make up 10.57 per cent of total population of village. The average sex ratio of village was 949 higher than Gujarat state average of 919. Child Sex Ratio for village was 1040 which was higher than Gujarat average of 890. The village had higher literacy rate (87.72 %) compared to Gujarat (78.03 %), of which rate of male literacy stands at 95.28 per cent while female literacy rate was estimated to be 79.67 per cent. Out of total population, 450 were engaged in work activities, 88.67 per cent of workers describe their work as main work (employment or earning more than 6 months) while 11.33 per cent were involved in marginal activity providing livelihood for less than 6 months. Of 450 workers engaged in main work, 151 were cultivators (owner or co-owner) while 158 were agricultural labourers. Total marginal workers of village were 18.2 per cent of total workers in the village

3.2 Livelihood/Employment and Migration Status

The village has developed over the period. Most of the people in the village have settled outside (such as Ahmedabad, Vadodara, Surat, Nadiad, USA etc.) and the main reason for migration was children's education and jobs. While livelihood of the village is mainly based on agriculture and animal husbandry activities along with support of rural artesian trade especially leather crafts, wood, and caste based profession, and wool established in the village. The rearing of livestock is being done at large scale i.e. each household has two to three milch animals. In general, each household has its own transport facilities. During 1962-63, it was observed that total 96 persons belonging to households had out migrated from Moti Khadol while 105 persons in 22 households were immigrants to the village. During recent survey in 2020, same trend was observed wherein out of 233 households, 31 households have reported migrated specially Patel youths have migrated to abroad such as London/Canada/US/Africa for better opportunities as a service/business and many young boys and girls had gone abroad on student visa for higher studies. No case of immigration has been reported.

3.3 Agriculture and Livestock Resources in the Village

- The total geographical area of Moti Khadol village was reported to be 278.7 ha, of which 74.78 per cent area was reported to net sown area (208.4 ha). The net irrigated area accounted for the 96.1 per cent of net sown are mostly through canal and followed by tube well.
- Irrigation facility on which the whole process of agricultural transformation hinges has enlarged during last five decades or so. The irrigated area by the Moti Khadol has increased to 96 per cent of total net sown area in 2011. All the net sown area is irrigated by the groundwater (tube-well). The flow of water is very good so that most of the farmers irrigated area with flood irrigation method whereas negligible area was irrigated with micro irrigation system like drip/sprinkler. No solar irrigation pump is reported in the village. Water rate for irrigation from tube-well is Rs. 60 per hour.

- The proportion of the area under food crops to gross cropped area was estimated to be 75 per cent. Generally, farmers of village are cultivating mostly single crop in a year, i.e. Tobacco which fetches them good returns with high productivity along with paddy and bajra on small area.
- Under land tenure system, leasing-in and leasing-out tenancy with share cropping basis of the output is prevalent among the land holders of Moti Khadol village. Under land reform measures, consolidation of holdings was done many year ago in the village. The rate of leased-in for irrigated and rainfed land for one year is reported to be Rs. 7000 to 8000/per bigha/per year and Rs. 5000/per bigha/per year respectively.
- Total livestock population in village in 2019 was 333 of which 68.5 percent were cattle, 28.2 per cent were buffalo, and 3.3 per cent were goat.

3.4 Developmental Institutions & Infrastructure

- The Panchayat was housed in its own building. At present nine-member gram panchayat is in place having five members from general category, three members from SC category, one from OBC category. The last election was held in 2017. There were 875 voters in the village. Grants was received for welfare work from 17th Finance Commission and MLA account.
- Moti Khadol Dudh Utpadk Dairy has presently 272 members of which 250 were the milk pourer. Dairy society has its cattle feed godown in village.
- Village has primary school up to 5th standard schooling which was demoted from 7th class because many villagers were interested to send their children in private English medium schools. The total student in school is 47 in 2019-20 and two teachers were posted in village.
- There is no bank or ATM facility available in the village, as Mahuda tehsil place is very close to village.
- No social organisation such as SHGs and farmer's clubs are reported working in village. Two SHGs (Mahakali SHG and Jayanti SHG) were functioning in Village which got closed seven years before due to lack of deposits/money.

3.5 Village Infrastructure

- In village, there is no provision store, so villagers have to go to Mahudha market to purchase the item. Even there is no facility of any bank.
- There is no post office in village. There are no facilities of government dispensary or PHC in this village.
- The main problem of this village is the high total dissolved solids (TDS) in the water thus the villagers have to fetch drinking water from outside of village, i.e nearby Nani Khadol village is the main source of drinking water towards which Rs. 100/- per hh per year charges are being paid by the villagers. Besides, the tube-wells in nearby farms are also used. Village has own RO plan system but it is currently closed. Groundwater level in the village is around 55-60 feet but water has high TDS content. Water and Sanitation Management Organization (WASMO) has visited the village but no such report is available in gram panchayat.
- No public distribution system ration shop was available in village. Same was available in nearby village which is 1 km away, i.e. Nani khadol.

3.6 Cultural Profile of the Village

- The popular Gujarati festivals like Navratri (Nine Nights), Janmaasthmi (Lord Krishna's birth anniversary), Maha shivratri etc., the folk entertainments such as Garbaas, Bhajan etc., were organized in the village.
- The village has eleven temples and two churches. The Swaminarayan temple is at its gate.
- During current survey, some rigidity was observed across the religion and caste groups. Patel's were living in separate section while others were living in mixed localities. Also Patel's never send their children to school located in village
- No illegal activities are reported in this village. During the survey, it was observed that peoples of this village are very polite and helping nature. The most of youngsters are well educated and participated in every social work. However, some of the villagers have started consuming liquor and around 250-300 village consume 'Gutkha Pan Masala'.

4 Social Dynamics

4.1 Profile of Selected Households:

- The average number of persons per household was worked out to be 4.62 which was almost the same as the average size worked out on the basis of 1961 census figures.
- The population of village has increased by 45 per cent in 2020 over 1961. Over the period, there was slight decline in average size of household til 2011 which was little bit improved in 2020 as per our survey. In re-survey of selected households, it was very surprising to note that the population of children (0-6 years) population to total population has decreased by 3.8 per cent points, which was 12.9 per cent in earlier survey has dropped to 9.0 per cent only. The rate of literacy has also increased in current survey, particularly significant increase in female literacy was achieved.
- As per benchmark survey, there were 213 residential houses while 17 other were used for both residential and cattle shed purposes. Thus, 158 households in Moti Khadol lived in 230 houses; meaning there by that some households owned or used more than one house. Out of the total households in villages during 1962-63, 40 per cent houses were kuccha and 47.4 houses were of mixed nature. Thus, remaining 12.3 per cent households were pucca in nature. The recent survey 2020 data indicate the drastic change in the socio-economic status of villagers as almost three fourth of households are pucca in nature while remaining were either kuccha or mixed type.
- It was very strange to note that during the benchmark survey, 57.6 per cent families were reported as nuclear families and almost same proportion has been reported in resurvey in 2020. Most of the nucleated families are reported in Christian community. As observed in other places, families are getting nucleated over the period of time which is not seen in this village.
- The distribution of population in age group 0-15 years together has significantly declined in recent survey over base period (from 37.76 per cent in 1962-63 to 21.84 per cent in 2019-20) indicates the adoption of concept of smaller family size. While there is increase in population in the age group of 36-55 years means working population has increased by almost 7 per cent points and thus rural economy has also improved in recent survey. Children

population has declined significantly showing demographic structure change in village means generally people want to have 1 or 2 child only which was observed during the current survey. While increased share of population in the age group of 56-60 and 60 and above by 5.43 per cent points together indicate village having significant population in senior citizen group for which necessary facilities need to be in village.

- The marital status by age groups in Moti Khadol village indicate that in earlier survey period, more than half of the children aged between 16-20 years were married while in current survey, it was noticed that almost 9 per cent of this age group children were married which is a very important change observed over the period of time. Early marriage is not socially, economically and physically better for children before attending age of 21 years. The recent shift may be because of the fact that most of male and female are giving priority to get better education and employment before getting married. About 81 percent persons were married in age 26-30 group in earlier as well as in recent survey. In recent survey, total 41 cases were reported under widow/er category (75.68 per cent persons) which belongs to age category of 56 and above age.
- Out of the total households reported, the highest number of households (about 68 percent) had four to eight family members and they accounted for about 76 per cent of total population of village whereas in earlier survey, corresponding figure in same category (4-8 family members/hh) was 62 percent in village households. The share of minimum number of about 5 per cent of total households had 9-10 family members and above, while in current survey, corresponding figure was 5.15 per cent of total households had the same. It indicates that over the period, family's composition has not been changed much. The average family size has increased from 4.62 to 4.72 persons per household.

4.2 Caste/religion wise Distribution:

- Hindu religion accounted for the three fourth of total households as well as population of selected village in 2020. The share of Islam community accounted for around 16-18 per cent and rest were Christian households/population. Over the period of time, share of households of Christian households have been declined while share of Muslim/Islam households have increased and share of general households have remained almost same.

4.3 Literacy Pattern by Sex:

- As per benchmark survey, village had a high ratio of literacy. The overall literacy ratio of population was 51.1 percent, rich is far higher than the corresponding percentage for the district (36.3) and for the State (30.3). A happy feature of this high literacy ratio was that all literates i.e. 374, in the village had taken some formal education. Another happy feature was that both among the adults and the children of school going age the literacy ratios were high 55.8 among the former and 65.9 among the latter.
- During resurvey in 2020, same kind of trend was reported. There is significantly declined in number of illiterate population in over the period of time, i.e. from 69.41 per cent in last survey in 1962-63 to 6.3 percent in recent

survey. In case of male, increase was from 79 per cent to 91 per cent while corresponding figures for female are 31 per cent to 85 percent. The primary level education has significantly increased in recent survey that to very impressive growth was achieved in female literacy in village in current survey. Near about 21 percent population was literate up to post graduation level in current survey whereas in earlier survey in 1962-63, this was just 1.18 percent.

4.4 APL/BPL wise Distribution:

- Out of total households, 99 per cent of household belongs to APL category. All the general category households as well as households from Christian religion were categorized above poverty line criteria, while only one household each from OBC and SC category was reported under BPL category, which was very surprise to note. During survey, it was reported that nine households are eligible to be included under BPL, while only two are listed in the BPL list. Thus, there is a need to have proper listing of household as per stipulated criteria under APL /BPL category.
- While during benchmark survey, no such classification was existing, thus distribution of households as per income level was presented which indicate that 89 per cent of SC households were earning less than Rs. 600/-. Furthermore, the relationship between caste and economic well-being (as expressed in terms of household income) is clearly evident and thus the process of change in the feudal nature of the society in Moti Khadol was very slow. The data reveals that relatively richer strata in the village was largely composed of the superior caste Hindus; Intermediate caste Hindus, Higher and Lower castes, in that order whereas a larger proportion of lower caste, scheduled caste and Christian Households belonged to the low income groups viz., below Rs. 300 to may be pointed out that as much as 67 percent of the Higher caste Hindu households earned less than Rs.90 per annum as they were largely composed of Brahmins (7 out of 9 households) who pursued the profession of priesthood, the poorly paid occupation.

4.5 Birth and Deaths:

- As seen earlier, more than 99 per cent of households in village are above poverty line which may have some impact on these parameters. Across the caste groups, highest number of births are reported in Muslim community and highest number of death are reported in OBC Hindu. No such classification was reported in benchmark survey.

4.6 Enrollment and drop outs in different educational level (gender-wise)

- The primary school was established in 1957 was for 0-7 class but after 2015 this school was demoted to 5th class because many villagers were interested to send their children in private English medium schools. The enrolment level of children (aged between 5-15 years) in school indicate that majority of the children were enrolled to Gujarati medium vernacular children while children from General category as well as from Christian household are enrolled to English medium private school.
- While during resurvey in 2020, number of children enrolled in school were drastically declined to around 40 may be due to the fact that school provides

education up to Vth standard only. The equal share of boys and girls in total enrolment was important to note here.

4.7 Food Security & Child nutrition (BMI):

- As per BMI index values, female child found to be healthier than male child. Out of total female child, 34.8 percent of female child were found healthy, none of them were obsessed and 65.2 per cent female child were underweight. While in case of male children, 30.4 per cent were found healthy, none of them was with obesity while 69.6 per cent were underweight. If we see class wise nutrition level, we found that all the students of class III were underweight. The boys of class II were found healthy. Overall, despite of progressive nature of village, the nutrition level of the children seems to be unattained and need proper attention towards their diet. While across the religion and Caste category, child nutrition was very poor in children from other backward classes that to particular social economically backwards households.

4.8 Access to basic amenities and changes therein

- As mentioned earlier, during benchmark survey, there were four wells sunk in the village for drinking and other cosmetic purpose of these four wells, one was a hand pumps were installed to draw water. The Christian, Harijans and Muslims drew water. The Christian, Harijans and Muslims drew their supply of the water from the river Mohor. When the river dried during summer members of these caste/were given water from the public well though they were not allowed to draw it themselves. Sanitary conditions in the village were rather unsatisfactory. There was no drainage; the scavenger service was provided by the Harijans who cleaned the main streets of the villages once in a week while the small streets remained dirty. In monsoon the village roads had latrines. There were no street lamps in the village.
- As per resurvey 2020, out of the total households, all the households have reported having legal electricity connection while about 82 per cent of total households have drinking water connection and most of them also fetch water from nearby Nani khadol village pipeline as well as from the tube well of nearby farm. Village is severely facing problem of high TDS in groundwater for which no solution has been found so far. About 88 per cent of households have toilet facility in their houses and 79 per cent of households have LPG gas connection. This picture is self-explanatory about the basic amenities expansion in village has reached to satisfactory level in current survey and villagers are aware about self-hygiene and cleanliness which is must for betterment of life, particularly after COVID19 pandemic.

4.9 Participation, Inclusiveness and Empowerment:

- Out of the total households, one third of households have participated in the gram sabha meetings and on an average, everyone has participated more than five times in a year. Almost 55 per cent of had actively participated in Gram Sabha and Gram Sansad meeting whereas remaining household members who could not participate were either busy, uneducated and due to old age they did not participate or not invited for meeting. About 57 per cent household

members have approached to elected representatives like Panchayat/MLA/MP for village and panchayat development related issue while more than half of them were not satisfied.

4.10 Perception about different changes in the village:

- As per benchmark survey, there was a hierarchy in the households of particular Caste category as well as religions. Christians were considered as belonging to the same status as that of the Harijans since they were regarded as former untouchable Hindus in those days. While the Muslims did not form a part of the caste hierarchy though they have a statue of their own which is not on par with any of the Hindu Castes. The society of Moti Khadol was dominated by the Hindus in 1962-63 as well as in resurvey in 2020.
- The rigidity in the caste system was prevailing may be less as compared to benchmark survey due to progress of society in its approach, while still no general Patel community households send their children in the school located in Village and this community is located as separate area while all other caste category and religion people are staying in mix locality.
- In recent survey, no gender biasness was seen in village. In current Gram Panchayat election, Moti Khadol deputy Sarpanch seat is occupied by the women from general category. Out of nine selected members, four are women elected representatives working on Gram panchayat body of which three are from general category and one from SC category. The newly elected members are active in village activities and they have taken interest in development work in village with full enthusiasm.
- No political bias or deprivation was seen in village and village is properly connected with district headquarter. During benchmark survey, some sort of rift between the Christian and the Hindus (on the ground of religion) was reported and also of the half-hearted cooperation of the minor castes like Bariya, Vaghri, Harijan was highlighted as a constant threat to the smooth working of the Panchayat. While no such biasness was not reported but still some sort of gap in communication and understanding prevails in general and other caste categories particularly Christian which sometime disturb the village environment.

5 Economic Status

5.1 Livelihood and Employment:

- Out of total household, around 62 per cent households were dependent on agriculture and allied activities, 14.36 per cent households were working in service sector job and 6 per cent households were doing business and trade in village. One of the important observations was that 4 per cent households were working as casual and marginal laborer and around 4.5 per cent each household were dependent on pension/old age pension/widow pension etc. and caste based profession in the recent survey. The households from OBC and Christian community were largely engaged. While the highest number of households from Christian category were employed in government or private service job.
- While across the survey data, proportion of household's dependent on cultivation has declined by 9.9 per cent points between 1962-63 to 2020, i.e. from 47.5 per cent in 1962-63 to 37.6 per cent in 2020. Surprisingly, share of

- agricultural labour as occupation has also declined by 8.41 per cent points during corresponding period. While share of households having dairy has increased by almost 21 per cent points indicating impact of successful model of AMUL in this area. In fact, the benchmark survey was done to capture this changes which is visible after almost six decades' period.
- Out of total sample household, about 41 per cent adults were working in agriculture sector as a cultivator or agricultural labour or both. The highest share of adult cultivators has been estimated in General as well as Christian category while agricultural labours were significant in OBC and SC category households. Significant number of adults from Muslim and Christian category were employed in salaried jobs followed by general category adults. Many of the female adults have reported working in house and busy in household activities.
 - Out of total households in general category in Hindu religion and Christian regions, about 5 per cent of adults were getting social security pension like old age pension, disabled pension, widow pension. The total adult population of selected village was 968 of which 85 per cent adult persons were involved in economic activity (outside house activity). This shows that mostly adult persons of village were working and their major contribution was in village development as well as rural development.
 - Out of total population, 54 per cent male and 46 per cent of female were working in different livelihood in village. The male adults dominantly working agricultural and agricultural labour work than female. Most of the adult female were engaged in household activities and no female worker were working as a marginal labour in village. Out of total, almost 24 per cent of adult male were having private salaried job, while about 8 per cent were engaged in trade and business.
 - Though the village economy has remained predominantly agrarian, the relative importance of cultivation in terms of number of households primarily dependent on it in the occupational structure of the village has gone down. As discussed earlier, proportion of household's dependent on cultivation has declined by 9.9 per cent points between 1962-63 to 2020, i.e. from 47.5 per cent in 1962-63 to 37.6 per cent in 2020. Same trend was reported in share of agricultural labour as occupation which has also declined by 8.41 per cent points during corresponding period. While share of households having dairy has increased by almost 21 per cent points indicating impact of successful model of AMUL in this area. In fact, the benchmark survey was done to capture this changes which is visible after almost six decades' period. While more number of occupations have been reported in the recent resurvey in which dairy and private salaried jobs are the dominant one.
 - The benchmark survey in 1962-63 noted that the society of Moti Khadol was in the process of transition; the caste of a person did not necessarily determine the occupation which he was to follow during his lifetime. However, a closer examination revealed that the influence of the caste had only weakened and not disappeared altogether.
 - The situation has changed drastically as compared to benchmark survey time. Less than 5 per cent of the households have remained in the family business which indicate that certain occupation need not to be done by particular community as was practiced earlier. Rather these occupations were done as a

supporting earnings for the household. The Patel community have discontinued the rearing of the livestock. As Patel community members are migrated to foreign country, thus they get support from them.

5.2 Pattern of Migration and Changes therein:

- A characteristic feature of a developing society is the high degree of mobility, both economic and to some extent social and spatial, on the part of its members. On the basis of the data on this indicator viz., migration the society of Moti Khadol can be called as undergoing process of development. As per benchmark survey, total 96 persons belonging to 33 households had out migrated from Moti Khadol while 105 persons in 22 households were immigrants to the village. Migrated persons were mostly educated mostly from intermediate caste and Christian religion.
- As per resurvey data, total 111 peoples from 31 households have migrated permanently from the village and all of them were from APL category. Out of total 65 males and 46 females who were migrated, 23 males were graduated or having professional qualification while 34 females were educated up to secondary level only.

5.3 Agrarian System

- As per village survey conducted in 1962-63, total geographical area of the village in 1962-63 was 278.70 hectares. Since nearly 75 per cent of the total area of the village was brought under agricultural use and since there was no cultivable waste the limit of extensive cultivation had already reached however, the small double cropped area forming only 7.3 percent of the net sown area suggest that the intensive farming was only marginally practiced and hence future more and more land under second and third crops. However, it is pertinent to note that nearly 40 per cent of the gross cropped area was under tobacco, the farming covered nearly two seasons of about six to eight months and therefore to that extent the scope for intensive farming was limited.
- As per resurvey, out of total geographical area 74.78 per cent area was reported to net sown area. The share of area under non-agricultural uses and permanent pastures and grazing land has increased from 7.2 per cent to 16.1 per cent and 1.8 to 9.1 per cent respectively, while share of area under barren and cultivable land area has declined from 16.1 per cent to nil.
- Under land tenure system in village, leasing-in and leasing-out tenancy with share cropping basis of the output was found prevalent among the cultivators. Under land tenure system, leasing-in and leasing-out tenancy with share cropping basis of the output is prevalent among the land holders of Moti Khadol village. Under land reform measures, consolidation of holdings was done many year ago in the village. The rate of leased-in for irrigated and rainfed land for one year is reported to be Rs. 7000 to 8000/per bigha/per year and Rs. 5000/per bigha/per year respectively.

5.4 Land Utilization and Changes Therein

- Average family size in selected households of Moti Khadol village was 5.10 and they operated land area of average 1.62 hectare. The land man ratio was estimated to be 0.30 which directly related to size of holding. The average

cropping intensity was highest in case of marginal land holder group which decreases with land holding size. The average education of head of the family was 8th class which was almost same in all classes and on an average two crops were grown in village every year.

- In Moti Khadol village, crops were grown in both seasons during current survey period. Mostly tobacco was main crop was cultivated by the farmers followed by paddy and bajra.

5.5 Crop Diversification:

- During benchmark survey, out of the total 158 households, 74 per cent of households had agriculture land while during resurvey, 58 per cent of households had agriculture land.
- The comparative analysis of distribution of land holdings during last resurvey (1962-63) and current survey 2020 indicate that the average size of land holding size has declined significantly. The average size of land holdings has declined from 2.14 ha in 1962-63 to 1.621 ha in 2020. The main reason behind this significant land holding size declining was that population is increasing very rapidly and land holding is distributed. The average family size in selected households of Moti Khadol village was 5.10 and they operated land area of average 1.62 hectare. The land man ratio was estimated to be 0.30 which directly related to size of holding. The average cropping intensity was highest in case of marginal land holder group which decreases with land holding size. The average education of head of the family was 8th class which was almost same in all classes and on an average two crops were grown in village every year.
- The main crops grown during the kharif season were paddy and cotton which contributed about 15.8 and 6.6 percent area respectively. The main crops grown during rabi season were Tobacco and wheat which accounted for about 62.4 and 2.24 percent area respectively. Very few farmers are growing summer bajra season and none of the farmers grown perennial crops. Thus, tobacco is the major crop grown on almost two third of the gross cropped area of the sample households of village.
- The relative allocation of gross cropped area under major crops during 1962-63 and 2019-20 indicate that though the cropping pattern during both the surveys was mainly focused on tobacco crop, share of tobacco crop has increased by 27 per cent in existing one in 1962-63 which indicates the development of mono-cropping pattern in the village. The prosperity of the region, as a whole, is due, in no small measure, to the cultivation of tobacco which is the chief commercial crop of the area and for which the soil of the region is particularly suited. Indeed, tobacco holds such an attraction among the farmers that it finds a place in the cropping pattern even of the very small cultivators. Because of pursuit of commercialised farming the adoption of improved agricultural practices has also been widespread and the use of chemical fertilisers and irrigation, in particular, has become very common.
- The estimated HI value is 0.583 being relatively more than half implies a low level of diversification in the Study area. As the Herfindahl and Simpson Index do not show any clear trend in index values. However, the Modified Entropy Index, which overcomes the limitation of Entropy index by using a variable

logarithmic base, shows a steady upward trend in the value of index 0.354 implying a low level of diversification in the study area. As tobacco and paddy are two major crops accounting more than their fourth of gross cropped area indicates somehow mono-cropping pattern in the study area.

5.6 Irrigated area by sources and changes therein

- The Moti Khadol is located in the tail end of the canal and despite of the laying canal distributary, till date not a single drop of water being received by the villagers. All the area was irrigated through the groundwater while tube-wells nearby faces problem of high TDS level.

5.7 Average yield of different crops and changes therein:

- Average yield level of different crops in Moti khadol village in both survey indicate that there is a tremendous improvement in crops yield in recent survey over base survey. The remarkable feature of the yield levels of paddy, bajra and tobacco in the village was that they were far higher than their yield levels for the Kaira district as a whole during benchmark survey as well. Indeed, the per hectare yield of paddy in Moti khadol was double the district average. The yield of bajra crop has increased by 159 per cent while yield of tobacco crop has increased by about 129 percent, and paddy crop yield increased by 113 percent.

5.8 Distribution of livestock resources and changes therein

- The comparison of live stock figures according to livestock of census of 1956, 1961, benchmark survey and resurvey. The importance of bullocks as a draught power during period around benchmark survey of Moti Khadol. Goats were also bred, though in insignificant numbers as milch animals. Donkeys were kept for transport purpose. Absence of cows as milch animals in a village where bullocks provided the draught power is an interesting phenomenon in benchmark survey. One important implication of this phenomenon is that the farmers of Moti Khadol who were using bullock has totally sifted towards mechanization and stopped rearing bullocks. The number of buffaloes found to be remained same during last six decades' period. Total livestock population in village in 2019 was 333 of which 68.5 percent were cattle, 28.2 per cent were buffalo, and 3.3 per cent were goat. Buffaloes were the milch animals in Moti Khadol village.
- During benchmark survey, it was observed that the livestock of Moti Khadol enjoyed fairly good health and vitality. The cattle diseases prevailed but to a negligible extent. The veterinary services were regularly received by the villagers from the government veterinary centre (for animals) at Mahudha, five kilometers from the village. However, the breeds of buffaloes and other animals were invariably 'deshi', though, there were a few buffaloes of improved' 'varieties such as Jaffrabadi, Gir etc. One he buffaloes was maintained by a vaghri family to provide breeding services and for which purpose one was charged per buff aloe per service. The feeding arrangements were also traditional. The feeds given to buffaloes included bajra, paddy, bavto, fodder, cotton-seeds, kuski, gotu "(of such pulses as moth, tuver) and to, some extent sundhiyu. Other animals were given the same feeds except cotton seeds and in place of which guwar was fed. Though green fodder was

not report it constituted major fodder during monsoon as it was available from fields free of cost. With the advent of Milk 'producers', Cooperative Society under the auspices of the DCMPU (popularly, known as Amul) the villagers gets the benefits of assured market and reasonable prices for milk, the facilities for cheap nutritive fodder, artificial insemination services and other medical services extended by Amul which has improved the milk yield of buffaloes.

5.9 Tools, implements and machinery use in agriculture

- The main implements owned by the villagers during benchmark survey were ploughs, harrow, handhoes, kassi, danti, kassia and crushers. During resurvey, it was observed that about 14 families owned tractors and recently harvesters and iron ploughs were also purchased by a few families. Large majority of the cultivators owned primitive type of tools and implements in last survey reported but in current survey more than 12 per cent farmers had tractor and most of farmers had farm implements and machinery for used in agriculture

5.10 Production and disposal of farm outputs:

- All crops are profitable except Guar crop. Guar crop has incurred loss by one third of total crop growers.

5.11 Prevalent marketing channels and procurement arrangements

- Except fodder crops, all other crops were sold in nearby Mahudha mandi. The fodder crop output was sold in village itself. As far as concern about prevailing market price of major crops which received by selected farmers is comparatively higher than other districts farmers in state because they are well aware about new agriculture technique and they have good irrigation facility.

5.12 Poverty, Income and Consumption:

- The benchmark survey data indicated that average household annual net income in the village was Rs.1495/-. In all the occupational groups except cultivation, trade, transport and service per household annual net income was lower than the corresponding income for the village as a whole. The tremendously high per household income, in transport was due to the fact that one of the two households in the group earned. An annual net income was lower than corresponding income for the village as a whole. The highest net income per household in transport was followed by cultivation, service, trade, arts & crafts, remittances, animal husbandry, non-agricultural labour, profession and agricultural labour in that order of important. Further, the occupations in which per household net annual income was less than Rs.1000 were agricultural labour, animal husbandry, non-agricultural labour, profession and remittances maximum per household income of Rs.10,056 in transport was little more than five times of income (Rs.1890) in the next important occupation (from the point of view of per household net income) of cultivation, while this maximum average income (Rs.10, 056) was nearly seventeen times lowest per households income of Rs.595 in agricultural labour

- The annual average income from all sources is estimated to be Rs 381107 in all occupational groups in village. The average income of cultivator is estimated to be Rs 369385. The highest income earned was by pensioners and government salaried persons in village and the lowest income earned by agriculture labours groups. The off farm income generated through labour earnings, other off farm and asset hiring income like tractor and other agricultural equipments rented out and agricultural labour getting highest income in village. The overall average income of village is very economical viable and this suggest economic activities in village is better. The Gini coefficient estimated across the land holding groups as well as landless group indicate that there is inequality across the groups (0.284).
- The benchmark survey data indicate that nearly 60 percent of the total expenditure in the village was on food and drinks while during the resurvey period, same share has declined to about 28 per cent of total expenditure of household. The expenditure on education has increased from 2.6 per cent in 1962-63 to 21.6 per cent in 2020, which is welcome shift household in expenditure. Medical expenditure which was hardly 4.1 per cent during benchmark survey which has significantly increased to 24.5 per cent in 2020. Thus, though there has been increase in life expectancy rate as well as development in terms of medicine and availability of health facilities, expenditure in medicine has increased to the level of one fourth of total expenditure of households. Almost 8 per cent of total expenditure during resurvey period was accounted for communication and entertainment (DTH, Mobile, phone).

5.13 Distribution of households by income and poverty level:

- One household has more than one source of income. As observed earlier, the agriculture and allied activities comprised of crop cultivation, agriculture labour and dairy are the major sources of income followed by salaried persons and retired pensioners. Trade and business was another major source of income for general category Hindu households while casual labour was another source of income for lower caste households in the village.

5.14 Asset profile of the rural households

- Out of total sample households in the village, all the households owned their own house in village which has an average value about Rs. 5.98 lakh in 2020. Out of total households in 2020, 14 households possessed tractor in current survey while during last survey recorded no tractor was in the village. Bullock carts was common mode of transportation during benchmark survey has totally disappeared from village map.

5.15 Food security

- As village has developed over the time period due to easy access to nearby markets, about 98 per cent of total respondents have reported that they never went a whole day and night without eating or went sleep hungry. More than 93 per cent households had no worry about food while remaining had sometime thought about same. Almost one half of the total respondents went for outside eating while about one third of total households are eating too

much of packed food. This as such there is no issue of food security at village level.

5.16 Financial Transactions

- The benchmark survey data on purpose wise borrowing revealed that as much as 75 percent of current debt were contracted for unproductive purposes viz., household's expenditure and marriage and other ceremonies. Surprisingly, nearly 82 percent of the total credit (old as well as that provided during 1962-63) in the village was provided by the relatives residing within and outside the village; more than 50 percent of the credit (Rs.17595) provided by the relatives during the reference year was provided by the relatives staying outside Moti Khadol. The second important source of credit was 'traders' who provided 15.3 percent of the total credit. Institutional credit such as cooperatives and government taccavi apparently provided an insignificant sum. This holds true even considering the amount of Rs.6680 instead of Rs.300 reported by the respondents, as the amount of credit provided by the cooperatives. The insignificant role played by the cooperative society in provision of credit was primarily due to the fact that the society was newly formed i.e. in 1961-62 and hence it had limited resources.
- The resurvey data indicate that 60 per cent of total amount borrowed was as a crop loan followed by 11.5 per cent amount as home loan, about 8 per cent for RO plant and around 4 per cent for tractor and truck loan. Most of the loan amount seems to be for productive purpose except loan taken for decoration.

5.17 Perception about economic changes in the village

- About 83 percent selected households were opined that economic conditions of the villagers have improved while 62 per cent opined that economic condition of households have also improved. When villagers were asked about village infrastructure specially road/electricity etc., about 68 per cent of responses indicated improved condition of village infrastructure. About 58 per cent of the respondents were opined that agricultural situation was also improved. While across the caste category and religion group, half of the OBC and Christian opined that economic conditions of households in village as well as village infrastructure has not changed.

6. Ecology, Vulnerability and Sustainability

6.1 Natural Resource Profile of the Village

- The Moti Khadol village is situated in the Charotar area of Kheda district which is located in Central part of Gujarat. As mentioned earlier, May is the warmest month and January is the coldest month of the year. There is not much rainfall in Kheda tehsil all year long having annual rainfall is 788 mm. Out of total responses, 53 per cent of households opined that there is shift in rainfall pattern in the village. Any change in climatic determinants could not only adversely impact food security and nutrition but also affect the well-being of the population that derives its income from the sector. Shifting cropping patterns to more heat adapted and less water consuming varieties is a strategy already practiced by farmers. Reports indicate a shift in cropping patterns to local varieties of pulses, green gram, millets and mustard, which need less water. Tobacco crop has dominated the cropping pattern as was

- seen in benchmark survey. Dairying of cows was promoted; indigenous varieties with heat resistance capacities are identified and promoted to minimize related losses in milk production.
- The soil of Moti Khadol was generally ground (sandy loam). It is very fertile and suitable for tobacco, paddy and bajra. The soils of the district can be classified into the following cropping main types: goradu (gravelly), black, sandy and pattern rocky type. The principal crops grown in Kheda are the ordinary millets and pulses, rice, wheat, tobacco and a little indigo. Bajra is the principal crop and the staple grain food. Tobacco is the most valuable crop produced in the district. It is grown mostly in the Charotar tract. Castor seed and sesame are the only oilseeds grown in the district. As this village is situated on the bank of Mahor river which is mostly seasonal but during heavy rainfall period, river water gets entered in village and nearby village farm which submerge about 300-400 bigha farm land. Due to the same, approach road to other farm get blocked. The land erosion was reported due to such events.
 - The high level of TDS has been reported in drinking water and during the summer period, the level of TDS level been reached to 3000-4000 level. Therefore, sweet drinking water was fetched from the far away tube wells because tube well closed to village also has high TDS problem. Gram Panchayat has installed water purification RO plant to provide drinkable water to villagers for drinking purpose towards which Panchayat charges little amount but. However, TDS problem was not noticed in our first survey during 1962-63. Due to high TDS in water, health issues were reported by Christian family's members. Some of them are suffering from disability in walking, taking and mental illness.

6.2 Livestock resources:

- The milch animal population has increased very significantly in village in recent survey. The significant growth has been reported in case of number of cows while number of buffaloes are almost constant over the period of time. The number of sheep and goat has declined in village. The number of work stock like Bullocks have declined significantly in village and main reason behind this was that agricultural work is being completed with machinery like tractors and other implements.

6.3 Ground water level, pollution and changes therein

- The ground water level in village did not declined in the recent past which is 55-60 feet. The high TDS in ground water is the main problem being faced in villagers which was not reported in the benchmark survey. As the industrial development is almost zero in village so that pollution issue was almost observed and air quality was very healthy in village.

6.4 Natural and Manmade Disasters

- The occurrences of drought during the last 5 years were reported to be negligible whereas floods incidences were occurred often in last five years. Farmers as well as labourers were found to be most vulnerable groups among the villagers of Moti Khadol. On the other hand, villagers reported that paddy, wheat and tobacco are the most vulnerable crops and bajra and cotton is the

least vulnerable crops. Heat waves are also reported to occur often and farmers as well as labourers are the vulnerable groups. No case of Suicides and few cases of accidents were reported by the Household in Moti Khadol. No case of Violence and robbery are reported during the last 5 years in selected village. After Corona pandemic only, the few cases of job loss are reported.

6.5 Major coping Strategies at Household Levels

- To combat with slight flood kind of situation the crop raising farmers had used crop insurance as coping strategy. Labour class as well as poorest people farmers had migrated outside for jobs and also adopt borrowing as coping strategy. Thus, in the whole village the poorest peoples were the hardest hit from flood/ heat wave.

6.6 Major Adaptation Strategies to Combat Extreme Events.

- It was observed during survey and group discussion, that except flood kind of situation no such any extreme climate or other event so happened in the village during the last five years' period. While, state and central government scheme like crop insurance scheme, PMFBY, Soil Health Card/PMFSY/MGNREGA were adopted by farmers to combat with drought/Flood/ Cyclone and loss of job in this village. For erratic rainfall as well as for heat waves, generally villagers have reported adoption of crop diversification and livelihood diversification at individual level in the village.

6.7 Perception about ecological changes in the village

- Around 53 per cent of households have reported that there is change in rainfall pattern as well as heat and cold waves and air over the period of time while more than 89 per cent of them have denied the increase in incidence of diseases and expenditure on medical.

7 Policy and Governance

7.1 Nature and Coverage under Different Government Sponsored Schemes

- Under the BPL card scheme, total nine households were found entitled in the village during 2014-2019 and only two households had availed this facility and all of them were satisfied with the scheme. Under KCC Card Scheme, total 75 households were entitled and around 89 per cent of them have availed the facility. Under public health insurance card scheme, 68 per cent of total entitled households were benefited. About 34 households were entitled under MGNREGA job Card Scheme, but the none of them had benefited as current TDO officer had suspended all MGNREGA works due to validation of job card and other issues. Also none of the households had undertaken soil health check-up. It was reported that (which was very surprised to note) without the knowledge of farmers of village, soil samples were taken from their field and soil test reported were received by the Sarpanch which were found lying in gram panchayat. These soil health card were not distributed among the farmers. Half of the entitled households for Crop Insurance have availed the facility. While all the entitled households under ICDS/Mid-day meal, Scholarship scheme, PMKSY, PMKISAN, LPG Ujjala, Old Age Pension, Widow pension and disabled pension have availed the facility. None of the household

was reported entitled under farm loan waiver scheme, PMKVY, PMAASHA, SG Farm income support schemes.

7.2 Perception about Government schemes

- Majority of the beneficiaries have reported satisfaction about the schemes in force in the village. Around 70 per cent of beneficiaries of public health insurance card were not satisfied over implementation of the scheme. While during discussion, the villagers have suggested for complete coverage of village under these schemes (those who are eligible as per prescribed norms) so that everyone eligible can be benefitted.

7.3 Participation in Local Governance

- Out of total households, at overall level, more than 30 per cent of households from all categories had participated in the meetings of Gram Sabha and Gram Sansad, while 38 per cent member of households of general category, 30 per cent of OBC household members and hardly 14 per cent of SC category members have attended these meetings without fail. Those remaining household members who could not participate in Gram Sabha meeting may be due to their busy schedule of field work, uneducated and due to old age. Less than one third of total households have participated in the gram sabha/gram Sansad meetings which indicate poor participation of villagers in decision making. Out of total, around 85 per cent of the household persons had approached to elected representatives like Panchayat/MLA/MP for village and panchayat development related issue and most of them were satisfied with that elected representatives have addressed their issues and tried to solve their problems willingly.
- The relative status in the village power structure across the caste category group was mostly dominated by General Hindu followed by OBCs while SCs are having medium to poor status in village power structure. Thus, despite of drastic changes in village, the power formula has not changed so far.
- The reasons for the one sided power structure and status in the society were poor economic conditions of OBCs and Christian SC households along with no political affiliation as such as well as qualification. Caste was the dominant factor for power center in the village. While during the field survey, all the respondents have denied any incidence of deprivation on the accounts of caste, gender or any association with political party.
- All the respondents have reported that they had approach their friend and relatives in case any advice is require on livelihood specific, social specific issues, as well as in case of educational matters. While in case of legal issues, they preferred to contact relatives followed by friends. Thus, villagers have more faith on relatives and friends to solve their issues as and when they faced. Majority of the households in the selected village have sold their output to agents followed by in the nearby market.

7.4 Socio Economic Problems in Village

- The major problems narrated by the villagers are drinking water problem as groundwater has high TDS followed by low employment opportunities, not having facilities like health, street lights, connecting roads and schemes like BPL and pensions. The poor households in 'waghari awas' were not included

in BPL category when survey was conducted in 2008. Liquor drinking habit was reported increasing among villagers.

7.5 Major suggestion for improvement /development in Village

- The main suggestion made for improvement in development in village was to make to work on basic infrastructure followed by need to create employment opportunities as well as good health services in the village level.

8. Conclusions:

The study was an attempt to assess the pace, process and pattern of rural change as well as identification of key drivers of such changes in Moti Khadol Village by comparing the data sets of bench mark survey and recent resurvey for areas of future interventions. Study results indicated that village has developed over the period. Most of the people in the village have settled outside (such as Ahmedabad, Vadodara, Surat, Nadiad, USA etc.) and the main reason for migration was children's education and jobs. While livelihood of the village is mainly based on agriculture and animal husbandry activities along with support of rural artesian trade especially leather crafts, wood, and caste based profession, and wool established in the village. The rearing of livestock is being done at large scale i.e. each household has two to three milch animals. The milch animal population has increased very significantly in village in recent survey. In general, each household has its own transport facilities. Generally, farmers of village are cultivating mostly single crop in a year, i.e. Tobacco which fetches them good returns with high productivity along with paddy and bajra on small area. The main problem of this village is the high total dissolved solids (TDS) in the water thus the villagers have to fetch drinking water from outside of village. Most of households have toilets, gas connections and light. This picture is self-explanatory about the basic amenities expansion in village has reached to satisfactory level in current survey and villagers are aware about self-hygiene and cleanliness which is must for betterment of life, particularly after COVID19 pandemic. As village has developed over the time period due to easy access to nearby markets, about 98 per cent of total respondents have reported that they never went a whole day and night without eating or went sleep hungry. About 83 percent selected households were opined that economic conditions of the villagers have improved while 62 per cent opined that economic condition of households have also improved. When villagers were asked about village infrastructure specially road/electricity etc., about 68 per cent of responses indicated improved condition of village infrastructure. About 58 per cent of the respondents were opined that agricultural situation was also improved. While across the caste category and religion group, half of the OBC and Christian opined that economic conditions of households in village as well as village infrastructure has not changed. Thus, there is a need for work on drinking water problem as well as need to create employment opportunities as well as good health services in the village level.

Introduction

1.1 Introduction

“India lives in its villages” – Mahatma Gandhi. This famous observation was made by the ‘Father of the Nation’ many years ago, still holds true. As per Census 2011, 68.9 per cent population of country (i.e. 833.7 million) was residing in villages and same is estimated to be 65.53 per cent in 2019 (i.e. 891.2 million¹). India is the second most populous country in the world behind China with total population of 1.385 billion (on December 6, 2020) and it is projected that by 2031, India will most likely overtake China to become the most populous country in the world with 1.47 billion people². Though the share of population residing in rural area has declined from 82.7 per cent in 1951 to 68.9 per cent in 2011, absolute number of rural population may cross 900 million figure in near future. With two-thirds of India’s billion-plus people living in villages, jump-starting the economic engine of rural India will have a multiplier effect on investment, consumption, government expenditure and exports. Thus, it is quite undisputed fact that socio-economic development of a country still lies in the multidimensional development of its villages.

The villagers comprise the core of Indian society and also represent the real India. In order to ensure that the fruits of India’s progress are shared by all sections of the society and India’s economy to be strong, the rural economy needs to grow. The government has identified several elements of social and economic infrastructure, critical to the quality of life in rural areas and is working towards it. Over the years, the Indian government has introduced several schemes that have not only helped the Indian citizens improve their economic situations, but have also addressed their physical needs. However, rural areas are still plagued by problems of malnourishment, illiteracy, unemployment and lack of basic

¹ <https://www.worldometers.info/world-population/india-population/>

² <https://thewire.in/government/india-population-growth-government-report-2036-projections-urban-migration>

infrastructure like schools, colleges, hospitals, sanitation, etc. This has led to youth moving out of villages to work in cities. This could be compared to the brain drain from India to United States and other developed countries. Our villages need to grow in tandem with cities and their standard of life has to improve for inclusive growth to happen. If rural India remain poor, India remains poor. 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. Therefore, village studies are important as it provides the working of various existing agrarian and other associated socio-economic institutions governing the village life and drivers of changes. It also provides with insight into the pace with which villages transform and adapt to changing environment and developments and integrate with urban areas.

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. 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 and useful source of basic information about villages. Thus, it is this realization that led to a spate (series) of village surveys by various Agro-Economic Research Centres of the Ministry located at different States of India, one among them is our Centre.

1.2 Brief Review of the Literature

Village Surveys are the usual and common method of collecting data from the rural areas in India. Basically, village survey and the socio-economic survey

tools are designed to collect information as a means of improving understanding of local resource management systems, resource use and the relative importance of resources for households and villages. It also provides information on interaction with the government decision-making systems and community perceptions of trends and priority issues. Besides, knowledge about community-based institutions, which is also obtained through survey, and their roles in the sustainable use and conservation of natural resources, which helps to facilitate or reinforce a consensus on land tenure and rights for the region, now and in the future.

In order to undertake intensive studies for various topics covered in the first publication of society viz., "The Indian Rural Problem", Indian Society of Agricultural Economics undertook the first village study in 1946 entitled 'Bhuvel: Socio-Economic Survey of a Village, in the Charotar area of Baroda district of the erstwhile Baroda State (ISAE, 1959). Two trained research workers were sent to the village for field investigations and they remained there for nearly a year. The object of the survey was to study the village life in entirety—with its social, economic and other aspects which make up the complex texture of village life and administration. This study was carried out with the co-operation of the various departments of the erstwhile Baroda Government. The inquiry covered all the 208 families in Bhuvel. All the seventeen castes in the village were fully represented in the inquiry. The study made an intensive inquiry of the economic conditions of 96 families. An important feature of the enquiry was a special medical survey of 803 persons forming nearly 80 per cent of the total population of 1,070, classified according to their caste and sex. The survey also examined the social life of the villagers and their social customs. Full data were collected about the customs of all the castes and the expenses incurred by them at various times on social and religious occasions. The Gujarat Vidhya Sabha of Ahmedabad published the original Gujarati version of the report. An abridged English edition of this study was published by the Society in 1949.

Another study conforming to this group is Bhadkad—Social and Economic Survey of a Village: A Comparative Study, 1915-55. The Indian Society of Agricultural Economics undertook the re-survey of the village Bhadkad in Petlad

Taluka of the Kaira District in 1955. The original survey was conducted about 40 years ago, personally by Shri Manilal B. Nanavati, President of the Society, under the direction of the late His Highness the Maharaja Sayajirao Gaekwad of erstwhile Baroda State. It was a very comprehensive one and the papers of the survey were available with the President. The object of re-survey is to find out and analyse the changes in the socio-economic conditions of the people during the period of 40 years since 1915. The re-survey of Bhadkad was originally prepared in Gujarati by Shri N. S. Parikh, specially appointed for the purpose. As this main study was rather comprehensive and bulky, it was thought desirable to publish a brief report in English, summarizing the main results. This summary outlines the major findings of the two surveys and presents a fairly comparative view of the conditions of the village during two points of time, viz., 1915 and 1955. The English edition of the re-survey was published in October, 1957.

Bhatt (1964) conducted the bench-mark surveys of Naurangdesar village of Hanumangarh tehsil of Sri Ganganagar district in the year 1962 (covering data year 1961-62) (Bhatt, 1964). After a lapse of about seven years the village was resurveyed by for the year 1968-69 and then sort visit was conducted in April 1973 and resurvey report was summited in 1974 (Brahmbhatt, 1974). Brahmbhatt (1974) noted that in a predominantly agricultural economy (with more than 70 per cent of the population, depending on agricultural pursuits) the importance of irrigation as a catalytic agent of agricultural development is obvious. Its importance is further enhanced in an underdeveloped arid economy where rain fall is scanty, uneven and undependable both as a protective and productive measure. In this part of Rajasthan, known as Thar Desert, the water table was low and the water was brackish which makes it unsuitable either for domestic use or for irrigation purpose. This has created a necessity for canal irrigation. In ameliorating the economic conditions of the people of this famine stricken area, the Rajasthan canal has a major part to play. The canal seeks to transform a vast tract of the great Indian desert into a prosperous, fully developed region humming with agriculture, industry and commerce. The starting point of the Rajasthan canal is in Hanumangarh tehsil. When completed in 1978-79 the canal benefits the areas of Sri Ganganagar, Bikaner and Jaisalmer

districts. In these areas, the land man ratio was favourable. This area is inhabited by Jats, Sikhs and Bagdis who are known for their strong physique and vigour. The Rajasthan canal irrigated about 3570 acres of land in 1961-62. By 1968-69, the area irrigated by the canal was about 245900 acres, representing nearly a seventyfold increase. By 1975-76, it was expected to irrigate about 987880 acres. During resurvey, the canal encompasses in its command area a population of nearly 1.05 lakh persons. It was projected that in 1978-79, it will cover about 20 lakh persons, when completed. It is clear, therefore, that lakhs of people have vitally affected by the likely changes in the wake of canal construction. An intensive study of a village economy from this point of view help us in understanding the content and direction of change that is likely to take place.

Brahmbhatt (1974) further mentioned in report that Naurangdesar distributary, from where Naurangdesar village receives water, is the first distributary to get water from the Rajasthan canal. From head to tail, the total length of this distributary is 26 miles. It discharges water from its 20 minor and sub-minor outlets. The distributary was designed with an ultimate capacity of 405 cusecs but since the Rajasthan canal was only in its first stage it could draw 440 cusecs of water and could provide irrigation to 18,626 acres of land in 1968, as against only 3482 acres of land in 1961-62. The distributors are expected to irrigate 64,590 acres of land in 1975-76. However, till the year of our resurvey the canal was seasonal. The full impact of the canal has yet to be felt due to the following reasons: (1) at this stage the canal is only seasonal, (2) the initial investment for irrigated farming being more, only the better off cultivators have taken full advantage of irrigation, and (3) the close relationship between the canal authorities and the beneficiary farmers has not yet been established. The major force of change studied in this village was irrigation available, from the Rajasthan canal. The object of selecting the village was to study the overall change, in particular the change in agriculture, dairying and in the labour market. The resurvey results revealed certain interesting changes which have taken place in the economy during the interval between the first and the follow up survey. The canal has given both direct as well as indirect benefits. Direct benefits were in terms of additional farm production as a result of irrigation. Whereas indirect

benefits were in the form of higher rate of investment in agriculture and ancillary activities, more employment opportunity and the improvement in the standard of living of the people as a result of their higher income levels. A much more significant, though intangible, benefit that it provides was a sense of security among the farmers. It was also stabilized agriculture. The problem of drinking water has also been solved since the canal authorities supplied water to the village pond whenever it was depleted.

Sen and Ghoshal (1976) presented a case study on village situation in India and reorganisation of its agricultural resources. Authors noted that one-time community organisation and self-generating economy of the village, based on social consciousness and full employment through division of labour, have broken down. This has resulted in unemployment and under-utilisation of resources, leading to poverty, loss of self-reliance and stagnation. The pilot experiments have clearly brought to light the possibility of restoring the generating character of the village by reorganising its own resources of men and materials with the aim of improving the personality (skill) and social attitude of its people through productive action programmes.

Tshjita and Oda (2014) examined the labour out migration based on the results of village surveys and found that not every poor household engages in migration activities. Migration opportunities are unevenly distributed and some households have no access to such opportunities. This is a critical issue as these households are then restricted to their villages where employment opportunities are scarce and they might not have enough agriculturally viable land to enable them feed the members of their household, instead being forced to survive utilising only whatever means are available in the village economy. Thus, it is important to examine the factors that keep poor villagers from leaving their villages.

Tripathi (2020) conducted village resurvey study in Uttar Pradesh covering Khatangiya Village (situated in the Trans-Yamuna tract of Bara Tehsil under Jurisdiction of Jasra development block in Allahabad district, which was surveyed in the year 1964-65) with an aim to create a longitudinal panel data set, to capture the socio-economics of the village. This study revealed that there was a

change in the population of the village by 382.59 per cent during current resurvey over last survey. The literacy has increased from 38.62 per cent in last survey to 68.98 per cent in the current resurvey. The family size in the survey was 9 and in the current survey it was 5. The educational status among the males and females both has been improved considerably. Reading competency was comparatively higher among boys than that among girls. The arithmetic competency was superior among boys of private schools. The majority of children both boys and girls were in severely underweight category of BMI in Khatangiya village. Vulnerability experienced due to climate extremes was sometime high, moderate and low in the village. To combat with price-crash, reliefs were adopted by Government, NGOs and individuals. The change in composition was 70 per cent from others to yamunapari breed of goat during 2014-19 in Khatangiya village. OBCs and general castes were cultivators and dominating. Land-use pattern has changed significantly over the period. Cropping intensity was estimated to be 200 per cent and irrigation intensity was 100 per cent. The farm household income was the lowest in livelihood groups.

Kajale and Suryawanshi (2021) has conducted village survey study in Maharashtra covering Gulumb village (situated in Wai taluka of Satara district) which was surveyed in the year 1976. The study results observed the considerable progress in terms of civic amenities and infrastructure available, number of households with access to basic civic amenities, technology used in the village for communication and construction, and definitely points at improvement in living conditions of the village households of Gulumb as compared to earlier period as captured in 1976 survey. Increasing level of education and school enrolment in case of females, increasing share of household members as well as household income in nonfarm activities, occupational diversification and increasing integration with the urban areas are some of the important changes that have taken place at the household level over the years. The analysis however also reveals economically vulnerable position of marginal, landless, scheduled caste as well as Muslim households as compared to other household categories. The policy implications arising from the study reveal need to focus on provision of adequate and clean drinking water and irrigation facilities, proper garbage

collection and disposal system and closed drainage system. It is felt that provision of quality education, vocational guidance, uses of environmental friendly technologies, digital technologies and local area development strategies for creation of job opportunities would enhance overall standard of living of the village households.

The review of literature indicates the changes in institutional and infrastructure facilities, land ownership and land use patterns, population size and migratory patterns, gender equations, income levels, etc. The village life reported during the 1960s and 1973s have changed a lot wherein importance of agriculture in livelihood has come down along with changes in cropping pattern, crop diversification as well as high rate of literacy and unemployment. Besides, drastic decline in average size of land holdings due to fragmentation of land is worrisome fact. Thus, national policies need to be framed keeping in view the future course of phenomena that would be observed in the villages.

1.3 Need and Scope of the Present Study:

The village society is characterized as a highly static society and village people excessively immobile. However, this kind of common understanding has undergone a tremendous change with the introduction of Five-Year Plans and the revolution in mass media. The earlier village life, which did not have any political and economic power, has now acquired adult franchise, democracy and accelerating transformation. During the last five decades, rural societies have witnessed massive changes. The village life today has reached a stage, where the glamour of urban life has made inroads in villages. It is in this context; it is important to have resurvey of villages surveyed earlier.

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 surveys of National Sample Survey Organizations, although these data could serve the essential purpose of understanding the broad general purpose of larger contexts.

There are various initiatives are taken by the Government over the last seven decades or so for the development of various aspects of rural life. The latest one initiative is 'Shyama Prasad Mukherji Rurban Mission' in 2016 aimed at developing rural area by provisioning of economic, social and physical infrastructure facilities.

Since the primary unit of the rural economy is the village, it was felt that periodic surveys and resurveys of selected villages exposed to the various forces of change might be of some help in understanding this process of change. In order to fulfil this objective, this Centre, in the earlier phase of its development, initiated a number of village studies both in Gujarat and Rajasthan state. Total 21 village surveys and 4 village resurveys are conducted by the Centre in the past which were used in policy formulations.

In view of above, the present study entitled "Village Survey Study in Gujarat- Moti Khadol village, Kheda District", was conducted with the following main objectives:

1.4 Objectives of the present study

- a) To create a longitudinal panel dataset, to capture the socio-economic dynamics of the village. The purpose was to assess the pace, process and pattern of rural change by means of repeated surveys in the selected village followed by the re-survey of the same villages at an intervals of 5 years and.
- b) The focus was on agricultural changes and changing pattern of rural livelihoods and its implication for future development. The study also evaluated the efficacy of government interventions in rural areas and key drivers of changes in village economy.

1.5 Background Information about the Survey

The present village resurvey work was undertaken in the village of Moti Khadol of Mauda tehsil of Kheda district of Gujarat which was first surveyed in 1964 (Desai, 1967)³. Initially it was planned to conduct a bench-mark survey of social and economic condition of Moti Khadol village prior to the establishment of a Milk Producers' Cooperative Union under the auspices of the Kaira District Cooperative Milk Producers' Union (or popularly known as "Amul") in the village in 1962-63 in order to study the impact of this milk marketing agency on dairying in particular and on the village economy in general through a resurvey of the same village after about five years. This, however, could not be done because the Union had not chalked out a definite programme of the villages which it would cover during the coming few years. As the second best alternative the villages in which the Cooperative Milk Marketing Societies had just been organized was considered. Accordingly, out of three villages (Moti Khadol in Nadiad Taluka, Lasalwada and Ishwarpura in Kapadwanj taluka) where the societies had just begun and which satisfied the general condition for inclusion in the programmes (viz., the manageable size, approachability, potentiality of growth, etc.), Moti Khadol was selected for the comprehensive socio-economic survey and survey was conducted in 1964. This is re-survey report of same village conducted in 2019-20.

This project report is unique in the sense that it attempts to provide a view of the changing village scene at four points of time. It is true that some of the data collected for these surveys are not strictly comparable partly due to some differences in the methodology adopted and partly due to some variations in the responses of the human factor involved in such survey work. It is also true that certain comparisons made in this study can be regarded as only approximate based as they are mainly on the observations of the research worker with whatever supporting evidence that was available. In view of the above limitations, the available comparative data will have to be interpreted and used with caution.

³ The field work of the survey was started on November 11, 1963 and completed on February 20, 1964. The data analyzed in the present report pertain to the agricultural year July-June 1962-63.

The project leader has indicated the limitations of the available data at relevant places in order to facilitate such a comparative study over a period of time.

1.6 Historical Profile of the Village

Moti Khadol is an ancient village of about 1200 years, names after the elder queen of the king Hanuman Ghadia who had two queens; one was known as Moti (elder) and another as Nani (Younger). The adjacent village Nani khadol was name after the younger queen. The village in the days of the king Ghadia was a big village comprising the present surrounding villages' viz., Nani khadol, Kadi, Balol and Mirzapur. These villages are situated within a radius of 2.4 kilometers from Moti khadol. After the rule into the present villages is the river Mohor changed its course to flow through this village. It is reported that Banias and Patels were the first to come to the village while the Muslims were the last to come about sixty years ago. During the reference year only two bania caste households were found in the village as the others emigrated decades ago for business and services. It may be pointed out that the historical background of the village as given is more legend than history since no reliable evidence were provided by the village people to support the legend.

1.7 Scheme of Chapters:

The present report is organized in eight chapters. The first chapter discusses the background, rationale, review of literature and objectives of the study. The coverage, sampling design and conceptual framework of the study have been discussed in Chapter II. The third chapter presents the overview of study village which covers village profile, livelihood and migration status, agriculture status of village, developmental institutions and infrastructure, cultural profile of the village as well as uniqueness of the village. The social dynamics of village are presented in Chapter IV which includes demographic profile of village, distribution of population and households in village, educational status as well as food security issues in village. Chapter V presents economic status of village having focus on occupation and employment pattern, agrarian status and income composition of village. The issues related ecology, vulnerability

and sustainability are presented in Chapter VI. The details on various Government schemes, input use, crop varieties and composition of livestock is presented Chapter VII. The last chapter presents the summary, concluding observations and policy implications of the study.

The next chapter presents the details on data and methodology adopted in the study.

2.1 Introduction:

This chapter presents the details on the data sets used and methodology adopted for the selection of sample households and statistical tools used for the data analysis.

2.2 Definitions and Concepts:

The definition of variables used and concepts noted in the report are adopted as per definitions of concerned recognized government agency and commonly been used in literature is presented below:

2.2.1 Village, House, Household and Family (Terms Used in Indian Censuses¹)

2.2.1.1 Census House:

The term 'house' in India covers the greatest diversity of dwellings. In 1961 census 'House' was defined as a structure or part of a structure inhabited or vacant, or a dwelling, a shop, a shop-cum-dwelling or a place of business, workshop, school, etc. with a separate main entrance. In 1971 census, 'House' was defined 'as a building or part of a building having a separate main entrance from the road or common courtyard or stair case etc. used or recognised as a separate unit. It may be inhabited or vacant. It may be used for a residential or non-residential purpose or both.

2.2.1.2 Family or Household:

The household or family was first defined in 1872 as comprising of those who lived together and ordinarily cooked at the same hearth including their servants and visitors. In 1881 Census, it was defined as comprising of all those persons who actually slept in the house or compound on the night of 17th February, 1881. From 1891 till 1941 the term 'family' was used in place of Household. From 1951 Census onward again the concept of household was used

¹ https://censusindia.gov.in/data_products/library/indian_perceptive_link/census_terms_link/censusterms.html

in Indian Censuses. In 1971 Census, a household was defined as 'a group of persons who commonly live together and would take their meals from a common kitchen unless the exigencies of work prevented any of them from doing so.

2.2.1.3 Village Area:

Village or Town is recognised as the basic area of habitation. In all censuses throughout the world this dichotomy of Rural and Urban areas is recognised and the data are generally presented for the rural and urban areas separately. In the rural areas the smallest area of habitation, viz., the village generally follows the limits of a revenue village that is recognised by the normal district administration. The revenue village need not necessarily be a single agglomeration of the habitations. But the revenue village has a definite surveyed boundary and each village is a separate administrative unit with separate village accounts. It may have one or more hamlets. The entire revenue village is one unit. There may be un-surveyed villages within forests etc., where the locally recognised boundaries of each habitation area is followed within the larger unit of say the forest range officer's jurisdiction.

It is in defining the Urbans areas that problems generally arise. However, for the 1971 Census the definition adopted for an urban area which follows the pattern of 1961 was as follows:

- (a) all places with a municipality, corporation or cantonment or notified town area
- (b) all other places which satisfied the following criteria:
 - (i) a minimum population of 5,000.
 - (ii) at least 75% of the male working population was non-agricultural.
 - (iii) a density of population of at least 400 sq. Km. (i.e. 1000 per sq. Mile)

The Director of Census of each State/Union Territory was, however, given some discretion in respect of some marginal cases, in consultation with the State Govt., to include some places that had other distinct urban characteristics and to exclude undeserving cases. All area other than urban are rural². The basic unit for rural is the revenue areas is the revenue village.

² https://censusindia.gov.in/2011-prov-results/paper2/data_files/kerala/13-concept-34.pdf

The National Sample Survey Organisation (NSSO) defines 'rural' as follows:

- An area with a population density of up to 400 per square kilometre,
- Villages with clear surveyed boundaries but no municipal board,
- A minimum of 75% of male working population involved in agriculture and allied activities.

2.2.2 Land Holdings, Holder and Size (terms used in Agriculture Censuses³)

2.2.2.1 Operational Holding:

All land which is used wholly or partly for agricultural production and is operated as one technical unit by one person alone or with others without regard to the title, legal form, size or location.

2.2.2.2 Operated area:

Operated area includes both cultivated and uncultivated area, provided part of it is put to agricultural production during the reference period. If, for instance, an operational holding consists of four survey numbers out of which one survey number is put to non-agricultural uses, the total area of the operational holding will be equal to the total geographical area of all the four survey numbers.

2.2.2.3 Operational holder:

A person who has the responsibility for the operation of the agricultural holding and who exercises the technical initiative and is responsible for its operation. He may have full economic responsibility or may share it with others. The operational holder may be Individual/Joint/ Institutional.

- i) Individual: If the holding is being operated either by one person or by a group of persons who are the members of the same household, such holding will be considered as an individual holding.
- ii) Joint: If two or more persons belonging to different households, share jointly as partners in the economic and technical responsibility for the operation of an agricultural holding, such holding will be considered as joint holding.
- iii) Institutional: Holdings such as government farms, farms of sugarcane factories, cooperative farms, lands managed by trusts would be treated as institutional holdings.

³ <http://agcensus.nic.in/document/definition.htm>

2.2.2.4 Size classes and broad Size groups of Holdings:

The data are presented at all India level and for all states and union territories in the following size classes and size groups of operational holdings

Table 2.1: Size Classes and Size Groups of operational holdings

Sr. No.	Group	Sr. No.	Classes (in ha.)
I.	Marginal	1.	Below 0.5 ha
		2.	0.5 – 1.0 ha
II.	Small	3.	1.0 – 2.0 ha
III.	Semi-medium	4.	2.0 – 3.0 ha
		5.	3.0 – 4.0 ha
IV.	Medium	6.	4.0 – 5.0 ha.
		7.	5.0 – 7.5 ha
		8.	7.5 – 10.0 ha
V.	Large	9.	10.0 – 20.0 ha.
		10.	20.0 and above

2.2.2.5 Land unit used in Study Area

District & Talukas	1 Bigha = __Guntha	1 HA= __ Bigha	1 Acre= __bigha
	(Figures in Guntha)	(Figures in Bigha)	(Figures in Acres)
Kheda			
Mahudha	24	4.17	1.67

2.2.3 Workers, Cultivators, Agricultural labour (Terms used by labour Bureau⁴):

2.2.3.1 Workers:

Workers were mainly classified as main and marginal workers on the basis of their work. Those workers who had worked for the major part of the year were termed as main workers. Major part of the year means six months (183 days) or more. Those who had not worked for the major part of the year (i.e. those who had worked for less than 6 months or less than 183 days in a year) were termed as marginal workers.

2.2.3.2 Cultivator:

A person was considered working as cultivator if he or she was engaged either as employer, single worker or family worker in the cultivation of land owned or held from Government or from private person or institution for payment in money, or in kind or on the basis of sharing of crops. Cultivation also included supervision or direction of cultivation. A person who had given out his/her land to another person or persons for cultivation for money, kind or share

⁴ <http://labourbureau.gov.in/WL%20K5-6%20Chap%201.htm>

of crop and who did not even supervise or direct the cultivation of land, was not treated as cultivator. Similarly, a person working on another person's land for wages, either in cash or in kind or a combination of both, (agricultural labourers) was not treated as cultivator.

2.2.3.3. Agricultural Labour

A person who worked on another person's land for wages in money, kind or share of crop was regarded as an 'agricultural labourer'.

2.2.3.4 Household Industry:

Household Industry was defined as an industry conducted by the head of the household himself or herself and/or by the members of the household at home or within the village in rural areas and only within the precincts of the house where the householder lives in urban areas. The larger proportion of workers in household industry consists of members of the household including the head. Household industry relates to production, processing, servicing, repairing or making and selling of goods.

2.3 Data Base:

This study is based on both primary and secondary level data. The secondary data were collected from the government publications, online databases and published reports and research papers and related websites. The required secondary data were also collected from the offices of State, district, tehsil, development block, village and village level institutions. The primary data were collected from the village households of selected village by survey method through five types of survey schedules.

2.4 Sampling Design

2.4.1 Criteria for Selection of the Village:

As per the study designed suggested by the Coordinator of the study, one village from the list of villages already surveyed before and was moderately developed was selected. Accordingly, Moti khadol was selected as same village was surveyed in the year 1964 (Desai, 1967) (Map 2.1 and 2.2).

Map 2.1: Location of Study Area in Gujarat State

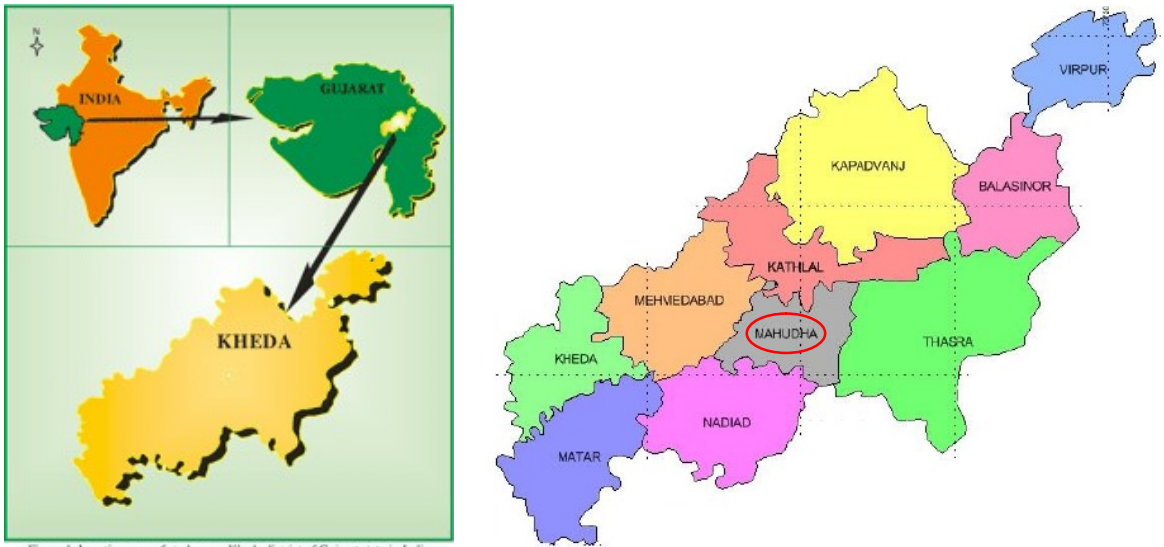
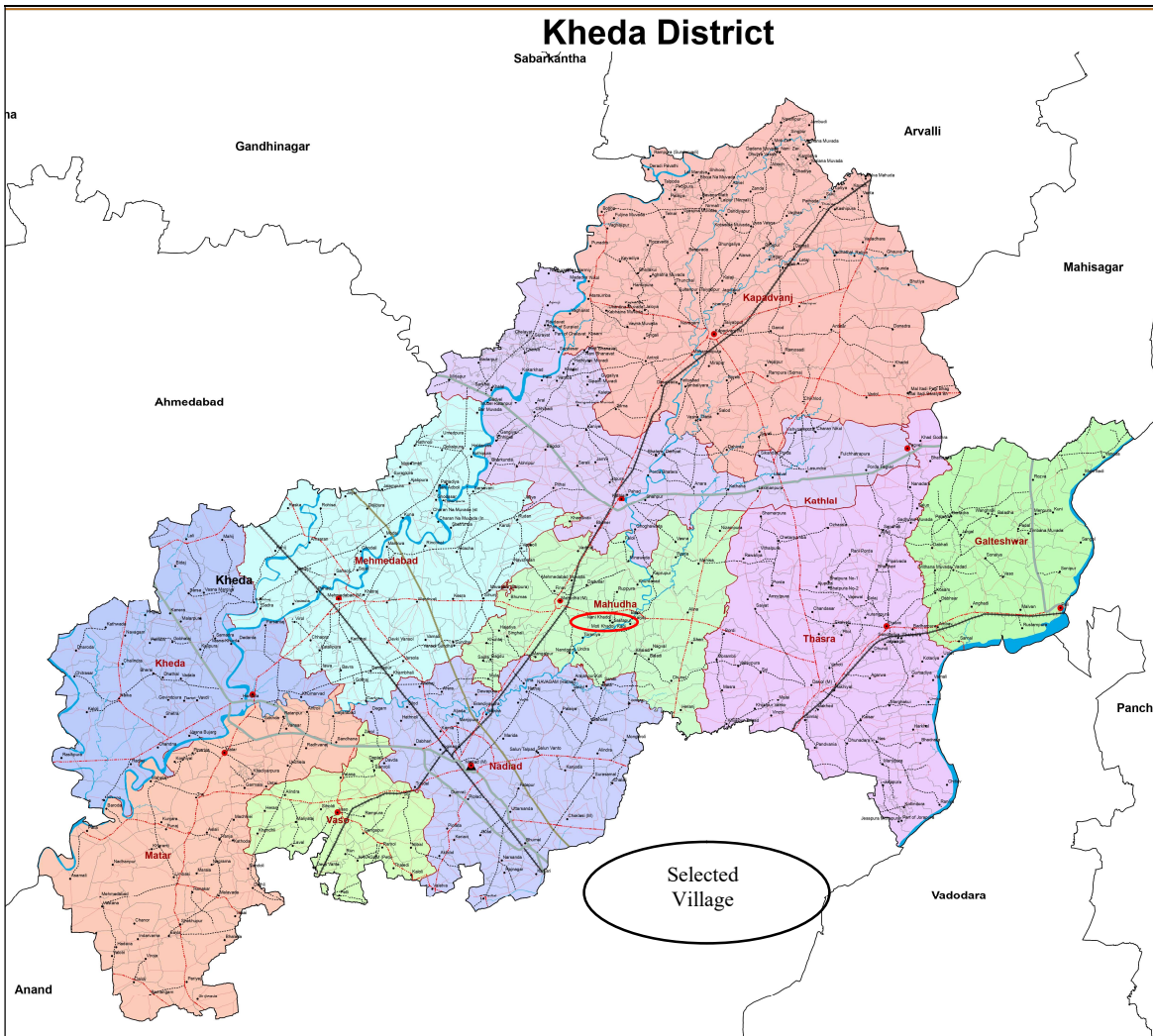
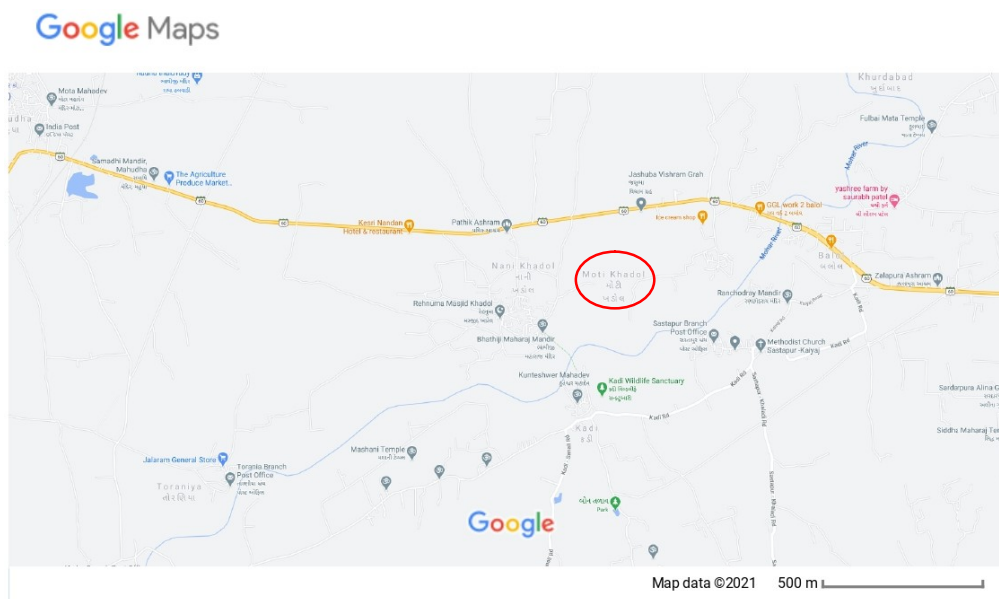


Figure 1. Location map of study area, Kheda district of Gujarat state in India



Map 2.2: Google Village Map



2.4.2 Criteria for Selection of households:

As per the study designed suggested by the Coordinator of the study, village census method was adopted. As per the methodology, village census was conducted of all households in the village. The village census noted 233 households in the village of which 31 are reported migrated.

2.5 Survey Approach

2.5.1 For Village Level Information:

During the course of resurvey work during the year 2020⁵, all the village functionaries of Village Panchayat such as Sarpanch, Gram Secretary, Village

⁵ Field work was conducted in the month of October 2020. Due to Corona Pandemic, it was very difficult to conduct the survey and sought information from the villagers and office bearers of Gram Panchayat. With this limitations, said survey was conducted.

Revenue Officer (Patwari), Gram Sevak, Aagan Wadi workers, School teachers, Officers of Primary Health Hospital, and Rozgar Sevak were consulted and data were collected from them. Also personal observations of the hamlets of village Moti Khadol was keenly done by the survey-team. The village information covers historical profile of village, village profile, demographic profile, livelihood/employment and migration status, agriculture status of village, developmental institutions & infrastructure, village infrastructure, cultural profile of the village and Others facilities such as library, ICDS centre, tube wells/piped water supply, agro-processing (mills/forms/factories), play grounds, illegal activities, government schemes (name & coverage), occurrence and frequency of natural calamities (flood/drought/cyclone/other), severity of damage due to natural calamities & coping measures and adaptation strategies by the government, non-government & other stakeholders as well as uniqueness of the village. The data were collected for agriculture year 2019-20.

2.5.2 For Group Level Information:

The information was collected through Group discussion on frequency and exposures to shocks, degree of hardship faced, main coping strategies at household level, adaptation strategies by different stakeholders, natural disaster management and relief operations during last five years, Besides, information was also collected on depth of ground water table in the village; number of ponds, dug wells, tube-wells & deep tube wells; pollution in the ground water and/or surface water; list of varieties of major crops cultivated in the village and changes in crop varieties cultivated; proportion of indigenous & improved cattle and changes in the composition; marketing channel & procurement system in the village (crops, milk, fish, other village produces); land tenure systems and changes; major farming systems (contract, co-operative, peasant, family, ranching, organic, etc.); mass/group perception about any caste/gender/political deprivation in the village, in rainfall pattern, heat/cold waves, air pollutions in the village during last 5 years, incidence of disease and medical expenditure in the village and opinion about the driving forces of such changes.

2.5.3 For Household Level Information:

A structured schedule was prepared with the objective of collecting information relating to socio-economic status of the households and their perception about rural change. Household level information includes general information about family members in household, socio-economic status of the households, ownership of assets, income and expenditure details, savings and borrowing, governance and policy issues, changes in cropping pattern and changes in village.

2.6 Dimensions Covered:

The village survey data covers various dimensions such as social, economic, agrarian, farming, ecological and policies. If resurvey then also include social change; demographic change, agrarian change; livelihood changes; economic changes; and ecological changes. In all the areas the driving forces of changes are identified.

2.7 Analytical Tools:

2.7.1 Tabular analysis

Simple tabular analysis was used for data analysis. SPSS 20 data analysis package was used for data analysis. The statistical tools like mean, standard deviation, standard error and 't' test were used for data analysis.

- **Percentage change:** Simply comparison was made on the basis of percentage. In the present study the percentage change has been worked out with the help of following formula:

$$\text{Percentage change} = \frac{\text{New value} - \text{Old value}}{\text{Old value}} \times 100$$

In case if the result is positive, it is an increase and if the result is negative, it is decrease. **Arithmetic Mean or Mean of the group: The formula for mean is as below:**

$$\bar{x} = \frac{\sum x}{N}$$

Here, \sum , represents the summation/total

X , represents scores/Values/Observations

N , represents number of scores/observations.

2.7.2 Diversification indices

The nature of crop diversification examined through changes in allocation of land for the cultivation of various crops grown over a year to measure the degree of diversification different diversification indices have been used. There are several Indices which can be used to measure of the extent of crop diversification at a given point of time. Herfindahl Index was used in present study to measure the crop diversification.

Herfindahl & Simpson Index: Herfindahl index is commonly use index as which was computed by taking sum of square of area proportion of each crop in the total cropped area.

$$\text{Herfindahl Index} = \sum_{i=1}^N P_i^2$$

Where N is the total number of crops and P_i represents acreage proportion of the i^{th} crop in total cropped area. With the increase in diversification, the Herfindahl Index would decrease. This index takes value one when there is a complete specialization and approaches zero as 'N' gets large i.e. if the diversification is perfect. Thus the Herfindahl index is bounded by zero and one. It is a measure of concentration; it is transferred by subtracting from one i.e. $1 - \text{H.I}$ which also knows a Simpson Index ($1 - \text{HI}$). The transferred value of H.I. will avoid confusion to compare it with other indices.

Entropy Index: Entropy index is regarded as an inverse measure of concentration having logarithmic character. The index would increase with the increase in diversification and it approaches zero when there is perfect concentrate i.e. when P_i equals one. The upper bound of the index is $\log N$. However, the base chosen for taking logarithms and the number of crops determines the upper limit of Entropy Index. The upper value of the index can exceed one, when the number of crops is higher than the value of the logarithms base, and it can be less than one when the number of crops is lower than the base of logarithms.

$$\text{E.I.} = \sum_{i=1}^N P_i \log (1/p_i)$$

Modified Entropy Index (M.E.I.): MEI is used to overcome the limitation of Entropy Index by using variable base of logarithm instead of fixed base of logarithm. The M.E.I., however, is equal to E.I./log N. It is worth mentioning that the base of logarithm is shifted to N number of crops. This index has a lower limit equal to zero when there is complete concentration, and it assumes upper limit of one in case of perfect dispersion, i.e. it is bounded by zero and one.

$$\text{M.E.I.} = - \sum_{i=1}^N (\text{P}_i * \text{Log}_N \text{P}_i)$$

2.7.3 Gini Co-efficient & Lorenz Curve

The Gini index, or Gini coefficient, is a measure of the distribution of income across a population. A higher Gini index indicates greater inequality, with high income individuals receiving much larger percentages of the total income of the population. The coefficient ranges from 0 (or 0%) to 1 (or 100%), with 0 representing perfect equality and 1 representing perfect inequality. Values over 1 are theoretically possible due to negative income or wealth. The Gini index is often represented graphically through the Lorenz curve, which shows income (or wealth) distribution by plotting the population percentile by income on the horizontal axis and cumulative income on the vertical axis. The Gini coefficient is equal to the area below the line of perfect equality (0.5 by definition) minus the area below the Lorenz curve, divided by the area below the line of perfect equality. In other words, it is double the area between the Lorenz curve and the line of perfect equality.

2.7.4 Body Mass Index⁶ (BMI) of Children

Health and nutrition for kids is an important and complicated issue⁷. As kids grow it becomes difficult for parents to find out whether their children are maintaining the right weight and height proportion and fall in healthy weight range or not. BMI or body mass index help to know whether child maintain a healthy life. It will also help to learn whether child is on the risk of developing any

⁶ <https://www.calculator.net/bmi-calculator.html?ctype=metric&cage=5&csex=m&cheightfeet=5&cheightinch=10&cpound=160&cheightmeter=100&ckg=14&printit=0>

⁷ <https://www.indiaparenting.com/what-parents-should-know-about-bmi-for-kids.html>

health problem in near future or not. Although it does not measure the body fat directly, it helps you calculate the fat in the body.

BMI is a measurement of a person's leanness or corpulence based on their height and weight, and is intended to quantify tissue mass. It is widely used as a general indicator of whether a person has a healthy body weight (kgs) for their height (meter). Specifically, the value obtained from the calculation of BMI is used to categorize whether a person is underweight, normal weight, overweight, or obese depending on what range the value falls between.

$$\text{Body Mass Index (BMI)} = \frac{\text{Body weight (kgs)}}{\text{Height (meter)}^2}$$

BMI categories for adults in Kg:

1. Severely underweight = less than 16.5 kg/m²
2. Underweight = 16.5 kg/m² to less than 18.5 kg/m²
3. Normal weight = 18.5 kg/m² to less than 25 kg/m²
4. Overweight = 25 kg/m² to less than 30 kg/m²
5. Obesity = 30 kg/m² and above.

As child's body develops and changes rapidly, this is why a standard adult BMI chart will not work⁸. Instead to keep track of whether child is the correct weight for their height, doctors use another chart. They start with a standard BMI calculation based on your child's height and weight. The BMI value is then used to determine how your child compares to other children of the same age and gender. This is done with the help of percentages and percentiles. BMI-for-age percentile shows how your child's weight compares to that of other children of the same age and sex. For example, a BMI-for-age percentile of 65 means that the child's weight is greater than that of 65% of other children of the same age and sex. BMI was estimated online using website <https://www.calculator.net> for percentile level of each student BMI.

BMI Category for children	Percentile Range
Underweight	<5%
Healthy weight	5% - 85%
At risk of overweight	85% - 95%
Overweight	>95%

⁸ <https://www.hdfclife.com/financial-tools-calculators/bmi-calculator>

2.7.5 ASER toolkit for reading and arithmetic competency

ASER stands for Annual Status of Education Report. This is an annual survey that aims to provide reliable annual estimated 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 6-12 years) by sex, caste and schools, were studied with the help of ASER toolkit test provided by the coordinating center as give below.

Fig. 2.1: ASER toolkit test used in selected village of Gujarat

જંગલમાં વાંદરાનું એક ટોળું હતું. તે ચાંદની રાતે નદી કાંઠે ઝાડ પર સૂતું હતું. એક તળાવમાં ચાંદો જોયો. તેણે બધાને જગાડી દીધા. બધાને થયું કે આ તો મોટું ફળ છે. પણ તેને કેવી રીતે લેવું? એકે બીજાની અને બીજાએ ત્રીજાની પૂંછડી પકડી અને નદી સુધી પહોંચ્યા. નદીમાં ચાંદો પકડે તે પહેલાં પકડ ધૂટી ગઈ અને બધા ધબાક કરતા પાણીમાં પડ્યાં.

મારી પાસે મોટર છે.
મોટર બોલે પોમ...પોમ...
એમા દૂર ફરવાની બહુ મજા.
એનો રંગ કાળો છે.

મ ર થ
૬ સ
લ બ ન
ક ધ

ગામ મોજ
સામા
રેવા પાણી
સુંક દિલ
બ્રથ
દાદી પેડું

અંક ઓળખ ૧-૯		સંખ્યા ઓળખ ૧૦-૯૯		બાદબાકી		ભાગાકાર
૧	૪	૫૧	૮૩	૪૬ - ૨૯	૬૩ - ૩૯	૭) ૮૭૯
૭	૩	૩૭	૬૫	૪૭ - ૨૮	૪૫ - ૧૭	૬) ૮૨૪
૬	૯	૫૫	૨૬	૯૨ - ૭૬	૮૪ - ૫૭	૮) ૯૮૫
૫	૨	૩૬	૨૭	૫૨ - ૧૪	૬૬ - ૪૮	૪) ૫૧૭

2.8 Limitations of the Study

As mentioned in introductory chapter, survey was conducted in the year 1964 and report was released in 1967 the main focus was only on socio-economic and agrarian aspects particularly. In the present village resurvey study, apart

from the major aspects, all other issues pertaining to climatic, ecological, surface and ground water, malnutrition, educational, demographical, sex- ratio, literacy, rehabilitation and relief measures, governance schemes, public distribution system, health and hygiene, etc. have been included in detail which have made this study more comprehensive. But its comparison with earlier survey data sets was not possible. Due to Corona Pandemic 2019 and subsequent Lockdown situation, village survey work was delayed as well as was conducted in fearful situation wherein villagers support was not at required level. Also the school were not in operation in fully. ASER toolkit test could not be conducted. Thus, some data were collected from the Headmaster of the School. Thus, some of the data collected for these surveys are not strictly comparable partly due to some differences in the methodology adopted and partly due to some variations in the responses of the human factor involved in such survey work. It is also true that certain comparisons made in this study can be regarded as only approximate based as they are mainly on the observations of the research worker with whatever supporting evidence that was available. In view of the above limitations, the available comparative data with have to be interpreted and used with caution. The project leader has indicated the limitations of the available data at relevant places in order to facilitate such a comparative study over a period of time.

2.9 Chapter Summary:

The chapter presented the various concepts used in this study, data base, sampling design, survey approach, different analytical tools and limitations of the study.

The next chapter presents overview of the selected village.

An Overview of Study Village

3.1 Introduction

In order to know the changes in various parameters of the village, it is important first to have an overview of said village. This chapter presents the village profile, livelihood/employment and migration status, agriculture status, status of developmental institutions and infrastructure, cultural profile of village and other related aspects.

Among the many economic forces of change operating in India some are exogenous while some are endogenous. The exogenous forces are those which are introduced deliberately from outside the economic system such as canal irrigation, cooperative credit and marketing societies, soil conservation, land reclamation etc. The endogenous forces are those which emerge from the existing system itself without any imposition outside the system. One of the important and unique forces of changes introduced in 1960s in the Kaira/Kheda district of Gujarat is the cooperative milk marketing organization. The agency responsible for this force of change is the Kaira district 'Cooperative Milk Producers' Union or popularly known as the "Amul", the one and only of its kind in the country so far. The Union was established in 1946 and by May 1963, a membership of 274 milk cooperative covering an area of 2000 square miles and 59000 families spread over different talukas (Anand, Nadiad, Kapadwanj, Borsad, Mehmedabad, etc.) of Kaira district. Nadiad Taluka in which surveyed village is situated is one of the talukas covered by the Kaira district is one of the talukas covered by the Kaira district Cooperative Milk Producers' Union. This taluka shares the traits of the Kaira district which is popularly known as 'Charotar' because of its fertile soil suitable for intensive and varied crop production.

As mentioned in earlier chapter, initially it was planned to conduct a bench-mark survey of social and economic condition of Moti Khadol village

prior to the establishment of a Milk Producers' Cooperative Union under the auspices of the Kaira District Cooperative Milk Producers' Union (or popularly known as "Amul") in the village in 1962-63 in order to study the impact of this milk marketing agency on dairying in particular and on the village economy in general through a resurvey of the same village after about five years. This, however, could not be done because the Union had not chalked out a definite programme of the villages which it would cover during the coming few years. As the second best alternative the villages in which the Cooperative Milk Marketing Societies had just been organized was considered. Accordingly, out of three villages (Moti khadol in Nadiad Taluka, Lasalwada and Ishwarpura in Kapadwanj taluka) where the societies had just begun and which satisfied the general condition for inclusion in the programmes (viz., the manageable size, approachability, potentiality of growth, etc.), Moti khadol was selected for the comprehensive socio-economic survey and survey was conducted in 1964¹ and report was published in 1967 (Desai, 1967). This is re-survey report of same village conducted in the year 2019-20² and report submitted in 2021.

3.2 Village Profile:

3.2.1 Geographical and Administrative Location of the Village

Moti khadol is one of the 41 villages in the Mahuda Taluka³ in the Kheda⁴ district of Gujarat State. Kheda district is divided into eight talukas, viz. Nadiad, Thasara, Kapadwanj, Mehmedabad, Kathala, Matar, Balasinor, Mahuda, Kheda and Virpur. According to Census 2011 information the sub-district code of Mahudha block is 03877. Total area of Mahudha was 248 km² including 233.93 km² rural area and 13.81 km² urban area. Mahudha has a population of 1,32,560 peoples. There were 26,359 houses in the sub-district. There are about 41 villages

¹ Field work was conducted during period from November 11, 1963 to February 20, 1964 covering data for agriculture year 1962-63.

² Field work was conducted in the month of October 2020. Due to Corona Pandemic, it was very difficult to conduct the survey and sought information from the villagers and office bearers of Gram Panchayat. With this limitations, said survey was conducted.

³ In bench mark survey, said selected village was in Nadiad Taluka of Kheda district.

⁴ The district of Kheda takes its name from the town of Kheda which stands on a rising ground near the confluence of the Vatrak and the Shedhi River. English people called it Kaira. In Sanskrit literature, Kheda was called Khetak. Moreover, it was also a main town for a large administrative area called Khetak Ahar or Vishyaya or Mandal akin to the present day district.

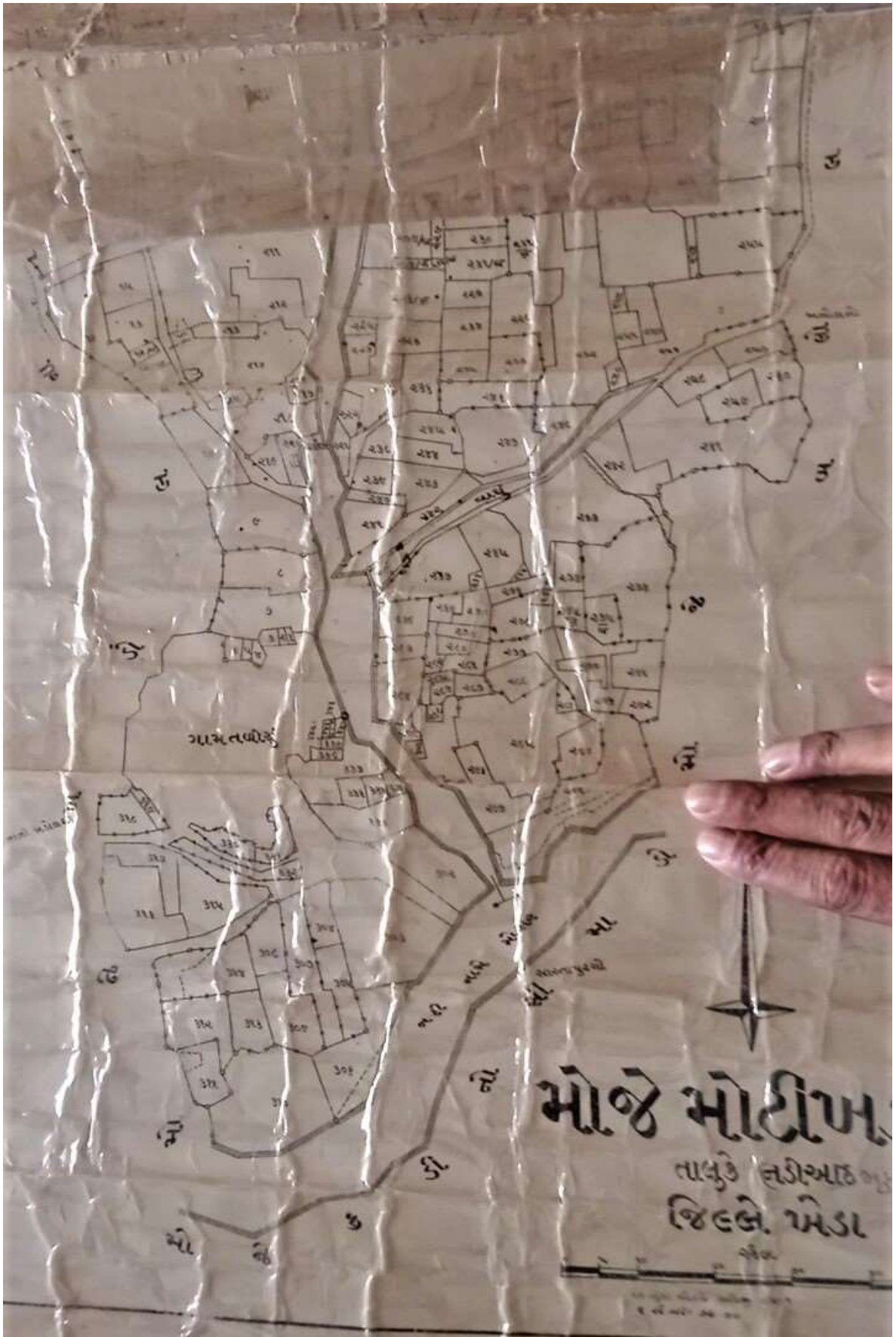
in Mahudha block. Moti Khadol village is situated 5 km away from sub-district headquarter Mahudha and 23 km away from district headquarter. From Nadiad, the largest town in Kaira district and the taluka and sub-divisional headquarters, the village is at a distance of 22.4 kilometers in the north-east direction while from Mahudha, the thana headquarters and the nearest marketing centre (for food crops) and the railway station the village is only 5.6 kilometers in the east.

Geographically, this village is spread-out latitude 22.8064476 and longitude 72.9903446999999 and geographically area of the village is 278.7 ha. As per census 2011 village code of village Moti Khadol is 517660. The details on the geographical and administrative location of selected village are presented in Table 3.1 and location of selected village is presented in Map 3.1.

Table 3.1: Geographical & Administrative Location of the Village

Particulars	In 2019-20
Location Code (as per 2011 Census)	517660
Geographical area of the village	278.7 ha
Total Households	221
Total Population	965
Post Office and Pin code	Nani Khadol B/O, Mahudha Pin code: 387335
Gram-Panchayat	Moti Khadol
Assembly Constituency	Mahudha
Parliament Constituency	Kheda
Block/Tehsil	Mahudha
District	Kheda
State	Gujarat
Nearest Primary School(with distance)	Government Primary School, Moti Khadol, 0 Km
Nearest Secondary/Higher Secondary School (with distance)	Govt. Sr. Sec. School, Nani Khadol, 1 Km
Nearest College (with distance)	Balol-1.5 km, Kathlal-11.7 km, Mahemdavad-13.9 km
Nearest Health Centre/Hospital (with distance)	Moti Khadol - 0 km, Govt. PHC Nani Khadol - 0.9 km
Nearest City or Town (with distance)	Mahudha -7.6 km, Kathlal - 19.2 km, Nadiad -24.6 km
Nearest Railway Station (with distance)	Nadiad - 24.6 km
Nearest Airport (with distance)	Sardar Vallabhbhai Patel International Airport, Ahmedabad - 75.4 km

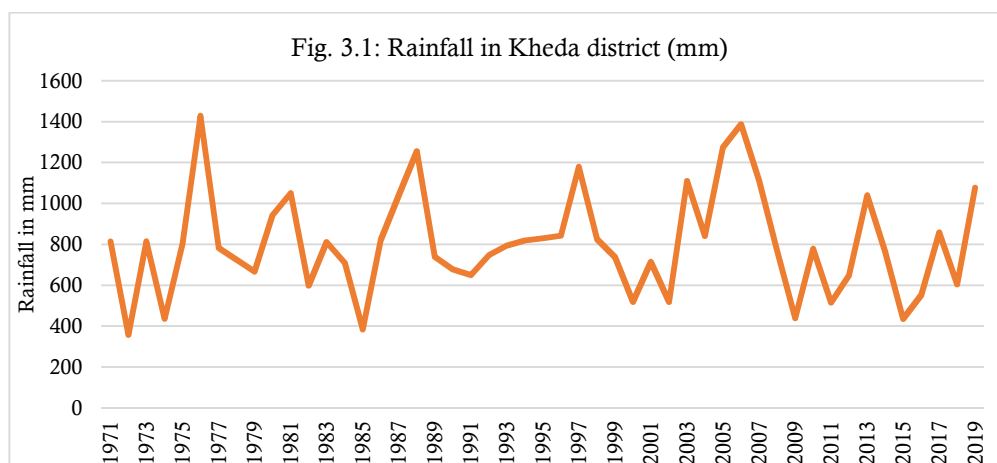
Map 3.1: Village Map of Moti Khadol



3.2.2 Climate and Rainfall

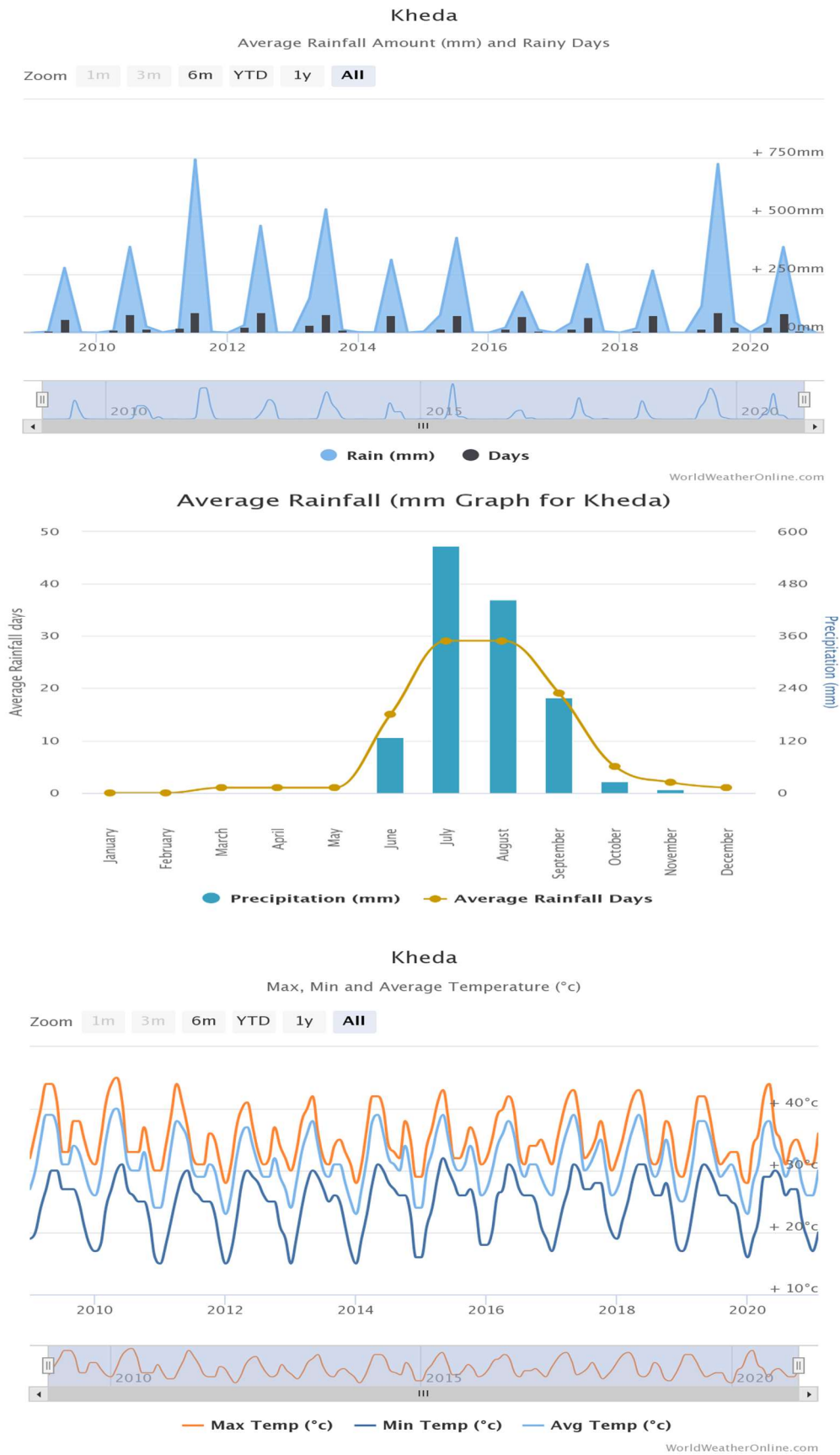
The state of Gujarat is located in the West of India. Kheda is 27m above sea level. It has tropical climate, out of 8 agro-climatic zones, five are arid to semi-arid in nature, while remaining three are dry sub-humid in nature wherein Moti Khadol village is situated in semi-arid climate in middle agro-climate zone of the Gujarat. The climate here is considered to be a local steppe climate. The average minimum temperature during winter season (November to January) was around 29 °C in year 2019 while during summer season; temperature was around 49 °C. May month is always hottest month and January is the coldest month of the year.

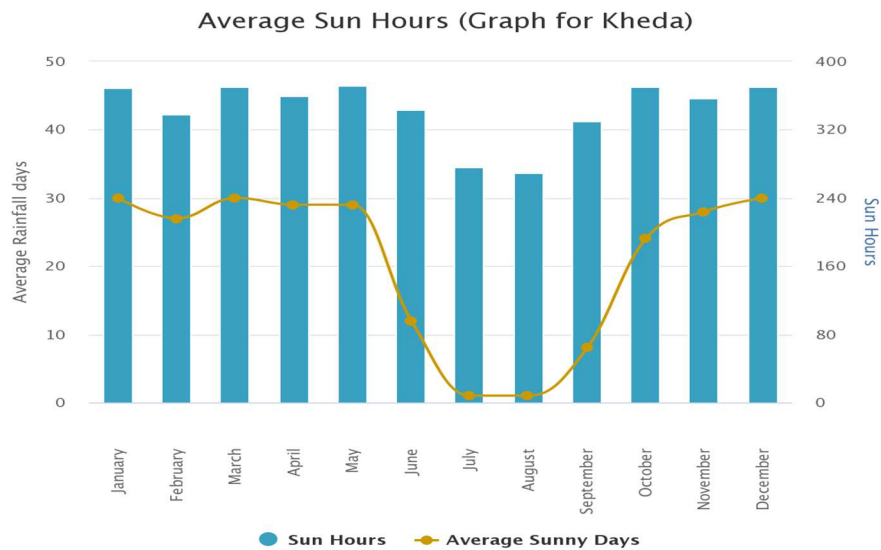
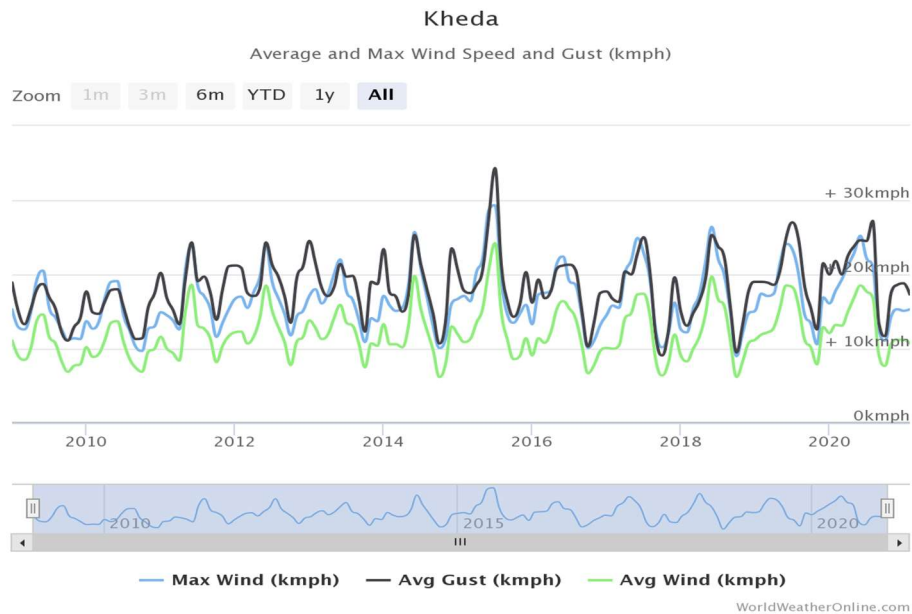
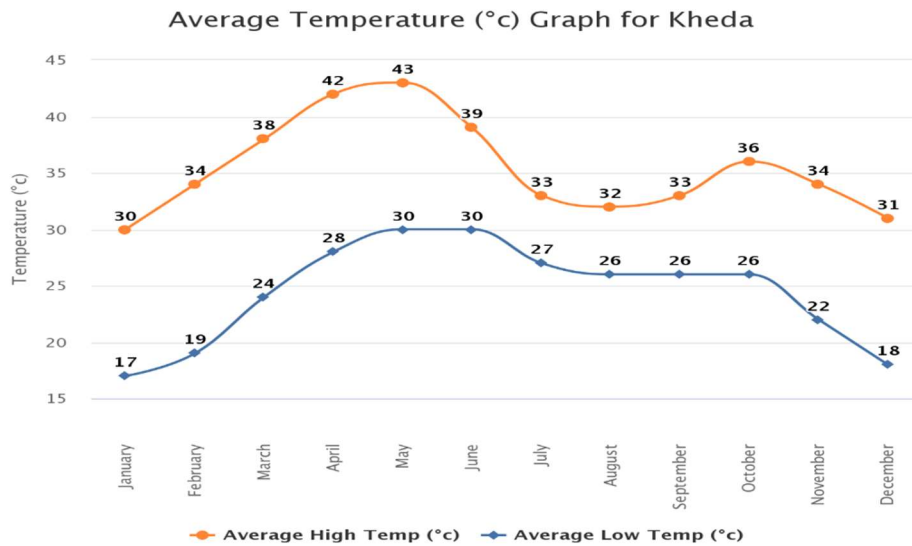
The annual temperature of the Moti Khadol village ranges between 30 to 45 per cent. Temperatures vary considerable from season to season. As per climatological data of nearest Indian Meteorological Department (IMD) Station at Ahmedabad (Latitude 23°04' N: Longitude 72°38' E), the summers are generally hot and winters are cool. Means maximum temperatures ranges between 28.4°C during January to about 41.8°C during May and the mean minimum temperatures vary between 11.7°C during January and 27°C during June. The relative humidity in Anand as per IMD varies between 32 per cent during March and 79 per cent during August. The wind velocity in the district varies from about 74km/d during November and 174 km/d during June. There is not much rainfall in Kheda all year long. The annual rainfall is 788 mm. The details on av. rainfall⁵, temperature, wind speed, sun hours and pressure is presented in Tables 3.2 & 3.3, Fig. 3.1.

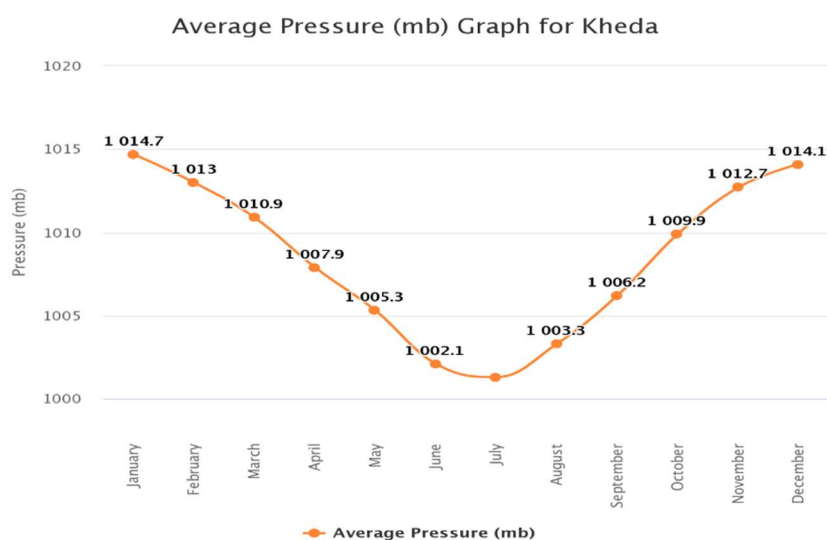


⁵ <https://www.worldweatheronline.com/kheda-weather-averages/gujarat/in.aspx>

Fig. 3.2: Av. Rainfall, Temperature, Wind Speed, Sun hours and Pressure at Kheda







3.2.3 Soil

The Kheda district lies in the Cambay basin situated between Saurashtra crater and Arvalli Swell and deccan shield in the east. The basin comprises both marine formations. Major part of the district is underlain by alluvium which intern is underlain by tertiary sedimentary formations within The Cambay Sedimentary Basin. The soil of Moti khadol was generally ground (sandy loam). It is very fertile and suitable for tobacco, paddy and bajra. The soils of the district can be classified into the following cropping main types: goradu (gravelly), black, sandy and pattern rocky type. The principal crops grown in Kheda were the ordinary millets and pulses, rice, wheat, tobacco and a little indigo. Bajra is the principal crop and the staple grain food. Tobacco is the most valuable crop produced in the district. It is grown mostly in the Charotar tract. Castor seed and sesame are the only oilseeds grown in the district.

In the benchmark survey, it was observed that the land around Moti Khadol was not absolutely plain and even. The road linking the village was at a lower plan. Similarly, the land landing to the bank of the river Mohor was also sloping downwards. The river Mohor which flowed south of the village was a tributary of Shedghi river and originates from the Sathambe hills of Sabarkantha District. The river water was used by the untouchables for drinking purpose. The narrow river bed could not be utilized for cultivation. Nor was it used for fishing as fisheries were prohibited by the government on representation having been made by the village people. The river has been

responsible for soil erosion. Soil erosion has also been due to the monsoon water flowing from the high level of the village site to the low level leading to the river. To stop the erosion of soil, a bund was constructed in 1956 and 1957 at the cost of Rs. 4626, of which Rs.1716 were contributed by the village people and the rest by the government. Thus, the village has been under a constant threat of its upper fertility layer of soil being eroded regularly both because of the frequent change in the course of the river and also because of the peculiar topographical situation. Kheda is one of Gujarat's four districts — Panchmahal, Vadodara and Anand being the others — severely affected by expanding ravines. This monsoon season, the region saw heavy rainfall due to which new ravines have been formed in Khadol, Gadia and Rania villages of Kheda and Nani Sherdi of Anand. While resurvey situation also remain the same wherein excessive rainfall ravages the crops in nearby farm where crops get submerged,

3.2.4 Communication: Telecommunications

In any economy, telecommunications networks play a crucial role in widening the market and reduction of transaction costs by enabling the ubiquitous and speedy spread of information, and thereby helps in the development process. The government of Gujarat is actively working on developing the telecommunication networks in the state by providing vertical and horizontal communication corridors to strengthen the administration system. For this it has initiated setting up a Gujarat State Wide Area Network (GSWAN) to establish the communication infrastructure in the state. There was the highest marked improvement in the postal and telecommunication facilities in the village. Today, selected villages have more than one mobile in every household and also have television facilities. Newspapers and magazines are playing an important role in giving and taking information to people.

Kheda district has a special place in Indian history for a project that was instrumental in decentralizing television broadcasting in India. Here's the little-known story of Kheda Communications Project. The Kheda Communications Project or KCP is a field laboratory that aimed at the development and local

communication in Kheda district of Gujarat. This project began in 1975 and continued till 1990. The Kheda Communications Project (KCP) did not end with this historical transmission. It continued to experiment with the process, style and content of the audiovisual communication to create a model that would be effective in taking development programmes to rural India. Kheda Communication Project was yet another pioneering experiment using television for educational purposes in India. KCP had some special features that made the project truly special in the realm of Indian Television.

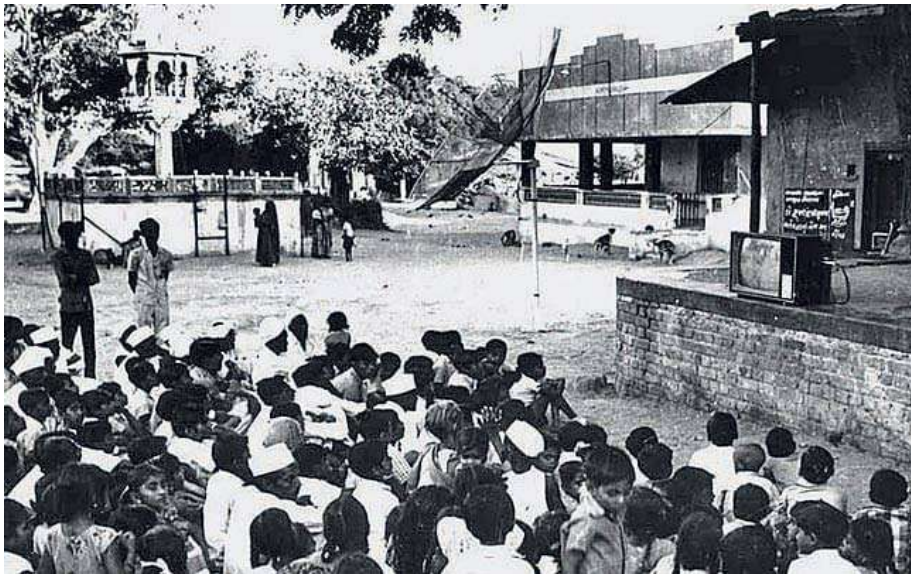


Photo 3.1: Villagers curiously watching TV programme during SITE

3.2.5 Transportation facilities: Road/Rail/Others

Moto Khadol village is well connected with road and rail transport. Nadiad, Umreth, Mehmedabad, Kapadvanj are the nearby Cities. Moti Khadol is not isolated village and can be conveniently reached both by the rail and the bus routes. The roads were all weather pucca roads. This place is in the border of the Kheda district and Anand district. Mahudha Rail Way Station is the very nearby railway stations to Moti Khadol. Gujarat State Road Transport Corporation (GSRTC) bus facility available for transportation. On the whole, the well-developed and convenient mode of transport available near the very doors had exposed the village to all exogenous changes taking place around it. It has made the mobility of villagers, as well as the marketing of goods, easy and cheap. The closest airports are Sardar Vallabhbhai Patel International Airport at Ahmedabad

(35.64 km) and Vadodara Airport (71.91 km), Surat Airport (181.69 km) and Rajkot (255 kms).

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

As per village paper and population census records, Moti Khadol village has no area under forest coverage. There are neither hills nor forest in the vicinity of the village. There is neither a pond nor a lake in the village. As per 1967 survey report, total nineteen wells were in the village of which nine were utilized for irrigation, four were used for drinking purpose and the rest were remained unused because of inadequate water. In the current 2020, no open well was found in use in the village. A number of trees could be found in the fields though the vegetation in the village cannot be said to be dense. The soil of Moti Khadol was generally goradu (sandy loam) type. It is very fertile and suitable for tobacco, paddy and bajra. However, the soil is under a constant threat of its upper fertile layer being eroded both because of the peculiar topographical situation of the village. The road linking the village was at a lower plane. Similarly, the landing to the bank of the river Mohor situated in the south of the village was also sloping downwards.

As this village is situated on the bank of Mahor river which is mostly seasonal but during heavy rainfall period, river water gets entered in village and nearby village farm which submerge about 300-400 bigha farm land. Due to the same, approach road to other farm get blocked. The land erosion was reported due to such events.

The high level of TDS has been reported in drinking water and during the summer period, the level of TDS level been reached to 3000-4000 level. Therefore, sweet drinking water was fetched from the far away tube wells because tube well closed to village also has high TDS problem. Gram Panchayat has installed water purification RO plant to provide drinkable water to villagers for drinking purpose towards which Panchayat charges little amount but. However, TDS problem was not noticed in our first survey during 1969-70. Due to high TDS in water, health issues were reported by Christian family's members. Some of them are suffering from disability in walking, taking and mental illness.

3.2.7 Demographic Profile of the Village

3.2.7.1 People:

Moti Khadol is a medium size village located in Mahudha Taluka of Kheda district, Gujarat with total 221 families residing having total population of 965 of which 495 were males while 470 were females as per Population Census 2011. Out of the total population, schedule Caste (SC) constitutes hardly 0.93 per cent of total population of village while village did not have any Schedule Tribe (ST) population. The population of children with age 0-6 was 102 which make up 10.57 per cent of total population of village. The average sex ratio of village was 949 higher than Gujarat state average of 919. Child Sex Ratio for village was 1040 which was higher than Gujarat average of 890. The village had higher literacy rate (87.72 %) compared to Gujarat (78.03 %), of which rate of male literacy stands at 95.28 per cent while female literacy rate was estimated to be 79.67 per cent. Out of total population, 450 were engaged in work activities, 88.67 per cent of workers describe their work as main work (employment or earning more than 6 months) while 11.33 per cent were involved in marginal activity providing livelihood for less than 6 months. Of 450 workers engaged in main work, 151 were cultivators (owner or co-owner) while 158 were agricultural labourers. Total marginal workers of village were 18.2 per cent of total workers in the village (Table 3.2, Fig. 3.3).

Fig. 3.3: Moti Khadol Village Population, 2011

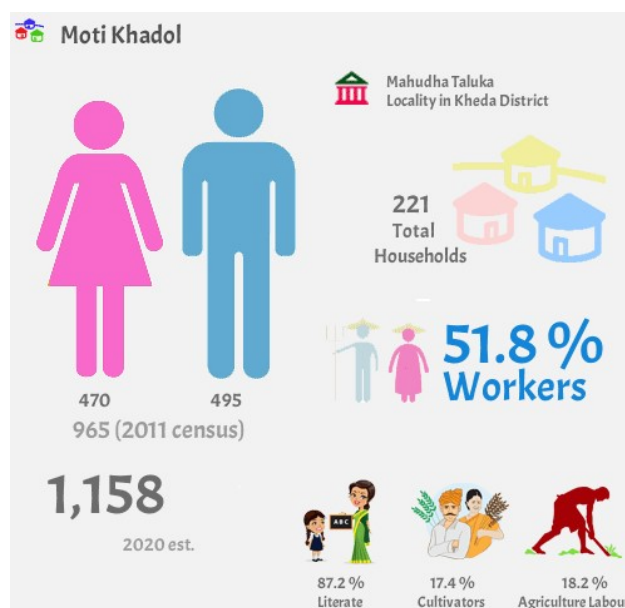


Table 3.2: Demographic Profile of the Village

Particulars	In 2011		
	Male	Female	Total
Number of households	221		221
Total Population	495	470	965
Adult	445	418	863
Child (0-6)	50	52	102
Scheduled Caste	5	4	9
Scheduled Tribe	0	0	0
Total Workers	333	117	450
Main Worker	314	85	399
Marginal Worker	19	32	51
Cultivator	412	30	442
Agricultural Labourer	288	226	514
Workers in household industries	4	1	5
Other workers	75	26	91
Non worker	162	353	515
Literate population	424	333	757
Illiterates population	71	137	208
Literacy (%)	85.66	70.85	78.45
Sex Ratio			950

Source: Census, 2011.

3.2.7.2 Religion

In the Moti Khadol, people belongs to three religions viz. Hindu, Muslim/Islam and Christian. Hindu religion accounts for three fourth of total households in the village followed by more than 15 per cent households from Muslim/Islam religion and rest were from Christian religion. Patel community is dominant and mostly they are very literate and many are retired government officers who reside in village. The rest of population were from other castes (such as SC, ST, OBC, Muslim, Christian). The level of education was found to be higher among the Patel community in the village. In most of these households, educated family members working as lawyers, teachers, and held of high government jobs. Muslim and Christians households were not found in village.

3.2.7.3 Village Settlement Pattern

Moti Khadol village in the Mahuda taluka of the Kheda district is one of the many villages of the Charotar tract which had been fortunate in having a milk collection centre for supplying milk to "Amul, established within its boundaries in 1960s. The other agricultural characteristics of the Charotar region described above exist in Moti Khadol also but what is more important

and what is not so commonly found in most villages of our country is the leadership which is progressive, dynamic and dedicated to the 'work of village development. The leaders of Moti khadol were young and fairly well educated and the various schemes which were undertaken under the auspices of the village panchayat, the cooperative service society and the cooperative milk producers' society in the village testify to their imagination and constructive abilities. The task of the leaders in Moti khadol has been facilitated by a high proportion of literacy and education. It was observed during first survey that even in such a progressive village the social harmony among the leading communities was lacking. The minority Christian community was harboring a feeling as neglect and apathy. This can easily give rise to social tension and jeopardize economic growth. The village leadership was made aware of the growing resentment among this section of the village community.

All the streets and house in the village were constructed in an unplanned manner. The village also suffered from a degree of congestion. The houses in the same line were constructed very close to each other. In fact, practically every house had one common wall with the adjoined one. Furthermore, very little space was left between two opposite rows of house the roads in the villages were very narrow, unsuitable for big vehicles.

During our resurvey in 2019-20, it was observed that society was divided into three religious groups' viz. Hindus, Christians and Muslims, who mixed freely with one another and were having cordial relations. Village has seven faliyas/sections/gallies, viz. Muslim; Mukhini Khadki; Patel Khadki-Bhagatwali faliya; Ganeshdada-Ranchodgi Swaminarayan-Rrundavan faliya; Kuwavalu, Falia-Thakur vas; Prajapati Sonatekari-Christians- Waghari vas; and Christern-Thakur vas-Fakirwala faliya. Caste Hindus dominated the society with nearly 75 percent of households and population amongst Hindus majority population were Patidar or Patel communities. Village has 11 temples and 2 Churches. There are 28 tube-wells. The village already has the facility of gas pipeline and drainage system. In addition to this, the village also has streetlights and pucca road and dirt was also found less in the village. In village, no provision store was found and village people have to go to Mahudha market to purchase the grocery.

Photo 3.2: Gas Pipe Line in Moti Khadol village



3.2.7.4 Literacy

The village had higher literacy rate (87.72 %) compared to Gujarat (78.03 %). The rate of male literacy stands at 95.28 per cent while female literacy rate was estimated to 79.67 per cent.

3.2.7.5 Poverty

Poverty was the important reason reported during benchmark survey conducted in 1964 for not sending children to school (who formed 33 percent of the total children of school going age). The data on poverty estimates for 2011 was not available. While ‘Waghari vas/faliya’ area of village has poor households, which are not included under BPL category during the last survey conducted in 2008. Only two households are included under BPL category out of nine eligible households.

3.3 Livelihood/Employment and Migration Status

3.3.1 Livelihood /Employment

The village has developed over the period. Most of the people in the village have settled outside (such as Ahmedabad, Vadodara, Surat, Nadiad, USA etc.) and the main reason for migration was children's education and jobs. While livelihood of the village is mainly based on agriculture and animal husbandry activities along with support of rural artesian trade especially leather crafts, wood, and caste based profession, and wool established in the village. The rearing of livestock is being done at large scale i.e. each household has two to three milch animals. In general, each household has its own transport facilities.

3.3.2 Primary/Secondary/Tertiary livelihoods

The village had a number of occupations grouped into Cultivation, Labour, transport, Service, Dairying and others. In the context of livelihood, agriculture and livestock are the main and subsidiary sources of livelihood. The labour rate in farm was very low which ranges between Rs. 120-140/- for eight hours while same for non-farm work was Rs. 250/- per day. It was very surprising to note during field survey that OBC/SC/Muslims/Christy (Christian) communities' member were rendering their services at very low rates.

3.3.3 Pattern of Migration and Immigration:

During 1964, it was observed that total 96 persons belonging to households had out migrated from Moti khadol while 105 persons in 22 households were immigrants to the village. During recent survey in 2020, same trend was observed wherein out of 233 households, 31 households have reported migrated specially Patel youths have migrated to abroad such as London/Canada/US/Africa for better opportunities as a service/business and many young boys and girls had gone abroad on student visa for higher studies. No case of immigration has been reported.

3.4 Agriculture Status of the Village

3.4.1 Land Utilization Pattern

Land use is the manner and extent to which land is put to use. It may also be referred to as the human use of land. Table 3.3 presents the details on land use classifications of village. The total geographical area of Moti Khadol village was reported to be 278.7 ha, of which 74.78 per cent area was reported to net sown area (208.4 ha). The net irrigated area accounted for the 96.1 per cent of net sown area mostly through canal and followed by tube well.

Table 3.3: Land Use Pattern in the Village (Unit: ha)

Particulars	as per Census 2011	
	Area in ha	% to
Total Geographical Area (in Hectares)	278.7	100.0
Forest Area (in Hectares)	0	0.0
Area under Non-Agricultural Uses (in Hectares)	45.01	16.1
Barren & Un-cultivable Land Area (in Hectares)	0	0.0
Permanent Pastures and Other Grazing Land Area (in ha)	25.31	9.1
Land Under Miscellaneous Tree Crops etc. Area (in ha)	0	0.0
Culturable Waste Land Area (in Hectares)	0	0.0
Fallows Land other than Current Fallows Area (in Hectares)	0.02	0.0
Current Fallows Area (in Hectares)	0	0.0
Net Area Sown (in Hectares)	208.36	74.8
Total Unirrigated Land Area (in Hectares)	8.06	3.9
Area Irrigated by Source (in Hectares)	200.3	96.1
Canals Area (in Hectares)*	120.1	60.0
Wells/Tube Wells Area (in Hectares)	80.1	40.0
Tanks/Lakes Area (in Hectares)	0.1	0.0

Note: *though secondary data reports about irrigation by canal, however, canal structure re laid down but till data no water was reported supplied to villagers through canal.

Source: Census, 2011.

3.4.2 Irrigation

Irrigation facility on which the whole process of agricultural transformation hinges has enlarged during last five decades or so. The irrigated area by the Moti Khadol has increased to 96 per cent of total net sown area in 2011. All the net sown area is irrigated by the groundwater (tube-well). The flow of water is very good so that most of the farmers irrigated area with flood irrigation method whereas negligible area was irrigated with micro irrigation system like drip/sprinkler. No solar irrigation pump is reported in the village. Water rate for irrigation from tube-well is Rs. 60 per hour.

3.4.3 Cropping pattern

The proportion of the area under food crops to gross cropped area was estimated to be 75 per cent. Generally, farmers of village are cultivating mostly single crop in a year, i.e. Tobacco which fetches them good returns with high productivity along with paddy and bajra on small area.

3.4.4 Livestock resources (Cattles/Birds/Others)

Livestock occupies a pride of place in the farm enterprise as a supplies of dairy products, manure and draught animals. Cows, buffaloes and goats are the milch animals. The availability of irrigation facility improved the green and dry fodder situation, consequently not only the number of livestock has gone up but also they have also become more productive. Total livestock population in village in 2019 was 333 of which 68.5 percent were cattle, 28.2 per cent were buffalo, and 3.3 per cent were goat (Table 3.4).

Table 3.4: Details on Livestock population in Village (2019)

Particulars	Cattle	Buffaloes	Goat	Sheep	Other	Total
Moti Khadol	228	94	11	0	0	333
% to total	68.5	28.2	3.3	0.0	0.0	100.0
Mahudha	13653	44659	9101	2237	317	69967
% to total	19.5	63.8	13.0	3.2	0.5	100.0
Kheda	300512	757806	134236	22166	18453	1233173
% to total	24.4	61.5	10.9	1.8	1.5	100.0

Source: <https://farmer.gov.in/livestockcensus.aspx>

3.4.5 Land tenure system and land reform measures

Under land tenure system, leasing-in and leasing-out tenancy with share cropping basis of the output is prevalent among the land holders of Moti Khadol village. Under land reform measures, consolidation of holdings was done many year ago in the village. The rate of leased-in for irrigated and rainfed land for one year is reported to be Rs. 7000 to 8000/per bigha/per year and Rs. 5000/per bigha/per year respectively.

3.5 Developmental Institutions & Infrastructure

The details on facilities available in and around Moti Khadol village in presented in Table 3.5 and discussed in this section.

Table 3.5: Facilities available in Moti khadol

Facility	Status	Town Distance
Primary School	Available	0
Secondary/Sr. Secondary School	Not Available	Nani Khadol 1Km
Anganwadi	Available	0
Primary Health Centre	Not Available	Nani Khadol 1Km
Village Pond for Cattles	Not Available	0
Bank	Not Available	0
Post Office	Not Available	0
Sahkari Milk Co-operative unit	Available	0
Public Distribution Shop	Not Available	Nani Khadol 1Km
Gram Panchayat	Available	0
Village Community Hall	Available	0
Village Cremating Centre	Available	0
Bus Stop	Available	0
Railway Station	Not Available	Mahudha 5 Km

3.5.1 Panchayat

Moti Khadol is a panchayat in the state of Gujarat (Village Code 161902) and is under Kheda zilla panchayat and Mahudha inter panchayat. The Panchayat was housed in its own building. At present nine-member gram panchayat is in place having five members from general category, three members from SC category, one from OBC category (Table 3.6). The last election was held in 2017. There were 875 voters in the village. Grants was received for welfare work from 17th Finance Commission and MLA account (table 3.7)

Table3.6: Details on Present body of Gram Panchayat

Ward No.	Name of G.P. Members	Caste	Post name
1.	Patel Nimishaben Kanakkumar	General	Deputy Sarpanch
2.	Patel Dakshaben Bharatbhai	General	Member
3.	Patel Mualikkumar Navinchandr	General	Member
4.	Patel Kajalben Surabhkumar	General	Member
5.	Khirsti Ramanbhai Ratanabhai	SC	Member
6.	Chunara Reshmaben Natubhai	SC	Member
7.	Pathan Imrankhan Salimkhan	OBC	Member
8.	Hrijan Nareshkumar Vinubhai	SC	Member
9.	Patel Devendrkumar Jayntibhai	General	Sarpanch

Table 3.7: Sources of Funds for Gram Panchayat (Year 2019-20)

Name of Grant	Amount (Rs.)	Purpose
1. MLA Grant	98000	Repairing of Water Pipeline
2. MLA Grant	99000	Repairing of Drainage Pipeline
3. Sansad Sabhya Grant	200000	For village Kennal Repairing
4. 14 th Finance Commission	326000	Village Blockwise Development Fund
5. Sanitation Grant	100000	For village sanitation

Photo 3.3: Gram Panchayat building of Moti Khadol village



3.5.2 Co-operative Society:

In the field of cooperation Moti Khadol had two institutions viz., Moti Khadol Service Cooperative Society which was established in June 1961 and Moti Khadol Milk Producers' Cooperative Union established in March 1963.

The Moti Khadol Service Cooperative Society came into existence under the general programme of community development in the year 1961. The main functions of the society were to provide credit: fertilizers and daily necessities of life such as au gar, tea, kerosene etc. The cooperative, audit had categorized this society as "B" class society which indicates the degree of efficiency in its management and working which is reported in benchmark survey. This Society went into liquidation due to a lack of money 25 year ago.

Before the establishment of this Union under the auspices of the AMUL Dairy there existed a private institution called "Sanchawala" This private agency merely provided a market for milk production in the village. It was run by a Muslim residing in the adjacent village Nani khadol. It was gathered from the discussion with the village people that this agency suffered from many defects such as irregularity in collection of milk/ in payment of money, low prices and the

absence of arrangements for of the fat content in milk. Realising these defects of the private agency and also need to have a market in the village for milk produced the leaders of the village approached the authorities of Amul dairy to start a Milk Producers' Cooperative union was established in Moti Khadol in March 1963. Although the response of the people came gradually a good number of persons had shown their willingness to organize this institution. The membership was open for the people of Moti Khadol as well as that of other neighboring villages. A staff of three persons headed by a Chairman looked after the working, of the Union. The Union collected milk daily in the morning and in the evening. The price of milk was fixed by the Amul on the basis of the fat content in milk. The testing of the fat content was done by the staff of the Union at the village. The payments for milk collected in the morning were made in the evening while for the milk collected in the evening; they were made on the following morning.

It can be gathered from the above account that the village people had greatly benefitted by the replacement of the older private agency by the Cooperative Union. Besides, the Amul Dairy provided facilities to purchase cattle, livestock feed, Veterinary Services and artificial insemination. Further, it was reported by the village leaders that the formation of this Union had benefitted in particular the small farmers and people belonging to low income group who sold livestock products to earn cash income to meet day to day expenses. However, the discussions with some old persons in the village suggested that the establishment of this Union had led to the decrease in the consumption of milk, ghee, buttermilk - the major nutritive items in the diet of the people. Furthermore, it was alleged that certain malpractices such as favorites in the testing of the fat content of milk and in the use of milk taken for test, also prevailed. It must be added, however, that no evidences supporting these complaints and allegations were forth coming from the villagers. There was a general demand for removing these malpractices and also for an increase in the price paid for milk by the Amul dairy.

Moti Khadol Dudh Utpadk Dairy has presently 272 members of which 250 were the milk pourer (table 3.8). The per day milk collected in dairy were estimated to be around 2300 Lit however only 350 litter was supplied by local villagers and rest was supplied by nearer village. Mostly payment is made in cash

every day to milk producer. Cattle feed is made available by the society for its members in two sizes, i.e 70 kg bag for Rs. 1320/- and 50 kg bag for Rs. 920/-. Besides, society provides veterinary services on demand with visit fee of Rs. 100/- in regular case of Rs. 250/- in emergency case. The office bearers of the society are paid salary, Viz. Secretary (Rs. 11350/- pm), Milk Collector/Tester (RTs. 11705/- pm) and Helper (Rs. 9710/-) (table 3.9). Besides, dairy society pays Rs. 30000/- for two months. Dairy society has its cattle feed godown in village. (Photo 3.4)

Table 3.8: Total Milk Collection during 2019-20

Year 2019-20	Liter	Income from milk (Rs.)
Buffalo milk	114601	5299625
Cow milk	971901	2753920
Total milk	1086502	32838829

Photo 3.4: Dairy Cooperative Society of Moti Khadol village



Table 3.9: Audited Statement of Account of Dairy Society (2019-20)

	Credit	Rs.		Debit	Rs.
1	Current Account Interest	92892.0	1	BMC Maintenance Cost	10560.0
2	Share Capital Interest	81720.0	2	Salary Cost	89595.0
3	Fixed Deposit Interest	28745.0	3	Dearness Cost	268560.0
4	Other Interest Income	12107.0	4	Medical Allowance	9000.0
5	Other Income	3600.0	5	Cash Allowance Cost	13080.0
6	Cattle feed trading	48297.5	6	Staff Provident Fund Cost	41535.0
7	Milk trading	1428121.2	7	Gratuity Insurance Cost	84330.0
8	Total	1695482.7	8	Leave Salary Cost	87032.0
			9	Staff Uniform Cost	12000.0
			10	Staff Bonus Cost	23384.0
			11	A.I. Salary Cost	12000.0
			12	P.S. Salary Cost	180.0
			13	T.F. Salary Cost	6000.0
			14	Staff Facility Cost	2500.0
			15	T.F. Contribution Cost	6000.0
			16	Electric Cost	167545.0
			17	Kerosene-Gas Cost	10943.0
			18	BMC Cost	12392.0
			19	BMC Repairing Cost	1799.0
			20	RO System Repairing Cost	3700.0
			21	Stationary Cost	11833.4
			22	Miscellaneous Cost	13660.0
			23	Travel Cost	12895.0
			24	Commission Cost	5248.0
			25	Audit fees	8000.0
			26	Legal/Advocate Fees	12000.0
			27	Mahyco Repairing Cost	5094.1
			28	Computer Repairing Cost	11137.0
			29	Package Policy Cost	9800.0
			30	Tax Audit Feed	7500.0
			31	Printing Cost	2000.0
			32	Room Member Fees	200.0
			33	Building Depreciation Cost	32000.0
			34	A.I. Building Depreciation Cost	6000.0
			35	Dead Stock	15000.0
			36	Celebration Cost	840.0
			37	Cleanliness Cost	25459.9
			38	BMC Depreciation Cost	30000.0
			39	Cattle feed Godown Depreciation Cost	23000.0
			40	TDS Cost	18240.0
			41	Others Cost	10300.0
			42	Total	1122342.4
	Total Income	1695482.68			
	Total Cost	1122342.36			
	Net Profit	573140.32			

3.5.3 Schools

Village has primary school up to 5th standard schooling. In the benchmark survey, it was mentioned that the village primary school was established on 04/07/1957 for 0-7 class but after 2015 this school was demoted to 5th class because many villagers were interested to read their children in private English medium schools. The total student in school is 47 in 2019-20 and two teachers were posted in village.

Photo 3.5: Primary School in Moti Khadol village



3.5.4 Financial Institutions

There is no bank or ATM facility available in the village, as Mahuda tehsil place is very close to village.

3.5.5 Social organizations (Clubs/Society/SHG/etc.)

No social organisation such as SHGs and farmer's clubs are reported working in village. Two SHGs (Mahakali SHG and Jayanti SHG) were functioning in Village which got closed seven years before due to lack of deposits/money.

3.6. Village Infrastructure

3.6.1 Market/Hat

In village, there is no provision store, so villagers have to go to Mahudha market to purchase the item. Even there is no facility of any bank.

3.6.2 Post Office

There is no post office in village.

3.6.3 Health facilities

There are no facilities of government dispensary or PHC in this village.

3.6.4 Electricity

The electricity department in Moti Khadol is working under Kheda DISCOM. The major electricity consumption in the village is found in domestic and agriculture uses. The electricity availability is round the clock. No roof top solar is reported in the village.

3.6.5 Drinking water supply

The main problem of this village is the high total dissolved solids (TDS) in the water thus the villagers have to fetch drinking water from outside of village, i.e nearby Nani Khadol village is the main source of drinking water towards which Rs. 100/- per hh per year charges are being paid by the villagers. Besides, the tube-wells in nearby farms are also used. Village has own RO plan system but it is currently closed. Groundwater level in the village is around 55-60 feet but water has high TDS content. Water and Sanitation Management Organization (WASMO) has visited the village but no such report is available in gram panchayat.

Photo 3.6: Abandoned Water Tank & RO System in Village



3.6.6 PDS

No public distribution system ration shop was available in village. Same was available in nearby village which is 1 km away, i.e. Nani khadol.

3.6.7 Other Features in Village:

The village has a Community hall, which came out after closer of Library in selected village.

3.7 Cultural Profile of the Village

3.7.1 Fairs and festivals

The popular Gujarati festivals like Navratri (Nine Nights), Janmaasthmi (Lord Krishna's birth anniversary), Maha shivratri etc., the folk entertainments such as Garbaas, Bhajan, etc., were organized in the village.

3.7.2 Temples/Mosques/Churches, etc.

The village has eleven temples and two churches. The Swaminarayan temple is at its gate.

Photo 3.7: Jai Matadi Mandir in Moti Khadol



3.7.3 Dress and ornaments

Men usually wear Chorno, which is a kind of cotton pants, and it looks quite similar to a dhoti. Chorno is one of the most common clothing which is found in the state and is hence also readily available. This clothing is adaptive to the hot and warm climate of the state. Chorno is worn along with the Kediya at the top part of the body. It is frock-like clothing and is worn widely in the state. The Kediya usually comes in a variety of vibrant colours and is also worn on special occasions. Men wear kurta and dhoti too. The men of Gujarat also wear a headgear called Phento. Women usually wear the Ghagra or the Chaniya Choli,

which is quite popular not only in Gujarat but in other parts of India too. This attire is adorned with vibrant designs and is worn during festivals and other occasions. Chaniyo is another popular attire worn by the women of Gujarat. This attire is quite similar to the Lehenga in appearance. What makes the Chaniyo unique is its vibrant colours, and distinct intricate thread works and mirror works. Women also wear Chunni. Chunni looks quite similar to the dupattas and is usually used to cover their heads. The woman of Gujarat also wears the saree, in a distinct style, which is different from that of the other parts of the country. Apart from these traditional dresses, the people of Gujarat also wear special dresses for special ceremonies (in Raas Gharba, the women wear Ghagra Choli).

However, in the present times, the costumes worn in the state has also undergone a significant shift. With the arrival of modernity, many attires have changed in their appearance. Women mostly wear salwar kameez while youngsters mostly prefer skirts, jeans, and tops. The western influence is evident in the clothing style of the people of the state. However, on special occasions, the people of the state usually prefer to wear their traditional attire over modern costumes. However, in many rural areas such as in the district of Kutch, people mostly wear their traditional attires.

However, over the period of time, dressing code of the village has changed and now common urban type dressing are observed in the village. That to family members migrated to foreign countries brought the modern culture in the village with modern amenities such as air conditioners, washing machine, fridge, Big screen television sets, etc.

3.7.4 Languages

All the people of village spoke Gujarati and can easily speak also hindi language.

3.7.5 Food habits

The typical Gujarati thali consists of rotli, dal or kadhi, rice, and shaak (a dish made up of several different combinations of vegetables and spices, which may be either spicy or sweet). The thali also include preparations made from

pulses or whole beans (called kathor in Gujarati) such as moong, black eyed beans etc., a snack item (farsaan) like dhokla, pathra, samosa, fafda, etc. and a sweet (mishthaan) like mohanthal, jalebi, doodh pak etc. Many Gujarati dishes are distinctively sweet, salty, and spicy simultaneously. Despite having an extensive coastline providing wholesome seafood, Gujarat is primarily a vegetarian state due to the influence of Jain vegetarianism.

3.7.6 Caste Systems & rituals/untouchability

In this village, the majority of the population belonged to Patel community, the rest were from other castes (such as SC, OBC, Muslim, Christian). Caste, family and religion were the main social organizations in Moti Khadol. The society was divided into three religious groups viz., the Hindus, the Christians and the Muslims. The relationship among these' three groups was harmonious though their intermingling was restricted only to the economic sphere. Further, the Hindus and the Christians did not SEC eye to eye as the former regarded the latter as convert untouchable Hindus while the Christians felt touchy about this and insists their bring insurance as original Christians. The striking future of the Hindu society, viz., social hierarchy, manifested itself in the number of castes (10) and in their Inter relations. Caste rigidities were not seriously observed among the Muslims during benchmark survey.

During current survey, some rigidity was observed across the religion and caste groups. Patel's were living in separate section while others were living in mixed localities. Also Patel's never send their children to school located in village.

3.7.7 Dowry system

In the benchmark survey, it was observed that marriages were permitted within the respective castes only though exogamy in marriages was not strictly followed. The dowry system which was prevailed in all the castes during benchmark survey has decreased. Widow remarriages were permitted only among the scheduled castes and the Christians though such cases were rare. Child marriages were no more in vogue in all the castes. The boys now

married after that attained 18 years of age while the girls did so after 16 years of age. During recent survey, it was observed that the dowry system was not in operation. In fact, this practice expresses its dislike and disapproval for this system in almost all the families in the villages. However, still practice exists in the system without much discussion on same.

3.7.8 Political establishments & openness

Political parties such as Bharatiya Janata Party, Indian National Congress are the major political parties in this area. Since the Patidar caste was predominant both socially and economically, the leadership, old and new, was organized around this caste. The new leaders initiated the activities of. Economic and social development and more important, they ventured to accept the modern. Ideas of family planning Quite naturally the modern ideas and values of the new leaders were net approved by the old leaders and the older generation. Hence, there persisted a fear of development of factions between these two groups. Further, as mentioned earlier, the member of the Savarana caste, especially the predominant caste viz., Patidar could not see eye to eye with the Christians; the latter showed an attitude of non-cooperation. These two facts might have their influence on the future pattern of leadership though it is very likely that the Patidar caste because of its favorable position may continue to dominate politically, too.

3.8 Others

The other facilities available in the village are discussed below.

3.8.1 Library

No library of any type was in Moti Khadol. The fact that the village had a library since 1947 is an indication of the' consciousness of the value of reading habits among the people. The library was established by the villagers with the help of the leaders of the time and it was open for all the communities. No fee had to be paid to avail of the facilities. The annual expenditure of the library was

Rs.75, which was entirely financed by public contributors. Apart from subscription to vernacular daily newspapers and periodicals, the library also had a collection of nearly 200 books. The library was housed in the office of the panchayat since it did not have a building, or reading room of its own. That the library was the source of getting books, newspapers and magazines for 63.3 percent of the 79 households which reported reading these is an enough indication of the satisfactory use of the library. The need for a small building for the library was felt by many people. Unfortunately, the library got closed before thirty years ago. The Community Centre has been come out at the place of library which is used for the social functions and ceremonies.

3.8.2 ICDS centre

No Integrated Child Development Services (ICDS) scheme was found working in village.

3.8.3 Tube wells/Piped water supply

The TDS level of water is very high in village and during summer season, level of TDS level reaches to 3000-4000 level which depth is ranges between 55-65 feet. The drinking water is fetched from tube well situated in farm which supplies very sweet water while water of well/tube well situated in village almost found higher level of TDS. Panchayat has installed RO system for water purification for the villagers for drinking purpose towards which Panchayat charge little amount, but poor families have opposed for this. However, TDS problem was not noticed in our first survey during 1969-70. Due to TDS problem, some health issues were reported in Christian family's members. While some of the rich Patel's families have been received water through cans (on paid basis).

3.8.4 Agro-processing (Mills/forms/factories)

As regard to the agro processing units, two floor mill/ aata chakki was reported in the service of villagers in Moti Khadol Village. Two food caterers and Music Band personals are also reported. While Patel communities have their own separate floor mill in their houses.

3.8.5 Play grounds

The small playground facility was available in primary school of the village.

3.8.6 Illegal activities

No illegal activities are reported in this village. During the survey, it was observed that peoples of this village are very polite and helping nature. The most of youngsters are well educated and participated in every social work. However, some of the villagers have started consuming liquor and around 250-300 village consume 'Gutkha Pan Masala'.

3.8.7 Government Schemes (Name & coverage)

Many government schemes are being implemented in the village, which includes job-related MNREGA, and agriculture-related mainly crop insurance (PMFBY), irrigation (PMKSY), seed minority, soil health card, PM- farmer, KCC, PMKVY etc. The Coverage under different Government sponsored schemes were given below table 3.10. It was reported that (which was very surprised to note) without the knowledge of farmers of village, soil samples were taken from their field and soil test reported were received by the Sarpanch which were found lying in gram panchayat (Photo 3.8). These soil health card were not distributed among farmers.

Photo 3.8: Soil Health card report

Soil Health Card		Soil Test Results		Soil Health Status	
कृषि नाम	सिमेंट/सिमेंट	पौष्टिक तत्व	मात्रा	मात्रा	मात्रा
कृषि	सिमेंट	नाइट्रोजन	1.40	1.40	1.40
कृषि	सिमेंट	फॉस्फोरस	0.80	0.80	0.80
कृषि	सिमेंट	पोटैशियम	124.00	124.00	124.00
कृषि	सिमेंट	कैल्शियम	35.00	35.00	35.00
कृषि	सिमेंट	मैग्नेशियम	254.00	254.00	254.00
कृषि	सिमेंट	सल्फर	9.18	9.18	9.18
कृषि	सिमेंट	जस्ता	0.50	0.50	0.50
कृषि	सिमेंट	कोबाल्ट	0.84	0.84	0.84
कृषि	सिमेंट	मोनिटोरिंग	4.12	4.12	4.12
कृषि	सिमेंट	सिलिकॉन	4.44	4.44	4.44
कृषि	सिमेंट	बोरॉन	0.38	0.38	0.38

Table 3.10: 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	9	2	22.22	100
2. KCC Card	75	67	89.33	98.51
3. Public Health Insurance Card	122	83	68.03	90.36
4. Soil Health Card	49	0	0	0
5. MGNAREGA Job Card	34	0	0	0
6. ICDS/Mid-Day Meal	80	80	100	100
7. Govt. Scholarship Schemes	3	3	100	100
8. Govt. Housing Scheme (IAY/PMAY)	52	25	48.08	88.00
9. Crop Insurance: PMFBY/Others	75	67	89.33	98.51
10. Irrigation: PMKSY/Others	0	0	0	0
11. Seed Minikit scheme	0	0	0	0
12. Farm machinery or implements	2	2	100	100
13. Life Insurance (Govt sponsored)	0	0	0	0
14. CG Farm Income Support (PM-KISAN)	70	70	100.00	82.86
15. SG Farm Income Support Schemes	0	0	0	0
16. Old Age Pension Schemes	2	2	100	100
17. Farm Pension Scheme (PM-KMY)	0	0	0	0
18. Widow Pension Scheme	9	9	100	33.33
19. Farm Loan Waiver Scheme	0	0	0	0
20. LPG scheme (PM UJJALA)	33	33	100	100
21. PMKVY/Organic Farming	0	0	0	0
22. MSP/PM-AASHA Scheme	0	0	0	0

3.8.8 Occurrence and frequency of natural calamities

No drought/cyclone/other natural calamities are reported by the villagers while sometime heat waves during summer and flood during rainy season has been experiencing by the villagers.

3.8.9 Severity of damage due to natural calamities & coping measures

This village was situated bank of Mahor river which is seasonal in nature. During heavy rainfall, water get entered in village and nearby village farm and due to which near about 300-400 is reported and approach road also get blocked of farms. Crop damaged (paddy and tobacco) by flood or unseasonal rains are

being compensated under crop insurance scheme. The compensation of Rs. 4000-5000 per ha is paid in case of paddy crop and 90 per cent of farmers in the village received the compensation under PMFBY.

3.8.10 Adaptation strategies by the government, non-government & other stakeholders

Government is well aware about the fact that farmers must adopt crop insurance scheme to avoid natural disaster. Many farmers of the village of Moti Khadol have benefitted from crop insurance schemes.

3.9 Uniqueness of the Village

Moti Khadol village in the Nadiad taluka of the Kaira district is one of the many villages of the Charotar tract which had been fortunate in having a milk collection centre for supplying milk to "Amul, established within its boundaries. Sarpanch of same family being get elected after every five years which indicate control of one family on Gram panchayat and its business. The leaders of Moti Khadol were young and fairly well educated and the various schemes which were undertaken under the auspices of the village panchayat, the cooperative milk producers' society in the village testify to their imagination and constructive abilities. The task of the leaders in Moti Khadol has been facilitated by a high proportion of literacy and education.

3.10 Chapter Summary

This chapter presented the profile of the selected village using secondary data sets. Moti Khadol village is well connected with rail and road transport.

The next chapter presents the social dynamics of selected households in the village.

4.1 Introduction:

The present chapter mainly deals with the social dynamics in terms of demographic profile of the surveyed village Moti Khadol, age and sex distribution of population in village, distribution of population by age and marital status in the village, birth and death rate by APL/BPL categories and caste/religion of households during 2014-19, distribution of households by family size, population characteristics by caste and religion in the village, educational status by sex, enrolment level of children (aged 6 -12 years) in schools by caste, sex and type of school during 2018-19, food security issues at village level during 2018-19 and pattern of malnutrition among the children (Age-group 6 12 years) by caste and sex during 2018-19.

4.2 Population and Households:

According to the 1961 census the population of Moti Khadol was 768 in 165 households; thus the average size of a household was 4.65 persons. The 1962-63 survey data also revealed a population of 731 in 158 households in the year 1962-63. Hence, the average number of persons per household worked out to 4.62 which was almost the same as the average size worked out on the basis of 1961 census figures. The decrease in the population and also in the number of households recorded in benchmark survey over the 1961 census figures can be explained by the fact that eight households had emigrated from the village. Also, one household in the village did not respond to survey enquiry. Thus, in actuality the number of households in Moti Khadol had increased by two during the period of the census enquiry and benchmark survey of said village.

As per the census 2011, the population of village was 965 while as per resurvey conducted in 2020, total population was estimated to be 1110 (Table 4.1). Thus, population of village has increased by 45 per cent in 2020 over 1961. Over the period, there was slight decline in average size of household til 2011 which was little bit improved in 2020 as per our survey. In re-survey of selected households, it was very surprising to note that the population of children (0-6 years) population to total population has decreased by 3.8 per cent points, which was 12.9 per cent in earlier survey has dropped to 9.0 per cent only. The rate of literacy has also increased in current survey, particularly significant increase in female literacy was achieved.

Table 4.1: Demographic Profile of the Selected Households of Village

Particulars	1961	1962-63			2011			2019		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Total Population	768	390	341	731	495	470	965	588	522	1110
Number of households	165	-	-	158	-	-	221	-	-	223
Av. Size of HH	4.65	-	-	4.63	-	-	4.37	-	-	4.76
Adult	NA	341	296	637	445	418	863	535	475	1010
Child (0-6)	NA	49	45	94	50	52	102	53	47	100
Scheduled Caste	NA	NA	NA	NA	5	4	0	146	114	260
Scheduled Tribe	NA	NA	NA	NA	0	0	0	0	0	0
Total Workers	NA	NA	NA	NA	333	117	450	519	449	968
Main Worker	NA	NA	NA	NA	314	85	399	433	391	824
Marginal Worker	NA	NA	NA	NA	19	32	51	86	58	144
Cultivator	NA	NA	NA	NA	412	30	442	138	24	162
Agricultural Labourer	NA	NA	NA	NA	288	226	514	72	58	130
Workers in household industries	NA	NA	NA	NA	4	1	5	40	2	42
Other workers	NA	NA	NA	NA	75	26	101	269	365	634
Non worker	NA	NA	NA	NA	162	353	515	16	26	42
Literate population*	NA	NA	NA	NA	424	333	757	552	488	1040
Illiterates population	NA	NA	NA	NA	71	137	208	36	3	70
Literacy (%)	NA	NA	NA	NA	85.66	70.85	78.5	96.6	90.4	93.7
Sex Ratio	NA	NA	NA	NA	-	-	950	-	-	888

Note: * Excluding child population 0-6 years.

Source: Field Survey data.

As per benchmark survey, there were 213 residential houses while 17 other were used for both residential and cattle shed purposes. Thus, 158 households in Moti Khadol lived in 230 houses; meaning there by that some households owned or used more than one house. Out of the total households in villages during 1962-63, 40 per cent houses were kuccha and 47.4 houses were of mixed nature. Thus, remaining 12.3 per cent households were pucca in nature.

The recent survey 2020 data indicate the drastic change in the socio-economic status of villagers as almost three fourth of households are pucca in nature while remaining were either kuccha or mixed type (Table 4.2).

Table 4.2: Types of Houses of Selected Households

Type of houses- multiple	1962-63*		2019-20*	
	Number	% to total	Number	% to total
No. of kutcha houses	86	40.3	52	22.3
No. of pucca houses	26	12.3	174	74.7
No. of mixed houses	101	47.4	07	3.0
Total	213	100.0	233	100.0

Notes: *more than one house, Concrete and thatched houses.

It was very strange to note that during the benchmark survey, 57.6 per cent families were reported as nuclear families and almost same proportion has been reported in resurvey in 2020 (Table 4.3 and 4.4). Most of the nucleated families are reported in Christian community. As observed in other places, families are getting nucleated over the period of time which is not seen in this village.

Table 4.3: Distribution of households according to caste groups and family types: 1962-63

Caste groups/ Family types	1962-63					
	Joint		Nucleated		Total	
	Nos.	%	Nos.	%	Nos.	%
Higher Castes	5	55.6	4	44.4	9	100.0
Lower castes	32	44.4	40	55.6	72	100.0
Scheduled Castes	3	12.5	15	62.5	24	100.0
Christians	13	37.1	22	62.9	35	100.0
Muslims	5	55.6	4	44.4	9	100.0
Total	67	42.4	91	57.6	158	100.0

Table 4.4: Distribution of households according to caste groups and family types:2019-20

Caste groups/Religion	2019-20					
	Joint		Nucleated		Total	
	Nos.	%	Nos.	%	Nos.	%
GEN	54	45.00	66	55.00	120	100.00
OBC	25	46.30	29	53.70	54	100.00
SC	19	32.20	40	67.80	59	100.00
ALL	98	42.06	135	57.94	233	100.00
Religion						
Hindu	73	41.71	102	58.29	175	100.00
Islam/Muslim	19	52.78	17	47.22	36	100.00
Christian	6	27.27	16	72.73	22	100.00
ALL	98	42.06	135	57.94	233	100.00

4.3 Sex Composition and Age Distribution:

Table 4.5 present the age and gender-wise distribution of the population in selected households of Moti Khadol village. This table shows very important feature that distribution of population in age group 0-15 years together has significantly declined in recent survey over base period (from 37.76 per cent in 1962-63 to 21.84 per cent in 2019-20) indicates the adoption of concept of smaller family size. While there is increase in population in the age group of 36-55 years means working population has increased by almost 7 per cent points and thus rural economy has also improved in recent survey. Children population has declined significantly showing demographic structure change in village means generally people want to have 1 or 2 child only which was observed during the current survey. While increased share of population in the age group of 56-60 and 60 and above by 5.43 per cent points together indicate village having significant population in senior citizen group for which necessary facilities need to be in village.

Table 4.5: Age and Sex distribution of the Population in Moti Khadol (%)

Age Groups	In 1962-63			In 2020		
	(during last survey)			(during Current survey)		
	Male	Female	Total	Male	Female	Total
0-1	3.33	2.35	2.87	1.02	1.53	1.26
1-5*	9.23	10.85	9.99	6.97	5.94	6.49
6-15**	26.92	22.58	24.90	14.29	13.79	14.05
16-35***	28.46	32.26	30.23	33.84	33.33	33.60
36-55****	19.49	20.82	20.11	25.85	28.93	27.30
56 -60*****	3.59	2.64	3.15	6.97	7.28	7.12
60 & above*****	8.97	8.50	8.76	11.05	9.20	10.18
Total	53.35	46.65	100.00	53.34	46.66	100.00

Notes: * Age group consists in last survey is 1-4 years, ** 5-14 years, *** 16-34 years, ****35-64 years, *****55-60 years.

Source: Field Survey data.

Table 4.6 presents marital status by age groups selected households of in Moti Khadol village. It can be seen from the table that in earlier survey period, more than half of the children aged between 16-20 years were married while in current survey, it was noticed that almost 9 per cent of this age group children were married which is a very important change observed over the period of time.

Early marriage is not socially, economically and physically better for children before attending age of 21 years. The recent shift may be because of the fact that most of male and female are giving priority to get better education and employment before getting married. One more important picture is depicting in table that 81 percent persons were married in age 26-30 group in earlier as well as in recent survey. In recent survey, total 41 cases were reported under widow/er category (75.68 per cent persons) which belongs to age category of 56 and above age.

Table 4.6: Distribution of population by age and marital status in Moti Khadol (in %).

Age Groups	In 1962-63				In 2020			
	(during last survey)				(during Current survey)			
	Married	Unmarried	Widow/er	Divorced & others	Married	Unmarried	Widow/er	Divorced & others
0-10	0.00	100.00	0.00	NA	0.00	100.00	0.00	0.00
11-15*	2.76	97.24	0.00	NA	0.00	100.00	0.00	0.00
16-20**	56.25	43.75	0.00	NA	8.97	91.03	0.00	0.00
21-25	88.00	8.00	4.00	NA	57.50	42.50	0.00	0.00
26-30***	81.32	4.67	14.01	NA	80.33	18.85	0.82	0.00
56 and above****	45.31	3.12	51.57	NA	90.66	5.05	3.79	0.51
All age groups	46.30	45.40	8.30	NA	85.42	1.56	13.02	0.00
Males	42.6	52.1	5.40	0.0	60.72	35.41	3.69	0.18
Females	50.7	37.5	11.7	0.0	57.99	39.46	2.21	0.34

Notes: * Age group consists in last survey is 0-14 age group category, ** age group consists 25-34, *** age group consists 45-54 and **** age group consists above 55 years in earlier survey.

Source: Field Survey data.

Table 4.7 presents distribution of households by family size in Moti Khadol village. It can be seen from the table that out of the total households reported, the highest number of households (about 68 percent) had four to eight family members and they accounted for about 76 per cent of total population of village whereas in earlier survey, corresponding figure in same category (4-8 family members/hh) was 62 percent in village households. The share of minimum number of about 5 per cent of total households had 9-10 family members and above, while in current survey, corresponding figure was 5.15 per cent of total households had the same. It indicates that over the period, family's composition

has not been changed much. Table 4.8 and 4.9 indicates that average family size has increased from 4.62 to 4.72 persons per household.

Table 4.7: Distribution of households by family size

Family size	In1962-63				In 2020			
	(during last survey)				(during Current survey)			
	No. of households	% of total	No. of persons	% of total	No. of households	% of total	No. of persons	% of total
1	52	32.91	NA	NA	16	6.87	16	1.44
2					19	8.15	38	3.42
3					28	12.02	84	7.57
4	98	62.03	NA	NA	49	21.03	196	17.66
5					42	18.03	210	18.92
6					38	16.31	228	20.54
7					19	8.15	133	11.98
8	08	5.06	NA	NA	10	4.29	80	7.21
9					6	2.58	54	4.86
10 & above					6	2.58	71	6.40
Total	158	100.0	731	100.0	233	100.0	1110	100.0

Note: NA Not available.

Table 4.8: Households by Family size and also groups (1962-63)

Caste Household size	Groups	Higher castes	Intermediate castes	Lower castes	Scheduled castes	Christians	Muslims	Total
Small (having 1 to 3v person)		4 (44.4)	19 (26.3)	6 (25.0)	4 (44.4)	17 (48.5)	2 (22.2)	52 (32.9)
Medium (having 4 to 8 persons)		5 (55.6)	47 (65.2)	18 (75.0)	5 (55.6)	17 (48.5)	6 (66.7)	98 (62.0)
Large (having more than 8 persons)		---	6 (8.5)	---	---	1 (3.0)	1 (11.1)	8 (5.1)
Total		9 (100.0)	72 (100.0)	24 (100.0)	9 (100.0)	9 (100.0)	9 (100.0)	158 (100.0)
Average size of household		4.22	5.10	4.58	3.77	3.65	5.44	4.62

Table 4.9: Average Size of Household 2020

Caste groups/Religion	Average size of household 2019-20		
	Joint	Nucleated	Total
Caste			
GEN	5.48	4.00	4.67
OBC	5.72	5.07	5.37
SC	4.89	4.18	4.41
ALL	5.43	4.28	4.76
Religion			
Hindu	5.41	4.20	4.70
Islam/Muslim	5.95	5.47	5.72
Christian	4.00	3.56	3.68
ALL	5.43	4.28	4.76

4.4 Caste/religion wise Distribution:

Tables 4.10 and 4.11 presents caste/religion wise distribution of population in selected households of selected village at two period points. It can be seen from the table that the Hindu religion accounted for the three fourth of total households as well as population of selected village in 2020. The share of Islam community accounted for around 16-18 per cent and rest were Christian households/population. Over the period of time, share of households of Christian households have been declined while share of Muslim/Islam households have increased and share of general households have remained almost same.

Table 4.10: Distribution of Households and Population according to Caste groups 1962-63

Caste groups	No. of house holds	Percentage to total	Population	Percentage total
Higher castes (Brahmins & brains)	9	5.70	38	5.20
Intermediate Caste (Patidar)	72	45.56	372	50.88
Lower Castes (Baraiyas, Suthar, Luhar, Prajapati & Valand)	24	15.19	110	15.00
Scheduled Castes (vaghri & Harijans)	9	5.70	34	4.65
Christians	35	22.15	128	17.51
Muslims (Pathan & Malek)	9	5.70	49	6.76
Total	158	100.00	731	100.00

Table 4.11: Population Characteristics in the village by Caste and Religions 2020

Caste	In 2020			
	No. of house holds	Percentage to total	Population	Percentage total
Caste				
GEN	120	51.50	560	50.45
OBC	54	23.18	290	26.13
SC	59	25.32	260	23.42
ALL	233	100.00	1110	100.00
Religion				
Hindu	175	75.11	823	74.14
Islam/Muslim	36	15.45	206	18.56
Christian	22	9.44	81	7.30
ALL	233	100.00	1110	100.00

4.5 Literacy Pattern by Sex:

Table 4.12 presents educational status by sex in selected households. As per benchmark survey, village had a high ratio of literacy. The overall literacy ratio of population was 51.1 percent, rich is far higher than the corresponding percentage for the district (36.3) and for the State (30.3). A happy feature of this high literacy ratio was that all literates i.e. 374, in the village had taken some

formal education. Another happy feature was that both among the adults and the children of school going age the literacy ratios were high 55.8 among the former and 65.9 among the latter. The reasons for the high overall literacy ratio as also amore: the adults and the Children of school going age, were the availability of educational facility since 1860 and more important.

During resurvey in 2020, same kind of trend was reported. Table indicate that there is significantly declined in number of illiterate population in over the period of time, i.e. from 69.41 per cent in last survey in 1962-63 to 6.3 per cent in recent survey. In case of male, increase was from 79 per cent to 91 per cent while corresponding figures for female are 31 per cent to 85 percent. The primary level education has significantly increased in recent survey that to very impressive growth was achieved in female literacy in village in current survey. Near about 21 percent population was literate up to post graduation level in current survey whereas in earlier survey in 1962-63, this was just 1.18 percent.

Table 4.12: Educational Status by Sex in Moti Khadol village

Educational Status	1962-63*						2020**					
	No. of male	% of total	No of female	% of total	All	% of total	No. of male	% of total	No of female	% of total	All	% of total
Illiterate	49	20.76	152	69.41	201	44.18	19	3.44	47	9.63	66	6.3
Literate	187	79.24	67	30.59	254	55.82	47	8.51	44	9.02	91	8.8
Up to Primary	62	33.16	27	40.30	89	35.04	86	15.58	101	20.70	187	18.0
Up to Secondary	89	47.59	38	56.72	127	50.00	250	45.29	207	42.42	457	43.9
Up to Intermediate	33	17.65	2	2.99	35	13.78	12	2.17	2	0.41	14	1.3
Technical							119	21.56	66	13.52	185	17.8
Graduates	3	1.60	0	0.00	3	1.18	19	3.44	21	4.30	40	3.8
Post graduates & professionals							552	100.00	488	100.00	1040	100.0
Total Population	236	100.00	219	92.80	455	100.00	19	3.44	47	9.63	66	6.3

Notes: * Adult literacy (15 years and above); ** literacy excluding children age up to 6 years.

4.6 APL/BPL wise Distribution:

APL/BPL wise population distribution in selected households of Moti Khadol is presented in Table 4.13. It can be seen that the out of total households, 99 per cent of household belongs to APL category. All the general category households as well as households from Christian religion were categorized above poverty line criteria, while only one household each from OBC and SC category

was reported under BPL category, which was very surprise to note. During survey, it was reported that nine households are eligible to be included under BPL, while only two are listed in the BPL list. Thus, there is a need to have proper listing of household as per stipulated criteria under APL /BPL category.

Table 4.13: APL/ BPL Households in Moti Khadol village 2020

Caste	In 2020							
	APL		BPL		ABPL		ALL	
Caste	No.	%	No.	%	No.	%	No.	%
GEN	120	100.0	0	0.0	0	0.0	120	100.0
OBC	53	98.2	1	1.8	0	0.0	54	100.0
SC	58	98.3	1	1.7	0	0.0	59	100.0
ALL	233	99.1	2	0.9	0	0.0	233	100.0
Religion		0		0		0		0
Hindu	174	99.4	1	0.6	0	0.0	175	92.0
Islam/Muslim	35	97.2	1	2.8	0	0.0	36	122.2
Christian	22	100.0	0	0.0	0	0.0	22	127.3
ALL	231	99.1	2	0.9	0	0.0	233	100.0

Table 4.14: Distribution of households according to caste groups and income groups 1962-63

Caste groups/ Income Groups Rs.	Below Rs. 300	301- 600	601-900	901- 1500	1501- 2400	2401- 4800	4801- 10000	10000 & above	Total
Higher castes	---	1 (11.1)	5 (55.6)	2 (22.2)		1 (11.1)	---	---	9 (100.00)
Intermediate castes	3 (4.2)	7 (9.7)	9 (12.5)	17 (23.6)	16 (22.2)	14 (19.4)	4 (5.6)	2 (2.8)	72 (100.00)
Lower castes	1 (4.2)	4 (16.7)	11 (45.8)	5 (20.8)	3 (12.5)	---	---	---	24 (100.00)
Schedule castes	2 (22.2)	6 (66.7)	1 (11.1)	---	---	---	---	---	9 (100.00)
Christians	4 (11.4)	13 (13.1)	12 (34.3)	1 (2.9)	1 (2.9)	---	---	---	35 (100.00)
Muslims	1 (11.1)	2 (22.2)	1 (11.1)	3 (33.4)	3 (33.4)	1 (11.1)	4 (2.5)	2 (1.3)	9 (100.00)
Total	11 (6.9)	33 (20.8)	39 (24.8)	30 (18.9)	33 (14.0)	16 (10.2)	4 (2.5)	2 (1.3)	158 (100.00)

Note: Figures in brackets are percentage

While during benchmark survey, no such classification was exist, thus distribution of households as per income level was presented (table 4.14) which indicate that 89 per cent of SC households were earning less than Rs. 600/-. Furthermore, the relationship between caste and economic well-being (as expressed in terms of household income) is clearly evident from the table and thus the process of change in the feudal nature of the society in Moti Khadol was very slow. The data reveals that relatively richer strata in the village was largely composed of the superior caste Hindus; Intermediate caste Hindus, Higher and Lower castes, in that order whereas a larger proportion of lower caste, scheduled

caste and Christian Households belonged to the low income groups viz., below Rs. 300 to may be pointed out that as much as 67 percent of the Higher caste Hindu households earned less than Rs.90 per annum as they were largely composed of Brahmins (7 out of 9 households) who pursued the profession of priesthood, the poorly paid occupation.

4.7 Birth and Deaths:

Tables 4.15 to 4.17 presents birth rate and death rate reported in benchmark as well as resurvey period (APL/BPL categories families) in Moti khadol village. As seen earlier, more than 99 per cent of households in village are above poverty line which may have some impact on these parameters. Across the caste groups, highest number of births are reported in Muslim community and highest number of death are reported in OBC Hindu. No such classification was reported in benchmark survey.

While during the benchmark survey, a redeeming feature of the mortality situation in the village was that even the highest death rate of 21 per 1000 of population was lower than the death rate of 27 per 1000 for the country as a whole. This indicate -that people' of the village enjoyed a good health and whenever they suffered from serious illness they availed of the medical facilities available at Mahudha, only five kilometers from the village. However, it is pertinent to note that of the 58 deaths occurred during 1958-62, 34 or 59 percent were in the infant age group i.e. less than one year; thus indicating the under-nourishment of the babies and their negligence by their parents. The infant mortality rate for the five years 1958-62 works out to 203.5 per 1000 live births a staggeringly high rate as compared to the- corresponding rate of 83 for India in 1961. It is difficult to account for this disturbing feature of Moti Khadol as the village was not subject to any kind of child diseases or epidemics during the period of reference. However, the general and frequent complaints of such illness as high fever and insufficient milk of mother may explain the high infantile mortality during benchmark survey period.

Table 4.15: Birth rate and death rate by categories of households during 1962-69

Year	Number of birth			Number of death			Natural increase			Crude birth rate per 1000 of population			Crude birth rate per 1000 of population			Growth birth rate per 1000 of population		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
1958	26	18	44	7	11	19	19	14	33	78.0	62.5	70.8	21.0	13.9	17.7	57.0	48.6	53.1
1959	19	16	35	7	13	12	12	10	22	54.4	53.3	53.9	20.1	20.0	20.0	34.4	33.3	33.8
1960	16	13	29	10	14	6	6	8	15	44.7	42.1	43.4	27.9	12.9	20.9	16.8	29.1	22.4
1961	12	11	23	4	11	8	8	4	12	32.9	34.8	33.7	11.0	22.2	16.1	21.9	12.7	17.6
1962	14	22	36	2	9	12	12	15	27	37.5	67.7	51.4	5.3	21.5	12.8	32.2	46.2	38.5

Table 4.16: Table Infant Mortality (1958-1962)

Year	Total birth	Infant deaths			Infant mortality per 1000 live births
		Males	Females	Total	
1958	44	3	3	6	136.3
1959	35	4	4	8	228.5
1960	29	7	3	10	344.8
1961	23	2	3	5	217.3
1962	36	1	4	5	138.8
Total	167	17	17	34	203.5

Table 4.17: Birth rate and death rate by categories of households during 2014-2019

Particulars	Numbers of births/household				Numbers of deaths/household			
	APL	MAPL	BPL	Overall	APL	MAPL	BPL	Overall
Caste Hindu General	10.7	-	-	10.7	6.1	-	-	6.1
OBC Hindu	9.5	-	-	9.5	7.1	-	-	7.1
SC Hindu	17.2	-	0.0	16.8	6.9	-	0.0	6.7
OBC Muslim	22.8	-	0.0	22.3	1.0	-	0.0	1.0
SC Christian	12.3	-	-	12.3	4.9	-	-	4.9
All Categories	14.0	-	0.0	13.9	5.3	-	0.0	5.2

Note: Birth rate and death rate are calculated on every 1000 population.

4.8 Enrollment and Drop outs in different educational level (gender-wise)

Even though the village had a school of its own only in 1957 it enjoyed the educational facility for more than nine decades as there was a school in the adjoining village Nani Khadol since 1869. The school in Nani khadol was under private management until 1962 when the District Local Board (now the District Panchayat) took over the management. The school provided education up to the seventh standard. A school up to the seventh standard was established in Moti Khadol in 1957. The funds required to start this school were raised partly by the village people and partly by the government. The school was housed in four pucca rooms. The number of teachers in the reference year was three; of which two

were trained and one untrained. The nearest high school was in Mahudha the semi-urban marketing Centre, five-kilometers from Moti khadol. Since 1959 or so the village had been fortunate in having- a private high school (for 8th to 10th standard) in the adjoining village Nani khadol. The facilities for college education (for arts-, commerce, science and, law degrees) were available at distance of twenty-three kilometers at Nadiad from where the State transport bus services run regularly on the Nadiad-Dakor route on which the village was situated. It can, therefore, be said that the education facilities during available to the Moti khadol benchmark survey were satisfactory as compared to that available to an average village in rural India. The benchmark survey noted a promising picture for the first five years i.e. 1958-59 to 1961-62, as the numbers male and female children as well as total children registered at the school had increased. While number of children registered at the school in 1962-63 decreased by 15 as compared to earlier year. The main reason for that decline was the decrease in the number of female children registered at the school due to the transfer of one and only is teacher in the year 1962-63.

While during resurvey in 2020, number of children enrolled in school were drastically declined to around 40 may be due to the fact that school provides education up to Vth standard only. The equal share of boys and girls in total enrolment was important to note here.

Table 4.18: Number of Children registered at the School during 1958-59 to 1962-63

Sex/Years	1958-59	1959-60	1960-61	1961-62	1962-63
Male	50	67	80	86	88
Female	42	46	56	69	52
Total	92	113	136	155	140

Table 4.19: Number of Children registered at the School during 2014-2019

Year	General			OBC			SC			ALL		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
2015	0	0	0	15	22	37	0	0	0	15	22	37
2016	0	0	0	18	19	37	0	0	0	18	19	37
2017	0	0	0	26	20	46	0	0	0	26	20	46
2018	0	0	0	21	18	39	0	0	0	21	18	39
2019	0	0	0	19	22	41	0	0	0	19	22	41
2020	0	0	0	23	23	46	0	0	0	23	23	46

The benchmark survey indicates that of the total children attending school 40 percent (i.e. 48 in absolute number) were girls whereas the girls at school formed 62.3 percent of the total girls of school going age. The latter percentage is more than double the corresponding percentage of 30.5 for adult women, which suggests that the old discriminating attitude of people towards female education had changed for the better in the last 15-20 years. However, the lead of the male children to the extent of literate though marginal was maintained. Further, only one girl belonging to the Muslim Community had discontinued her education because of work at home. The benchmark survey indicated the insignificant relationship between caste and the education of a child. The caste factor which was important before 15-20 years in determining the education of both males and females had lost its force in the village. In other words, members of all castes had chanced, their earlier ideas on the value of education in general and of female education particular even in 1962-63 (Table 4.20).

Table 4.20: Children of School- going age by sex and groups (1962-63)

Caste groups	Attending			Non-attending			Discontinued			Total		
	M	F	T	M	F	T	M	F	T	M	F	T
Higher castes	2 (50.0)	5 (100.0)	7 (77.7)	2 (50.0)	---	2 (22.3)	---	---	---	4 (100)	4 (100)	9 (100)
Intermediate Caste	41 (72.0)	25 (69.4)	66 (71.0)	16 (28.0)	11 (30.6)	27 (29.0)	---	---	---	57 (100)	36 (100)	93 (100)
Lower Caste	11 (61.1)	5 (33.3)	16 (48.4)	7 (38.9)	10 (66.7)	17 (51.6)	---	---	---	18 (100)	15 (100)	33 (100)
Scheduled caste	3 (75.0)	3 (75.0)	6 (75.0)	1 (25.0)	1 (25.0)	2 (25.0)	---	---	---	4 (100)	4 (100)	8 (100)
Christians	12 (80.0)	7 (70.0)	19 (76.0)	3 (30.0)	3 (30.0)	6 (24.0)	---	---	---	15 (100)	10 (100.0)	25 (100.0)
Muslims	3 (42.8)	3 (42.8)	6 (57.2)	3 (42.8)	3 (42.8)	7 (50.0)	---	1 (14.4)	1 (7.2)	7 (100)	7 (100)	14 (100)
Total	72 (68.5)	48 (62.3)	120 (65.9)	28 (36.3)	28 (36.3)	61 (33.5)	---	1 (14.4)	1 (0.6)	105 (100)	77 (100)	182 (100)

Notes: Figures in brackets are percentage; M-Male, F- Female and T- Total.

As mentioned earlier, the village primary school was established on 04/07/1957 for 0-7 class but after 2015 this school was demoted to 5th class because many villagers were interested to send their children in private English medium schools. The enrolment level of children (aged between 5-15 years) in school presented in Table 4.20 indicate that majority of the children were

enrolled to Gujarati medium vernacular children while children from General category as well as from Christian household are enrolled to English medium private school.

Table 4.21: Enrolment level of children (aged 5-15 years) in schools by caste, sex and type of school in Moti Khadol village 2019-20

Children categories	Govt. school		Private school		Other schools	Out of school	Total
	Vernacular	English	Vernacular	English			
Male Children	62.2	0.0	20.7	17.1	0.0	0.0	100.0
Caste Hindu General	14.7	0.0	44.1	41.2	0.0	0.0	100.0
OBC Hindu	100.0	0.0	0.0	0.0	0.0	0.0	100.0
SC Hindu	100.0	0.0	0.0	0.0	0.0	0.0	100.0
OBC Muslim	100.0	0.0	0.0	0.0	0.0	0.0	100.0
SC Christian	60.0	0.0	40.0	0.0	0.0	0.0	100.0
Female Children	63.0	0.0	9.3	27.8	0.0	0.0	100.0
Caste Hindu General	41.9	0.0	16.1	41.9	0.0	0.0	100.0
OBC Hindu	100.0	0.0	0.0	0.0	0.0	0.0	100.0
SC Hindu	100.0	0.0	0.0	0.0	0.0	0.0	100.0
OBC Muslim	100.0	0.0	0.0	0.0	0.0	0.0	100.0
SC Christian	50.0	0.0	0.0	50.0	0.0	0.0	100.0
All Children	62.5	0.0	16.2	21.3	0.0	0.0	100.0
Caste Hindu General	27.7	0.0	30.8	41.5	0.0	0.0	100.0
OBC Hindu	100.0	0.0	0.0	0.0	0.0	0.0	100.0
SC Hindu	100.0	0.0	0.0	0.0	0.0	0.0	100.0
OBC Muslim	100.0	0.0	0.0	0.0	0.0	0.0	100.0
SC Christian	55.6	0.0	22.2	22.2	0.0	0.0	100.0

4.9 Food Security & Child nutrition (BMI):

Table 4.22 presents child nutrition level based on BMI (Body Mass Index) of village. As per BMI index values, female child found to be healthier than male child. Out of total female child, 34.8 percent of female child were found healthy, none of them were obsessed and 65.2 per cent female child were underweight. While in case of male children, 30.4 per cent were found healthy, none of them was with obesity while 69.6 per cent were underweight. If we see class wise nutrition level, we found that all the students of class III were underweight. The boys of class II were found healthy. Overall, despite of progressive nature of village, the nutrition level of the children seems to be unattained and need proper attention towards their diet. While across the religion and Caste category (table 4.23), child nutrition was very poor in children from other backward classes that to particular social economically backwards households.

Table 4.22: Child Nutrition based on BMI (Body Mass Index) in village 2019-20

Class of study	Av. BMI score	Av. Percentile score*	Children-BMI ¹ -Percentage				Total
			Under-weight	Healthy Weight	At risk of Over Weight	Over Weight/ Obesity	
Female Children							
I	14.03	18.6	40.0	60.0	0.0	0.00	100.0
II	13.01	14.6	60.0	40.0	0.0	0.00	100.0
III	12.76	4.2	100.0	0.0	0.0	0.00	100.0
IV	14.25	15.3	50.0	50.0	0.0	0.00	100.0
V	13.66	4.8	75.0	25.0	0.0	0.00	100.0
Grand Total	13.50	11.6	65.2	34.8	0.0	0.00	100.0
Male Children						0.00	100.0
I	13.84	7.2	60.0	40.0	0.0	0.00	100.0
II	13.90	7.5	0.0	100.0	0.0	0.00	100.0
III	13.39	2.0	100.0	0.0	0.0	0.00	100.0
IV	13.05	6.7	80.0	20.0	0.0	0.00	100.0
V	13.92	4.0	75.0	25.0	0.0	0.00	100.0
Grand Total	13.48	6.0	69.6	30.4	0.0	0.00	100.0

Note: Survey of randomly selected students of the schools from all. *Calculated online on <https://www.calculator.net>
Source: Field survey data.

Table 4.23: Child Nutrition Status across Caste and Religion 2020

Category	Av. BMI score	Children-BMI -Percentage				Total
		Underweight	Healthy Weight	At risk of Over Weight	Over Weight/ Obesity	
Male Children						
Hindu		-	-	-	-	-
OBC	13.36	80.0	20.0	0.0	0.0	100.0
SEBC		-	-	-	-	-
Muslim		-	-	-	-	-
OBC	13.69	50.0	50.0	0.0	0.0	100.0
Female Children						
Hindu		-	-	-	-	-
OBC	13.66	75.0	25.0	0.0	0.0	100.0
SEBC	12.00	100.0	0.0	0.0	0.0	100.0
Muslim		-	-	-	-	-
OBC	13.47	50.0	50.0	0.0	0.0	100.0

4.10 Access to basic amenities and changes therein

As mentioned earlier, during benchmark survey, there were four wells sunk in the village for drinking and other cosmetic purpose of these four wells, one was a hand pumps were installed to draw water. The Christians, Harijans

¹ BMI for Children

Category	Percentile Range
Underweight	<5%
Healthy weight	5% - 85%
At risk of overweight	85% - 95%
Overweight	>95%

and Muslims drew water. The Christian, Harijans and Muslims drew their supply of the water from the river Mohor. When the river dried during summer members of these caste/were given water from the public well though they were not allowed to draw it themselves. Sanitary conditions in the village were rather unsatisfactory. There was no drainage; the scavenger service was provided by the Harijans who cleaned the main streets of the villages once in a week while the small streets remained dirty. In monsoon the village roads had latrines. There were no street lamps in the village.

As per resurvey 2020, out of the total households, all the households have reported having legal electricity connection while about 82 per cent of total households have drinking water connection and most of them also fetch water from nearby Nani khadol village pipeline as well as from the tube well of nearby farm. Village is severely facing problem of high TDS in groundwater for which no solution has been found so far. About 88 per cent of households have toilet facility in their houses and 79 per cent of households have LPG gas connection. This picture is self-explanatory about the basic amenities expansion in village has reached to satisfactory level in current survey and villagers are aware about self-hygiene and cleanliness which is must for betterment of life, particularly after COVID19 pandemic. While three cases of Covid19 contamination has been reported of which one case is reported expired.

Table 4.24: Access to basic amenities and changes therein 2020

Particulars	Electricity	Bank Account	Sanitary toilet	Drinking Water (GP)	LPG Connection
Caste Hindu General	100.0	82.5	100.0	81.7	81.7
OBC Hindu	100.0	94.4	55.6	88.9	66.7
SC Hindu	100.0	78.4	78.4	73.0	73.0
OBC Muslim	100.0	86.1	86.1	80.6	86.1
SC Christian	100.0	81.8	68.2	90.9	72.7
All	100.0	83.3	88.0	81.5	79.0

4.11 Participation, Inclusiveness and Empowerment:

Out of the total households, one third of households have participated in the gram sabha meetings and on an average, everyone has participated more than five times in a year (Table 4.25). Almost 55 per cent of had actively participated

in Gram Sabha and Gram Sansad meeting whereas remaining household members who could not participate were either busy, uneducated and due to old age they did not participate or not invited for meeting. About 57 per cent household members have approached to elected representatives like Panchayat/MLA/MP for village and panchayat development related issue while more than half of them were not satisfied.

Table 4.25: Details on participation of Villagers in Gram Sabha and approach to local MP/MLA for any issue

Particulars	In 2020						
	Gram sabha			Approached MLA/MP			
	Participation %	No. of times	Active participation	Yes, approached	Satisfied -Not at all=0,	Satisfied-Somehow =1,	Satisfied-Mostly= 2
Caste Category							
GEN	38.38	5.3	47.37	14.14	35.7	35.7	28.6
OBC	31.37	5.8	81.25	13.73	57.1	42.9	0.0
SC	13.46	5.0	42.86	17.65	88.9	0.0	11.1
ALL	30.20	5.4	55.74	14.93	56.7	26.7	16.7
Religion							
Hindu	33.78	5.4	54.00	15.54	60.9	21.7	17.4
Islam/Muslim	26.47	5.8	77.78	17.65	50.0	50.0	0.0
Christian	10.00	3.0	0.00	5.26	0.0	0.0	100.0
ALL	30.20	5.4	55.74	14.93	56.7	26.7	16.7

4.12 Perception of various groups and households in the village about different changes in the village:

4.12.1 Rigidity in Caste System:

As per benchmark survey, there was a hierarchy in the households of particular Caste category as well as religions. Christians were considered as belonging to the same status as that of the Harijans since they were regarded as former untouchable Hindus in those days. While the Muslims did not form a part of the caste hierarchy though they have a statue of their own which is not on par with any of the Hindu Castes. The society of Moti Khadol was dominated by the Hindus in 1962-63 as well as in resurvey in 2020. In fact, the Christians were the second largest single community terms of households and population in the village, where the largest single community in both these terms were the Patidars, the intermediate caste Hindus during both benchmark as well as resurvey time. The rigidity in the caste system was prevailing may be less as compared to

benchmark survey due to progress of society in its approach, while still no general Patel community households send their children in the school located in Village and this community is located as separate area while all other caste category and religion people are staying in mix locality.

4.12.2 Gender bias/Women Empowerment:

In recent survey, no gender biasness was seen in village. In current Gram Panchayat election, Moti Khadol deputy Sarpanch seat is occupied by the women from general category. Out of nine selected members, four are women elected representatives working on Gram panchayat body of which three are from general category and one from SC category. The newly elected members are active in village activities and they have taken interest in development work in village with full enthusiasm.

4.12.3 Political bias or deprivation:

No political bias or deprivation was seen in village and village is properly connected with district headquarter. During benchmark survey, some sort of rift between the Christian and the Hindus (on the ground of religion) was reported and also of the half-hearted cooperation of the minor castes like Bariya, Vaghri, Harijan was highlighted as a constant threat to the smooth working of the Panchayat. While no such biasness was not reported but still some sort of gap in communication and understanding prevails in general and other caste categories particularly Christian which sometime disturb the village environment.

4.13 Chapter Summary:

The chapter presented all the aspect of social dynamics of village wherein it was clearly indicated the as compared to benchmark survey position, village has progressed significantly in term of education, basic amenities as well as socio-economic status. There was also significant change in age of marriages, enrolment of female child as well as women empowerment in terms of their participation in gram panchayat.

Economic Status

5.1 Introduction

This chapter mainly deals with the economic status of surveyed household of Moti Khadol village, mainly focus on occupation/ livelihood and employment pattern, extent of migration, agrarian status, land holding, basic characteristics of farm households, cropping pattern, nature and extent of crop diversification, yield of major crops, profitability of major crops, disposal of major farm produces and price realization, composition of annual income of households by livelihood groups and income sources.

5.2 Livelihood and Employment:

5.2.1 Labour force and workforce distribution and changes therein

The distribution of households by occupation/livelihood in selected Moti Khadol village is presented in Table 5.1 and 5.2. It can be seen from the table that during recent resurvey, out of total household, around 62 per cent households were dependent on agriculture and allied activities, 14.36 per cent households were working in service sector job and 6 per cent households were doing business and trade in village. One of the important observations was that 4 per cent households were working as casual and marginal laborer and around 4.5 per cent each household were dependent on pension/old age pension/widow pension etc. and caste based profession in the recent survey. The households from OBC and Christian community were largely engaged. While the highest number of households from Christian category were employed in government or private service job.

While across the survey data, proportion of household's dependent on cultivation has declined by 9.9 per cent points between 1962-63 to 2020, i.e. from 47.5 per cent in 1962-63 to 37.6 per cent in 2020. Surprisingly, share of agricultural labour as occupation has also declined by 8.41 per cent points during corresponding period. While share of households having dairy has increased by

almost 21 per cent points indicating impact of successful model of AMUL in this area. In fact, the benchmark survey was done to capture this changes which is visible after almost six decades' period.

Table 5.1: Distribution of households according to their caste groups and principal occupation 1962-63

Principal Occupation	Distribution of households (% to total)						
	Higher castes	Intermediate castes	Lower caste	SC	Christians	Muslims	Total
Cultivation	44.4	83.2	20.8	0.0	8.6	33.3	47.5
Animal husbandry	0.0	0.0	4.2	0.0	0.0	0.0	0.6
Agricultural labour	0.0	1.4	33.3	88.8	82.8	11.2	29.7
Non- agricultural labour	0.0	0.0	0.0	0.0	5.7	0.0	1.3
trade	22.2	5.6	0.0	0.0	0.0	0.0	3.8
Transport	0.0	1.4	4.2	0.0	0.0	0.0	1.3
Service	0.0	5.6	12.5	0.0	2.9	33.3	6.9
Profession	33.4	0.0	4.2	0.0	0.0	11.1	3.2
Arts & Credits	0.0	1.4	16.6	0.0	0.0	11.1	3.8
Remittances	0.0	1.4	4.2	11.2	0.0	0.0	1.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 5.2: Distribution of households by occupations/livelihood in Moti Khadol village. (No of households & %)- 2019-20

Sr. No.	Livelihood Groups Primary Occupation	Hindu			Muslim	Christian	All
		General	OBC	SC	OBC	SC	
1	Cultivator	53.54	23.53	25.00	32.35	0.00	37.62
2	Agricultural labour	4.04	35.29	25.00	47.06	45.00	21.29
3	Dairy/Fishing/Poultry keeping	2.02	0.00	12.50	0.00	5.00	3.47
4	Govt Salaried	5.05	5.88	0.00	8.82	15.00	5.94
5	Private Salaried	7.07	17.65	3.13	5.88	20.00	8.42
6	Pensioner	8.08	0.00	0.00	2.94	0.00	4.46
7	Caste based profession	5.05	11.76	3.13	0.00	5.00	4.46
8	Trade & business	9.09	0.00	9.38	0.00	0.00	5.94
9	Entrepreneur	0.00	0.00	0.00	0.00	0.00	0.00
10	Casual labour	0.00	0.00	15.63	0.00	0.00	2.48
11	Marginal labour	1.01	5.88	0.00	0.00	5.00	1.49
12	Household	5.05	0.00	6.25	2.94	5.00	4.46
13	Others	0.00	0.00	0.00	0.00	0.00	0.00
	Overall	100.00	100.00	100.00	100.00	100.00	100.00

Note: Based on primary occupation only for households

5.2.2 Livelihood pattern and distribution and changes therein

5.2.2.1 Livelihood pattern

The livelihood pattern of adult (age more than 14 years) in Moti Khadol village is presented in Table 5.3. It can be seen from the table that the out of total sample household, about 41 per cent adults were working in agriculture sector as a cultivator or agricultural labour or both. The highest share of adult cultivators has been estimated in General as well as Christian category while agricultural labours were significant in OBC and SC category households. Significant number of adults from Muslim and Christian category were employed in salaried jobs followed by general category adults. Many of the female adults have reported working in house and busy in household activities.

Table 5.3: Distribution of adult population by occupations/livelihood in Mori khadol (%)

Sr. No.	Livelihood Groups	Hindu				Muslim		Christian		All
		General	OBC	SC	ST	OBC	SC	SC	ST	
		Primary Occupation								
1	Cultivator	22.89	8.47	11.76	12.84	0.00	16.74	22.89	8.47	11.76
2	Agricultural labour	1.61	25.42	28.92	22.30	25.42	13.43	1.61	25.42	28.92
3	Dairy/Fishing/Poultry keeping	7.23	6.78	22.55	6.76	1.69	10.02	7.23	6.78	22.55
4	Govt Salaried	3.41	3.39	0.49	2.03	8.47	2.89	3.41	3.39	0.49
5	Private Salaried	17.07	15.25	5.39	9.46	23.73	13.74	17.07	15.25	5.39
6	Pensioner	4.62	0.00	0.49	2.03	0.00	2.79	4.62	0.00	0.49
7	Caste based profession	1.00	6.78	0.49	0.00	3.39	1.24	1.00	6.78	0.49
8	Trade & business	6.02	0.00	1.96	4.73	0.00	4.24	6.02	0.00	1.96
9	Entrepreneur	0.00	0.00	0.00	0.68	0.00	0.10	0.00	0.00	0.00
10	Casual labour	0.80	1.69	10.78	2.70	10.17	3.82	0.80	1.69	10.78
11	Marginal labour	0.60	1.69	2.45	2.03	3.39	1.45	0.60	1.69	2.45
12	Household	34.74	30.51	14.71	34.46	22.03	29.44	34.74	30.51	14.71
13	Others	0.00	0.00	0.00	0.00	1.69	0.10	0.00	0.00	0.00
	Overall	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: Based on occupation of individual adult members

The important picture was seen from the table that out of total households in general category in Hindu religion and Christian regions, about 5 per cent of adults were getting social security pension like old age pension, disabled pension, widow pension. The total adult population of selected village was 968 of which 85

per cent adult persons were involved in economic activity (outside house activity). This shows that mostly adult persons of village were working and their major contribution was in village development as well as rural development.

5.2.2.2 Livelihood diversification

The occupational distributions of adult members by sex in selected households of Moti Khadol village are given in Table 5.4. It can be seen from the table that out of total population, 54 per cent male and 46 per cent of female were working in different livelihood in village. This table also shows that male adults dominantly working agricultural and agricultural labour work than female. Most of the adult female were engaged in household activities and no female worker were working as a marginal labour in village. Out of total, almost 24 per cent of adult male were having private salaried job, while about 8 per cent were engaged in trade and business.

Table 5.4: Occupational distribution of adult members by sex in Moti Khadol (Nos and %)

Livelihood Groups	Male		Female		Total	
	Numbers	%	Numbers	%	Numbers	%
Cultivator	138	26.59	24	5.35	162	16.74
Agricultural labour	72	13.87	58	12.92	130	13.43
Dairy/Fishing/Poultry keeping	44	8.48	53	11.80	97	10.02
Govt Salaried	19	3.66	9	2.00	28	2.89
Private Salaried	123	23.70	10	2.23	133	13.74
Pensioner	22	4.24	5	1.11	27	2.79
Caste based profession	12	2.31	0	0.00	12	1.24
Trade & business	40	7.71	1	0.22	41	4.24
Entrepreneur	0	0.00	1	0.22	1	0.10
Casual labour	32	6.17	5	1.11	37	3.82
Marginal labour	14	2.70	0	0.00	14	1.45
Household	2	0.39	283	63.03	285	29.44
Social Security Pensioner	1	0.19	0	0.00	1	0.10
Overall	519	100	449	100	968	100.00

Note: Based on occupation of individual adult members

5.2.2.3 Shift in Livelihood Pattern

Though the village economy has remained predominantly agrarian, the relative importance of cultivation in terms of number of households primarily dependent on it in the occupational structure of the village has gone down. As discussed earlier, proportion of household's dependent on cultivation has declined by 9.9 per cent points between 1962-63 to 2020, i.e. from 47.5 per cent in 1962-63 to 37.6 per cent in 2020. Same trend was reported in share of agricultural labour as occupation which has also declined by 8.41 per cent points during corresponding period. While share of households having dairy has increased by almost 21 per cent points indicating impact of successful model of AMUL in this area. In fact, the benchmark survey was done to capture this changes which is visible after almost six decades' period. While more number of occupations have been reported in the recent resurvey in which dairy and private salaried jobs are the dominant one.

Table 5.5: Extent of pursuit of traditional occupations by Hindu castes in Moti Khadol 1962-63

Castes	Percent of Households following traditional occupation as		Present of households which did not follow traditional occupation either as principal or subsidiary one
	Principal occupation	Subsidiary occupation	
Brahmin	42.2	57.2	----
Bania	100.0	----	----
Higher caste Hindus	55.5	44.5	----
Patel	81.9	11.1	7.0
Intermediate Caste Hindus	81.9	11.1	7.0
Baraiya	29.4	17.6	53.0
Suthar	100.00	----	----
Luhar	33.3	33.3	33.4
Prajapati	100.0	----	----
Valand	100.0	----	----
Lower caste Hindus	41.6	16.8	41.6
Vaghri	100.0	----	----
Harijans		100.00	----
Scheduled caste Hindus	33.3	66.7	----
Christians (formerly Harijans)	----		100.00
Christians (formerly Harijans)	----	----	100.00
All Hindus	52.3	14.7	33.0

Table 5.6: Extent of pursuit of traditional occupation by all caste 2020

Caste based profession	Hindu			Muslim	Christian	All
	General	OBC	SC	OBC	SC	
Primary Occupation	5.1	11.8	3.1	0.0	5.0	4.5
Secondary Occupation	0.0	12.5	0.0	0.0	20.0	1.5
Tertiary Occupation	0.0	0.0	0.0	0.0	0.0	0.0

The benchmark survey in 1962-63 noted that the society of Moti Khadol was in the process of transition; the caste of a person did not necessarily determine the occupation which he was to follow during his lifetime. However, a closer examination revealed that the influence of the caste had only weakened and not disappeared altogether. Most of those household which did not pursue their ancestral occupations were found to combine them with their main source of earning. Only one-third of the total Hindu households in the village had completely abandoned their ancestral occupations while 52 percent of the, households followed them as principal occupation and further 15 percent took their ancestral occupation as a subsidiary means of livelihood (table 5.5). When examined in individual castes it is only among Baraiya, Prajapati and Christians that a significantly high proportion of their households had abandoned their traditional occupations whereas among other Hindu castes most of the house-holds had followed their ancestral occupations either as principal or subsidiary occupations. It may be pointed out that a very high degree of economic mobility among the former untouchable Hindus (viz. Christians) was the result of their adoption of a new religion. One of the reasons for the spread of Christianity among the untouchable Hindus might had been the sense of degradation which they might have experienced because of the compulsion of doing indecent work of lifting dead animals, cleaning streets etc. in the traditional Hindu society.

The situation has changed drastically as compared to benchmark survey time (table 5.6). Less than 5 per cent of the households have remained in the family business which indicate that certain occupation need not to be done by particular community as was practiced earlier. Rather these occupations were done as a supporting earnings for the household. The Patel community have discontinued the rearing of the livestock. As Patel community members are migrated to foreign country, thus they get support from them.

5.2.3 Pattern of Migration and Changes therein:

The patterns of migrations by caste and economic status in selected households of Moti Khadol village is presented in Table 5.5. A characteristic feature of a developing society is the high degree of mobility, both economic and to some

extent social and spatial, on the part of its members. On the basis of the data on this indicator viz., migration the society of Moti Khadol can be called as undergoing process of development. As per benchmark survey, total 96 persons belonging to 33 households had out migrated from Moti Khadol while 105 persons in 22 households were immigrants to the village. Migrated persons were mostly educated mostly from intermediate caste and Christian religion.

Table 5.7: Distribution of Migrant households and population by caste and sex 1962-63

Caste groups	No. of households	Males	Females	Total
Higher castes	3	5	1	6
Intermediate Caste	14	38	18	56
Lower castes	2	7	2	9
Scheduled castes	2	2	1	3
Christians	10	10	7	17
Muslims	2	3	2	5
Total	33	65	31	96

Table 5.8: Distribution of Migrants by educational Status and Sex 1962-63

Educational status	Males	Females	Total
Illiterate	9	10	19*
Literate but not attained primary	1	---	1
Primary	14	9	23
Secondary	8	10	18
High school	23	2	25
Beyond high school	10	---	10
Total	65	31	96

Note: * Out of 19, 12 (of which 8 males and 4 females) were not admitted to the school because they were less than six years old.

As per resurvey data, total 111 peoples from 31 households have migrated permanently from the village and all of them were from APL category. Out of total 65 males and 46 females who were migrated, 23 males were graduated or having professional qualification while 34 females were educated up to secondary level only.

Table 5.9: Extent of migration by caste and economic status in Moti Khadol village

Particulars	Economic Categories- APL		Population (Nos)		
	No. of hh	% to total hh	Male	Female	Total
Caste Hindu General	21	17.5	44	37	81
OBC Hindu	1	5.6	2	1	3
SC Hindu	5	13.5	8	3	11
OBC Muslim	2	5.6	6	2	8
SC Christian	2	9.1	5	3	8
All Categories	31	13.3	65	46	111

Table 5.10: Distribution of Migrants by educational Status and Sex 1962-63

Education	Caste Hindu General	OBC Hindu	SC Hindu	OBC Muslim	SC Christian	All Categories
MALE						
Illiterate	1	0	0	1	0	2
Primary	18	0	0	5	1	24
Secondary	6	0	3	0	2	11
Intermediate	3	1	1	0	1	6
Technical	0	0	0	0	0	0
Graduate	12	0	4	0	0	16
Professional	4	1	0	0	2	7
FEMALE						
Illiterate	1	0	0	0	0	1
Primary	17	1	0	2	1	21
Secondary	11	0	1	0	1	13
Intermediate	4	0	2	0	0	6
Technical	0	0	0	0	0	0
Graduate	4	0	0	0	0	4
Professional	0	0	0	0	0	0

5.3 Agrarian System

5.3.1 Distribution of land ownership and changes therein:

As per village survey conducted in 1962-63, total geographical area of the village in 1962-63 was 278.70 hectares. Since nearly 75 per cent of the total area of the village was brought under agricultural use and since there was no cultivable waste the limit of extensive cultivation had already reached however, the small double cropped area forming only 7.3 percent of the net sown area suggest that the intensive farming was only marginally practiced and hence future more and more land under second and third crops. However, it is pertinent to note that nearly 40 per cent of the gross cropped area was under tobacco, the farming covered nearly two seasons of about six to eight months and therefore to that extent the scope for intensive farming was limited. In view of the prospect of development of dairying as an enterprise it may be mentioned that the area under permanent pasture and grazing formed vary insignificant proportion (i.e 1.8%) in the total area of the village.

As per resurvey, out of total geographical area 74.78 per cent area was reported to net sown area (208.4 ha). The share of area under non-agricultural uses and permanent pastures and grazing land has increased from 7.2 per cent to

16.1 per cent and 1.8 to 9.1 per cent respectively, while share of area under barren and cultivable land area has declined from 16.1 per cent to nil.

Table 5.11: Land Use Pattern in the Village and Changes therein

Particulars	1962-63		as per Census 2011	
	Area in ha	% to	Area in ha	% to
Total Geographical Area (in Hectares)	278.7	100.0	278.7	100.0
Forest Area (in Hectares)	0	0.0	0	0.0
Area under Non-Agricultural Uses	19.94	7.2	45.01	16.1
Barren & Un-cultivable Land Area	45.01	16.1	0	0.0
Permanent Pastures and Other Grazing Land Area	5.15	1.8	25.31	9.1
Land Under Miscellaneous Tree Crops etc. Area	0	0.0	0	0.0
Culturable Waste Land Area (in Hectares)	0	0.0	0	0.0
Fallows Land other than Current Fallows Area	0.58	0.2	0.02	0.0
Current Fallows Area (in Hectares)	0	0.0	0	0.0
Net Area Sown (in Hectares)	208.02	74.6	208.36	74.8
Total Unirrigated Land Area (in Hectares)	180.98	87.0	8.06	3.9
Area Irrigated by Source (in Hectares)	27.04	13.0	200.3	96.1

5.3.2 Major land tenure system in the village and changes therein

Under land tenure system in village, leasing-in and leasing-out tenancy with share cropping basis of the output was found prevalent among the cultivators. Under land tenure system, leasing-in and leasing-out tenancy with share cropping basis of the output is prevalent among the land holders of Moti Khadol village. Under land reform measures, consolidation of holdings was done many year ago in the village. The rate of leased-in for irrigated and rainfed land for one year is reported to be Rs. 7000 to 8000/per bigha/per year and Rs. 5000/per bigha/per year respectively.

5.3.3 Operational holding and size distribution (including changes therein)

The distribution of land holdings in the village in Moti Khadol village is presented in Table 5.12. During benchmark survey, out of the total 158 households, 74 per cent of households had agriculture land while during resurvey, 58 per cent of households had agriculture land (table 5.12).

Table 5.12: Land Owned by Size Holding in ha (1962-63 and 2020)

Particulars	1962-63		In 2020	
	Nos	%	Nos	%
Total number of holdings	114	100.0	117	100.0
Marginal farms (Up to 1 ha.)	42	36.8	57	48.7
Small farms (1.01 to 2.00 ha.)	28	24.6	33	28.2
Medium & others (2.01 to above)	44	38.6	27	23.1
All Farms	114	100.0	117	100.0
Total area operated				
Marginal farms	13.36	5.5	31.71	16.7
Small farms	41.30	16.9	47.36	24.9
Medium & others	190.29	77.7	111.03	58.4
All Farms	244.95	100.0	190.11	100.0
Average size of holdings (ha)				
Marginal farms	0.31	-	0.56	-
Small farms	1.47	-	1.44	-
Medium & others	4.32	-	4.11	-
All Farms	2.14	-	1.62	-

It can be seen from the table that the comparative analysis of distribution of land holdings during last resurvey (1962-63) and current survey 2020 indicate that the average size of land holding size has declined significantly. The average size of land holdings has declined from 2.14 ha in 1962-63 to 1.621 ha in 2020. The main reason behind this significant land holding size declining was that population is increasing very rapidly and land holding is distributed in small fraction which is noticed also at all India level.

5.3.4 Land Utilization and Changes Therein

The basic characteristics of farm households in Moti Khadol village are presented in Table 5.13. From the table, it can be seen that the average family size in selected households of Moti Khadol village was 5.10 and they operated land area of average 1.62 hectare. The land man ratio was estimated to be 0.30 which directly related to size of holding. The average cropping intensity was highest in case of marginal land holder group which decreases with land holding size. The average education of head of the family was 8th class which was almost same in all classes and on an average two crops were grown in village every year.

Table 5.13: Basic Characteristics of Farm Households (2019-20)

Category	Average family size	Average operated area (Ha)	Land man ratio	Cropping intensity	Net irrigated area (%)	Education of head of family (Years)	Average nos. of crop grown
Marginal	4.80	0.56	0.11	112.10	100.00	7	1
Small	5.31	1.44	0.25	114.05	100.00	7	1
Medium & above	5.46	4.11	0.73	102.97	100.00	10	2
Total	5.10	1.62	0.30	107.25	100.00	8	2

Source: Field survey 2019-20.

5.3.5 Major farming system in the village and changes therein

Farming systems in India are strategically utilized, according to the locations where they are most suitable. Farming system is a set of agro economic activities that are interrelated and interact with themselves in a particular agrarian setting. It is a mix of farm enterprises to which farm families allocate its resources in order to efficiently utilize the existing enterprises for increasing the productivity and profitability of the farm. These farm enterprises are crop, livestock, aquaculture, agro forestry and agri-horticulture. In Moti Khadol village, crops were grown in both seasons during current survey period. Mostly tobacco was main crop was cultivated by the farmers followed by paddy and bajra.

5.3.6 Cropping Pattern and Changes therein

5.3.6.1 Cropping Pattern:

Table 5.12 presents the cropping pattern of selected households in Moti Khadol village in 2019-20. The main crops grown during the kharif season were paddy and cotton which contributed about 15.8 and 6.6 percent area respectively. The main crops grown during rabi season were Tobacco and wheat which accounted for about 62.4 and 2.24 percent area respectively. Very few farmers are growing summer bajra season and none of the farmers grown perennial crops. Thus, tobacco is the major crop grown on almost two third of the gross cropped area of the sample households of village, mostly by keeping land fallow in kharif season.

Table 5.14: Cropping Pattern in Moti Village in 2020 (% to GCA)

Particulars	Kharif	Rabi	Summer	Perennial crops	Total
Irrigated					
1. Cereal Crops	16.61	5.91	2.24	0.00	24.76
Paddy	15.79	0.00	0.00	0.00	15.79
Wheat	0.00	5.91	0.00	0.00	5.91
Bajra	0.82	0.00	2.24	0.00	3.06
2. Pulses	0.00	0.00	0.00	0.00	0.00
3. Oilseeds	0.00	0.00	0.00	0.00	0.00
Castor seed	3.06	0.00	0.00	0.00	3.06
4. Fruits & Veg. (Onion)	1.53	0.00	0.00	0.00	1.53
Cash Crops	0.00	0.00	0.00	0.00	0.00
Cotton	6.62	0.00	0.00	0.00	6.62
Tobacco	0.00	62.42	0.00	0.00	62.42
Fodder	0.00	1.03	0.00	0.00	1.03
Guar	0.59	0.00	0.00	0.00	0.59
Total	28.40	69.36	2.24	0.00	100.00

5.3.6.2 Crop Diversification

The changes in cropping pattern on the farms of Moti Khadol village during the current resurvey over the last survey is analyzed and presented in Table 5.15. The relative allocation of gross cropped area under major crops during 1962-63 and 2019-20 indicate that though the cropping pattern during both the surveys was mainly focused on tobacco crop, share of tobacco crop has increased by 27 per cent in existing one in 1962-63 which indicates the development of mono-cropping pattern in the village. The prosperity of the region, as a whole, is due, in no small measure, to the cultivation of tobacco which is the chief commercial crop of the area and for which the soil of the region is particularly suited. Indeed, tobacco holds such an attraction among the farmers that it finds a place in the cropping pattern even of the very small cultivators. Because of pursuit of commercialised farming the adoption of improved agricultural practices has also been widespread and the use of chemical fertilisers and irrigation, in particular, has become very common.

Table 5.15: Changes in Cropping Pattern in Moti Village 1962-63 and 2019-20

Crops	1962-63	2020	Change
Paddy	14.5	15.79	1.29
Wheat	0.7	5.91	5.21
Bajra	4.5	3.06	-1.44
Bavto	4.9	0.00	-4.9
Tobacco	35.4	62.42	27.02
Cumin	3.4	0.0	-3.4
Fenel	1.6	0.0	-1.6
Groundnut	2.3	0.0	-2.3
Cotton	1.2	6.62	5.42
Caster seed	2.7	3.06	0.36
Combination with paddy	4.5	0.0	-4.5
Combination with bajra	9.2	0.0	-9.2
Combination with other crops	5.5	0.0	-5.5
Sundhiyu	8.8	0.0	-8.8
Vegetables	0.5	1.53	1.03
Other minor crops	0.3	1.61	1.31

As mentioned in methodology chapter, HI, SI, EI and MEI index are used for measuring the extent of diversification during the year under study. These indices are estimated by using crop proportion to gross cropped area. Among the four indices, except Herfindahl index where high index value shows lesser diversification and increased specialization and a low index value shows higher diversification) while other three indices are opposite to same. The estimated HI value is 0.583 being relatively more than half implies a low level of diversification in the Study area. As the Herfindahl and Simpson Index do not show any clear trend in index values. However, the Modified Entropy Index, which overcomes the limitation of Entropy index by using a variable logarithmic base, shows a steady upward trend in the value of index 0.354 implying a low level of diversification in the study area. As tobacco and paddy are two major crops accounting more than there fourth of gross cropped area indicates somehow mono-cropping pattern in the study area.

Table 5.16: Crop Diversification Index

Category	Herfindahl Index (HI)	Simpson Index =1-HI	Entropy Index (EI)	Modified Entropy Index (MEI)
MF	0.425	0.575	0.553	0.580
SF	0.399	0.601	0.594	0.623
MDF	0.380	0.620	0.565	0.593
LF	0.470	0.530	0.492	0.515
Overall	0.583	0.417	0.354	0.371

5.3.7 Irrigated area by sources and changes therein

The Moti Khadol is located in the tail end of the canal and despite of the laying canal distributary, till date not a single drop of water being received by the villagers. All the area was irrigated through the groundwater while tube-wells nearby faces problem of high TDS level.

5.3.8 Average yield of different crops and changes therein:

Average yield level of different crops in Moti khadol village in both survey is presented in Table 5.23 and 5.24. It can be seen from the table that there is a tremendous improvement in crops yield in recent survey over base survey. The remarkable feature of the yield levels of paddy, bajra and tobacco in the village was that they were far higher than their yield levels for the Kaira district as a whole during benchmark survey as well. Indeed, the per hectare yield of paddy in Moti khadol was double the district average. The yield of bajra crop has increased by 159 per cent while yield of tobacco crop has increased by about 129 percent, and paddy crop yield increased by 113 percent.

Table 5.17: Per Hectare Yield of major crops by size of holdings (in Qtls) 1962-63

Size of holding groups (ha)	Paddy	Bajra	Bavto	Tobacco
Small (up to 2.00)	13.82	7.35	6.89	11.05
Medium (5.01 & above)	17.03	9.59	11.05	12.32
Large /Big (5.01 & above)	12.97	11.74	12.51	12.40
Total	14.44	9.20	10.58	12.18
District averages for 1962-63	7.60	8.46	-	10.57

Notes: * worked out in the basis of data published in "statistics of Arena, Production and yield per Area of Principal crops in Gujarat state for the period 1949-50 to 1963-64 issued by the Directorate of Agriculture, Gujarat State, Ahmedabad.

Table 5.18: Trends in yield in Moti Khadol village during 2019-20

Particulars	Yield(Qtl/Ha.)
Paddy	30.81
Bajra	23.83
Wheat	26.80
Summer Bajra	30.95
Castor seed	16.23
Onion	76.98
Tobacco	27.95
Cotton	26.34
Guar	13.34
Fodder	195.24

5.3.9 Average Value of input use per hectare (crop-wise) and changes therein

Production is a function of inputs. The demand for agricultural inputs is largely governed by the type of crop availability of irrigation facility the financial position of the farm operator and the price level of various factor inputs and output. The benchmark survey noted that fertilisers, improved seeds and diesel engines for irrigation were used. However, ordinary seeds and complete use of human and bullock labour (as also of Persian wheels by small farmers) were used on large area. The examination of per hectare expenditure on various farm inputs in different size groups did not suggest any distinct relationship between the size of a farm and the level of expenditure on inputs. Thus, per hectare expenditure on major inputs such as seeds, manure, fertiliser, human and bullock labour etc. was highest in the 'medium' holding group. Secondly, the high expenditure on "rent" in the 'medium' and 'small' holdings indicates the existence of concealed tenancy on a large scale in these groups. Thirdly, the high expenditure on hired labour in the 'medium' and 'big;' holdings as compared to that in the "small" holding was due first to large area having been devoted to the highly labour intensive crop of tobacco and also perhaps due to the relatively small proportion of family labour used in these groups. Finally, on the basis of a small margin of difference in the per hectares' expenditure on irrigation on "small" farms on the one hand and on "medium" and "big" farms on the other, it may not be wrong to judge that the modes of irrigation i.e traditional Persian wheels) on those (i.e diesel engines) on the latter groups of farms.

While during resurvey in 2020, it was observed that all the modern inputs (such as chemical fertiliser, irrigations, high yielding variety seeds, insecticides and pesticides, etc.) are used in crop grown during kharif and rabi season. The role of human labour has drastically come down due to mechanisation of agriculture and due to which draught animals have disappeared from the agricultural operations in said village.

5.3.10 Distribution of livestock resources and changes therein

Livestock in rural areas is both complementary and supplementary to farming as it provides the necessary draught power and manure for land as it supplements incomes of farmers. It must, however, be pointed out that keeping of livestock in villages is not always guided by profit-motive. The comparison of livestock figures according to livestock census of 1956, 1961, benchmark survey and resurvey. Table 5.24 indicates the importance of bullocks as a draught power during period around benchmark survey of Moti Khadol. Goats were also bred, though in insignificant numbers as milch animals. Donkeys were kept for transport purpose. Absence of cows as milch animals in a village where bullocks provided the draught power is an interesting phenomenon in benchmark survey. One important implication of this phenomenon is that the farmers of Moti Khadol who were using bullock has totally sifted towards mechanization and stopped rearing bullocks. The number of buffaloes found to be remained same during last six decades' period. Total livestock population in village in 2019 was 333 of which 68.5 percent were cattle, 28.2 per cent were buffalo, and 3.3 per cent were goat (Table 5.24). Buffaloes were the milch animals in Moti Khadol village.

Table 5.19: Details on Changes in Livestock population in Moti Khadol Village)

Year	Livestock population (Nos)								
	Bullock	Cow	Young stock	Buffaloes	Young stock	Goat	Sheep	Other	Poultry
1956	85	0	0	93	82	33	2	15	8
1961	99	0	14	82+3*	69	49	1	7	24
1962-63	93	0	1	88+1*	61	61	0	10	1
2019	0	228	0	94	0	11	0	0	0
2020 survey	0	207	0	137	0	0	0	34	0

Notes: * he buffalo. Source: <https://farmer.gov.in/livestockcensus.aspx>

During benchmark survey, it was observed that the livestock of Moti Khadol enjoyed fairly good health and vitality. The cattle diseases prevailed but to a negligible extent. The veterinary services were regularly received by the villagers from the government veterinary centre (for animals) at Mahudha, five kilometers from the village. However, the breeds of buffaloes and other animals were invariably 'deshi', though, there were a few buffaloes of improved 'varieties such as Jaffrabadi, Gir etc. One he buffaloes was maintained by a vaghri family to provide breeding services and for which purpose one was charged per buff aloe per service. The feeding arrangements were also traditional. The feeds given to buffaloes included bajra, paddy, bavto, fodder, cotton-seeds, kuski, gotu "(of such pulses as moth, tuver) and to, some extent sundhiyu. Other animals were given the same feeds except cotton seeds and in place of which guwar was fed. Though green fodder was not report it constituted major fodder during monsoon as it was available from fields free of cost. With the advent of Milk 'producers', Cooperative Society under the auspices of the DCMPU (popularly, known as Amul) the villagers gets the benefits of assured market and reasonable prices for milk, the facilities for cheap nutritive fodder, artificial insemination services and other medical services extended by Amul which has improved the milk yield of buffaloes.

5.3.11 Tools, implements and machinery use in agriculture

The main implements owned by the villagers during benchmark survey were ploughs, harrow, handhoes, kassi, danti, kassia and crushers. During resurvey, it was observed that about 14 families owned tractors and recently harvesters and iron ploughs were also purchased by a few families. Large majority of the cultivators owned primitive type of tools and implements in last survey reported but in current survey more than 12 per cent farmers had tractor and most of farmers had farm implements and machinery for used in agriculture (table 5.25).

Table 5.20: Tools, implements and machinery use in agriculture in Village

Sr. No.	Particulars	1962-63	2020 (n=202)		
		Nos (n=105)	No of hh	No of units	Av. value (Rs.)
1	Tractors	0	14	16	589286
2	Power Tillers	0	05	05	88000
3	Bullock cart	45	0	0	0
4	Plough	86	4	4	18250
5	Water Pump	0	07	07	45714
6	Threshers	0	03	03	71667
7	Sprayers	0	14	14	3343
8	Karab (harrow)	155	0	0	-
9	Samar (leveler)	61	0	0	-
10	Karabdi (ox driven cultivator)	114	0	0	-
11	Bullock Yoke	163	0	0	-
12	Tarphan (seed drill)	66	0	0	-
13	Kosh (Persian Wheel for water lifting)	7	0	0	-
14	Oil engine	6	0	0	-

5.3.12 Input use (fertilizer, pesticide, etc.) in agriculture and changes therein

The market of several of the home produced inputs is so imperfect and or limited that values cannot be imputed the measure of accuracy that is essential for a meaningful analysis. Therefore, only a broad picture of input structure, incorporating the significant among them is sought to be presented. Main attention is focused on those inputs use of which is likely to change, in volume or quality, significantly in foreseeable future; the inputs discussed are wage paid labour, seeds fertilizers, manures, water charges and land revenue. They also, broadly correspond to the out of the pocket expenses incurred by the farmers. In current survey we observed that the availability of irrigation water high intension of chemical fertilizer and pesticide were used for high production in Moti Khadol village while last survey reported that the most of farmer's in village used farm manure and less use of chemical fertilizer due to less irrigation facility in the village.

5.3.13 Production and disposal of farm outputs:

The profitability of major crops cultivated in Moti Khadol village in recent survey is given in Table 5.26. It can be seen in the table that the all crops are

profitable except Guar crop. Guar crop has incurred loss by one third of total crop growers.

Table 5.21: Profitability of major crops cultivated in the village Moti Khadol

Particulars	Profitable	No profit no loss	Incurred loss	Total
Kharif Paddy	92.7	0.0	7.3	100.0
Kharif Bajra	100.0	0.0	0.0	100.0
Wheat	100.0	0.0	0.0	100.0
Summer Bajra	100.0	0.0	0.0	100.0
Castor seed	83.3	0.0	16.7	100.0
Onion	100.0	0.0	0.0	100.0
Tobacco	99.0	0.0	1.0	100.0
Cotton	100.0	0.0	0.0	100.0
Guwar	66.7	0.0	33.3	100.0
Fodder	100.0	0.0	0.0	100.0

5.3.14 Prevalent marketing channels and procurement arrangements

Table 5.27 presents the disposal of major farm produces and price realization in Moti Khadol village. This table shows that except fodder crops, all other crops were sold in nearby Mahudha mandi. The fodder crop output was sold in village itself. As far as concern about prevailing market price of major crops which received by selected farmers is comparatively higher than other districts farmers in state because they are well aware about new agriculture technique and they have good irrigation facility.

Table 5.22: Disposal of major farm produces and price realization

Particulars	% produce sold	Average price received	Units	Sold to whom?
Kharif Paddy	89.51	1304.88	Rs./Qtl	Mahudha mandi
Kharif Bajra	80.00	1500.00	Rs./Qtl	Mahudha mandi
Wheat	74.28	1748.00	Rs./Qtl	Mahudha mandi
Summer Bajra	96.00	1525.00	Rs./Qtl	Mahudha mandi
Castor seed	100.00	3641.66	Rs./Qtl	Mahudha mandi
Onion	98.00	1230.00	Rs./Qtl	Mahudha mandi
Tobacco	100.00	5790.31	Rs./Qtl	Mahudha mandi
Cotton	100.00	4934.21	Rs./Qtl	Mahudha mandi
Guwar	100.00	4000.00	Rs./Qtl	Mahudha mandi
Fodder	78.33	493.33	Rs./Qtl	In village

5.4 Poverty, Income and Consumption:

The benchmark survey data indicated that average household annual net income in the village was Rs.1495/-. In all the occupational groups except cultivation, trade, transport and service per household annual net income was lower than the corresponding income for the village as a whole. The tremendously high per household income, in transport was due to the fact that one of the two households in the group earned. An annual net income was lower than corresponding income for the village as a whole. The highest net income per household in transport was followed by cultivation, service, trade, arts & crafts, remittances, animal husbandry, non-agricultural labour, profession and agricultural labour in that order of importance. Further, the occupations in which per household net annual income was less than Rs.1000 were agricultural labour, animal husbandry, non-agricultural labour, profession and remittances maximum per household income of Rs.10,056 in transport was little more than five times of income (Rs.1890) in the next important occupation (from the point of view of per household net income) of cultivation, while this maximum average income (Rs.10,056) was nearly seventeen times lowest per household income of Rs.595 in agricultural labour.

Table 5.23: Per household net income by principal occupational groups 1962-63

Principal occupational groups	No. of households	Principals Occupation	Net income from principal occupation	Net Income from subsidiary occupation	Total net income	Net income per household
Cultivation	75	388	131236	10529	141765	1890.20
Animal husbandry	1	2	404	383	787	787.0
Agricultural labourers	47	173	2205	5759	27964	594.97
Non-Agricultural labourers	2	6	700	560	1260	630.0
Arts & Crafts	6	25	5964	1030	6994	1165.66
Trade	6	17	6770	4404	11174	1862.33
Transport	2	26	10330	9781	20111	10055.50
Profession	5	26	2226	810	3036	607.20
Service	11	57	16198	4353	20551	1860.27
Remittances	3	17	1570	966	2536	845.33
Total	158	731	197603	38575	236178	1494.80

Finally, the poverty of the households who were principally dependent on agricultural labour, non-agricultural Labour, animal husbandry, profession, remittances and arts & crafts is more clearly reflected in the table 5.24 on

distribution of households by principal occupational and income groups. Thus, the percentages of households earning less than Rs.75 per month to the were 100 in case of animal husbandry, profession total household and remittances whereas in the case of agricultural labour, non-agricultural labour and arts & crafts these were 92 and 50 and 50, respectively. Considering all the households in the village, nearly 53 percent (i.e. 83 households) of them earned less than Rs.75 per month. On the other hand, there were 18 households which earned more than Rs.200 per month; 6 of these earned even more than Rs.400 per month. In the end it is worthwhile to point out that of the 83 households which earned less than Rs.75 per month 51 (or 61 percent) belonged to the Barniya, Harijan, functionary castes and the Christians who are also socially backward.

Table 5.24: Distribution of households by principal occupational & income groups

Principal occupational groups	Income groups								Total
	Below Rs. 300	301-600	601-900	901-1500	1501-2400	2401-4800	4801-10000	10000 above	
Cultivation	5 (6.6)	6 (8.0)	14 (18.7)	19 (25.3)	13 (17.3)	13 (17.3)	4 (5.4)	1 (1.4)	75 (100.0)
Animal Husbandry			1 (100.0)						1 (100.0)
Agricultural labour	6 (12.8)	23 (48.9)	14 (29.8)	3 (6.4)	1 (2.1)				47 (100.0)
Non-Agricultural labour		1 (50.0)		1 (50.0)					2 (100.0)
Trade			1 (16.7)	2 (33.3)	2 (33.3)	1 (16.7)			6 (100.0)
Transport				1 (50.0)				1 (50.0)	2 (100.0)
Profession		2 (40.0)	3 (60.0)						5 (100.0)
Service		1 (9.1)		2 (18.2)	6 (54.5)	2 (18.2)			11 (100.0)
Arts & Crafts			3 (50.0)	2 (33.3)	1 (16.7)				6 (100.0)
Remittances			3 (100.0)						3 (100.0)
Total	11 (6.9)	33 (20.8)	39 (24.8)	30 (18.9)	23 (14.6)	16 (10.2)	4 (2.5)	2 (1.3)	158 (100.0)

Note: Figures in bracket are percentage

The composition of annual income of households in 2019-20 in Moti Khadol village by livelihood groups is presented in Table 5.28. This table shows that the annual average income from all sources is estimated to be Rs 381107 in all occupational groups in village. The average income of cultivator is estimated to be Rs 369385. The highest income earned was by pensioners and government salaried persons in village and the lowest income earned by agriculture labours

groups. This table suggests a very important feature that off farm income generated through labour earnings, other off farm and asset hiring income like tractor and other agricultural equipments rented out and agricultural labour getting highest income in village. The overall average income of village is very economical viable and this suggest economic activities in village is better. The Gini coefficient estimated across the land holding groups as well as landless group indicate that there is inequality across the groups (0.507) and particularly among OBC category (Fig. 5.1).

Table 5.25: Composition of annual income of households in Moti Khadol by livelihood groups (Rs. per household) 2019-20

Livelihood Groups	Farm Income	Off-farm Income	Non-farm Income	Total
Cultivator	166761	12119	190505	369385
Agricultural labour	65318	42168	79525	187011
Dairy/Fishing/Poultry keeping	96429	37000	214943	348371
Govt Salaried	31167	18500	514283	563950
Private Salaried	167200	4600	245200	417000
Pensioner	283097	7111	723000	1013208
Caste based profession	34000	2444	233689	270133
Trade & business	119045	2545	580864	702455
Casual labour	30000	66000	98000	194000
Marginal labour	25000	16667	235333	277000
Household	117556	17333	243333	378222
Overall	123192	19805	238110	381107

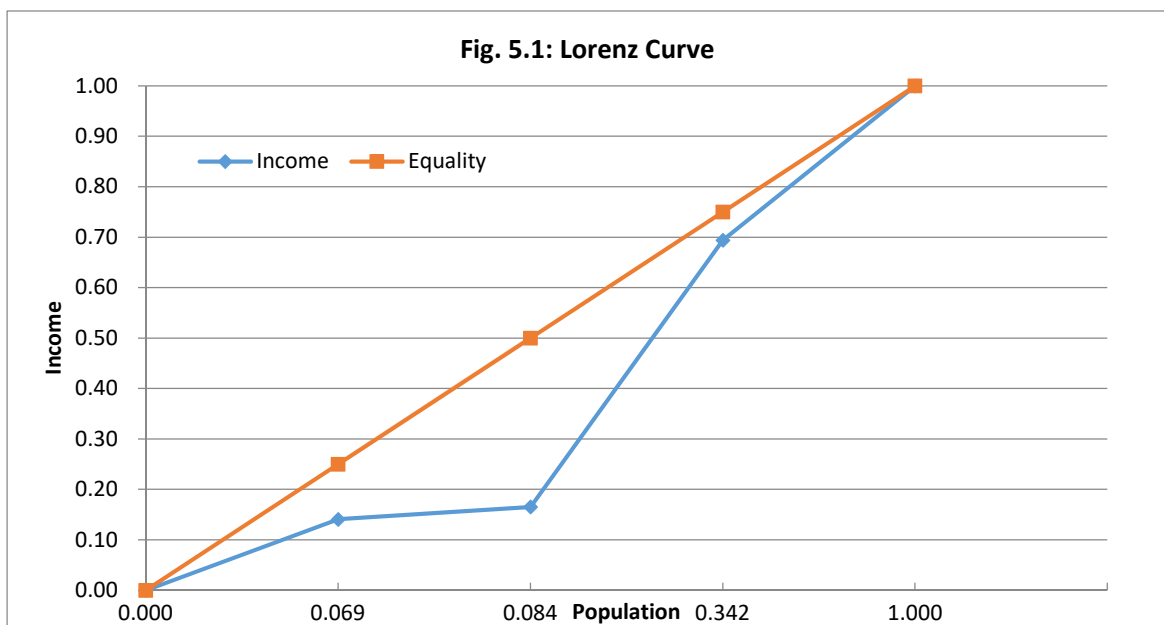


Table 5.26: Composition of annual income of households in Moti Khadol village by Caste groups (Rupees per hh per annum) 2019-20

Castes		Farm Income	Off-farm Income	Non-farm Income	Total
Hindu	General	198492	6374	334959	539824
	OBC	44353	28553	131147	204053
	SC	58813	41039	93694	193545
Muslim	OBC	76412	28912	166365	271688
Christian	SC	0	29400	202660	232060

The benchmark survey data indicate that nearly 60 percent of the total expenditure in the village was on food and drinks while during the resurvey period, same share has declined to about 28 per cent of total expenditure of household (Table 5.27 and 5.28). The expenditure on education has increased from 2.6 per cent in 1962-63 to 21.6 per cent in 2020, which is welcome shift household in expenditure. Medical expenditure which was hardly 4.1 per cent during benchmark survey which has significantly increased to 24.5 per cent in 2020. Thus, though there has been increase in life expectancy rate as well as development in terms of medicine and availability of health facilities, expenditure in medicine has increased to the level of one fourth of total expenditure of households. Almost 8 per cent of total expenditure during resurvey period was accounted for communication and entertainment (DTH, Mobile, phone).

Table 5.27: Item wise Household expenditure in Moti Khadol Village (1962-63)

Item of households expenditure	% to total
Food drinks	59.8
Fuel & light	1.9
Clothing & Bedding	11.5
Footwear	1.5
Maintenance repair & Tax	1.7
Travelling	2.3
Education	2.6
Medicine & health	4.1
Irregular, social & religious ceremonies	4.4
Remittance	2.6
Intoxicants	1.2
Soda, soap other washing material	0.9
Miscellaneous	1.6
Total	100.0

Table 5.28: Item wise Household expenditure in Moti Khadol Village (2019-20)

Item of households expenditure	GEN	OBC	SC	ALL
Exp. on Food (Total)	22.4	39.9	40.6	27.6
Staple food	6.6	13.6	14.5	8.7
Milk/Egg/Fish/Chicken	4.7	10.0	6.0	5.7
Fruits & Vegetables	4.8	5.9	10.0	5.6
Processed foods	1.6	1.6	1.3	1.6
Fuel	2.4	4.9	5.3	3.2
Other food	2.4	4.1	3.5	2.8
Expenses on non-food (total)	77.6	60.1	59.4	72.4
Clothes	6.6	9.9	8.4	7.4
Education	28.2	5.9	5.6	21.6
Medical Exp.	25.5	19.1	26.7	24.5
House rent/repair	4.1	3.5	3.8	3.9
Elect/DTH/Phone	6.5	11.8	8.2	7.6
Family festival	4.6	5.9	4.1	4.8
Other (Name)	2.1	4.0	2.5	2.5
ALL	100.0	100.0	100.0	100.0

5.4.1 Distribution of households by income sources:

Table 5.29 presents the number of sources for annual income in Moti Khadol village by caste group.

Table 5.29: Total Number of Income Sources of Livelihood Groups & Castes

Livelihood Groups	(Nos)								All
	General	Hindu			Muslim		Christian		
		OBC	SC	ST	OBC	SC	SC	ST	
Cultivator	93	3	4	0	15	2	0	0	117
Agricultural labour	5	7	20	1	22	1	5	5	66
Dairy/Fishing/Poultry keeping	16	2	18	1	4	0	1	0	42
Govt Salaried	10	2	1	0	4	0	2	1	20
Private Salaried	29	5	7	0	6	2	6	1	56
Pensioner	19	0	2	0	0	1	0	0	22
Caste based profession	6	3	1	0	0	0	2	0	12
Trade & business	16	0	3	0	1	1	0	0	21
Entrepreneur	0	0	0	0	0	0	0	0	0
Casual labour	2	1	10	0	4	2	2	1	22
Marginal labour	13	0	2	0	2	0	1	0	18
Household	3	1	2	0	2	0	1	0	9
Social Security Pensioner	0	0	0	0	1	0	0	1	2
Overall	212	24	70	2	61	9	20	9	407

It can be seen from the table that one household has more than one source of income. As observed earlier, the agriculture and allied activities comprised of crop cultivation, agriculture labour and dairy are the major sources of income

followed by salaried persons and retired pensioners. Trade and business was another major source of income for general category Hindu households while casual labour was another source of income for lower caste households in the village.

5.4.2. Asset profile of the rural households

The asset profiles of the rural households in Moti Khadol village are given in Table 5.30. Out of total sample households in the village, all the households owned their own house in village which has an average value about Rs. 5.98 lakh in 2020. Out of total households in 2020, 14 households possessed tractor in current survey while during last survey recorded no tractor was in the village. Bullock carts was common mode of transportation during benchmark survey has totally disappeared from village map.

Table 5.30: Asset profile of the rural households 2020

Sr. No.	Particulars	1962-63	2020		
		No of hh	No of hh	No of units	Average value (Rs.)
1	Residential Households	158	202	202	598960
	Households having Ag land	105	117	-	
2	Cattle Sheds		26	26	126019
3	Tractors		14	16	589286
4	Power Tillers		05	05	88000
5	Bullock cart	45	0	0	0
6	Plough	86	4	4	18250
7	Water Pump		07	07	45714
8	Threshers		03	03	71667
9	Sprayers		14	14	3343
10	Karab (harrow)	155	0	0	-
11	Samar (leveler)	61	0	0	-
12	Karabdi (ox driven cultivator)	114	0	0	-
13	Bullock Yoke	163	0	0	-
14	Tarphan (seed drill)	66	0	0	-
15	Kosh (Persian Wheel for water lifting)	7	0	0	-
16	Oil engine	6	0	0	-

Note: Total hh reported were 233 in 2020.

5.4.3 Food security

As village has developed over the time period due to easy access to nearby markets, about 98 per cent of total respondents have reported that they never went a whole day and night without eating or went sleep hungry. More than 93 per cent households had no worry about food while remaining had sometime thought about same (table 5.31). Almost one half of the total respondents went for outside eating while about one third of total households are eating too much of packed food. This as such there is no issue of food security at village level.

Table 5.31: Food security issues at village level (% of respondents)

During last 12 months any member of the household	Never	Rarely	Sometimes	Often	Total
a. Went a whole day and night without eating due to poverty?	97.52	1.49	0.50	0.50	100.00
b. Went to sleep hungry due to inability to purchase food?	96.53	2.48	0.50	0.50	100.00
c. Ever worried that the households would not have enough food?	93.56	5.94	0.50	0.00	100.00
d. Ate some poor quality foods that you really did not liked?	85.64	13.37	0.50	0.50	100.00
e. Were not able to eat the kind of food you preferred?	77.23	15.84	5.45	1.49	100.00
f. Did you offered food to your neighbours and guests?	76.24	12.87	10.40	0.50	100.00
g. Went for outside eating in hotel/restaurant?	49.50	20.79	22.77	6.93	100.00
h. Are you eating too much packed food/purchased food like ice-cream, cold-drinks, etc.?	63.37	12.87	19.80	3.96	100.00

5.5 Financial Transactions

5.5.1 Borrowings details:

The purpose wise borrowings detail in Moti Khadol village during benchmark survey and resurvey period is given in tables 5.32 to 5.34. The benchmark survey data on purpose wise borrowing revealed that as much as 75 percent of current debt were contracted for unproductive purposes viz., household's expenditure and marriage and other ceremonies. Surprisingly, nearly 82 percent of the total credit (old as well as that provided during 1962-63) in the village was provided by the relatives residing within and outside the village; more

than 50 percent of the credit (Rs.17595) provided by the relatives during the reference year was provided by the relatives staying outside Moti Khadol. The second important source of credit was 'traders' who provided 15.3 percent of the total credit. Institutional credit such as cooperatives and government taccavi apparently provided an insignificant sum. This holds true even considering the amount of Rs.6680 instead of Rs.300 reported by the respondents, as the amount of credit provided by the cooperatives. The insignificant role played by the cooperative society in provision of credit was primarily due to the fact that the society was newly formed i.e. in 1961-62 and hence it had limited resources.

Table 5.32: Distribution of current borrowings (i.e. during the reference year) by purpose 1962-63

Purpose of borrowing	1962-63	
	Rs.	%
Purchase of livestock	1300	5.62
Farm expenses improvement on land	1100	4.76
Purchase or Repair of houses	1500	6.49
Education	700	3.03
Marriage & other social ceremonies	8480	36.68
Expense on medicines	1240	5.36
Households expenditure	8630	37.33
Total	23120	100.00

Table 5.33: Distribution of debts by source of credit in 1962-63

Sources of credit	Debts at the beginning of the year	Debts incurred during the year	Total debts
Money-lenders	200 (0.3)	200 (0.8)	400 (0.4)
Traders	11630 (14.7)	4025 (17.5)	15655 (15.3)
Relatives	65850 (83.1)	17595 (76.2)	83445 (81.6)
Taccavi	500 (0.7)	500 (2.1)	1000 (0.9)
Cooperative society	1000 (1.2)	300 (1.3)	1300 (1.3)
Others	---	500 (2.1)	500 (0.5)
Total	79180 (100.0)	23120 (100.00)	102300 (100.00)

Note: Figures in brackets are percentages.

The resurvey data indicate that 60 per cent of total amount borrowed was as a crop loan followed by 11.5 per cent amount as home loan, about 8 per cent for RO plant and around 4 per cent for tractor and truck loan. Most of the loan amount seems to be for productive purpose except loan taken for decoration.

Table 5.34: Distribution of current borrowings (i.e. during the reference year) by purpose 2019-20

Purpose of borrowing	Commercial bank and other bank- 2019-20		
	Nos	Total loan (Rs.)	% to Total
Auto Loan	1	140000	0.37
Business loan	1	1100000	2.91
Cottage industry	1	30000	0.08
Crop Loan	89	22711000	60.01
For RO plant	1	3000000	7.93
gold loan	2	1230000	3.25
Home loan	5	4365000	11.53
Personal	2	450000	1.19
tractor	4	1600000	4.23
Truck Loan	2	1652500	4.37
Vehicle loan	6	1470000	3.88
Decoration	1	100000	0.26
Grand Total	115	37848500	100.00

5.6. Perception about Economic Changes in the village

The opinions about changes in Moti Khadol village are given in Table 5.35. It can be seen that about 83 percent selected households were opined that economic conditions of the villagers have improved while 62 per cent opined that economic condition of households have also improved. When villagers were asked about village infrastructure specially road/electricity etc., about 68 per cent of responses indicated improved condition of village infrastructure. About 58 per cent of the respondents were opined that agricultural situation was also improved. While across the caste category and religion group, half of the OBC and Christian opined that economic conditions of households in village as well as village infrastructure has not changed.

Table 5.35: Opinion about Changes in Moti Khadol village (%)

Opinion about perception	Hindu			Muslim	Christian	All
	General	OBC	SC	OBC	SC	
Economic condition of villagers						
No Change	5.1	0.0	3.1	11.8	20.0	6.9
Improved	91.9	94.1	75.0	67.6	65.0	82.7
Deteriorated	3.0	5.9	21.9	20.6	15.0	10.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Economic condition of household						
No Change	7.1	52.9	34.4	50.0	55.0	27.2
Improved	89.9	35.3	40.6	35.3	30.0	62.4
Deteriorated	3.0	11.8	25.0	14.7	15.0	10.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Village infrastructure						
No Change	15.2	52.9	9.4	35.3	45.0	23.8
Improved	81.8	47.1	68.8	50.0	45.0	67.8
Deteriorated	3.0	0.0	21.9	14.7	10.0	8.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Agricultural situation						
No Change	22.2	17.6	37.5	41.2	40.0	29.2
Improved	65.7	70.6	40.6	50.0	50.0	57.9
Deteriorated	12.1	11.8	21.9	8.8	10.0	12.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

5.7 Chapter Summary:

During recent resurvey, out of total household, around 62 per cent households were dependent on agriculture and allied activities, 14.36 per cent households were working in service sector job and 6 per cent households were doing business and trade in village. One of the important observations was that 4 per cent households were working as casual and marginal laborer and around 4.5 per cent each household were dependent on pension/old age pension/widow pension etc. and caste based profession in the recent survey. The households from OBC and Christian community were largely engaged. While the highest number of households from Christian category were employed in government or private service job. The patterns of migrations by caste and economic status in selected households of Moti Khadol village indicate that total 111 peoples from 31 households have migrated permanently from the village and all of them were from APL category. Out of total 65 males and 46 females who were migrated, 23 males

were graduated or having professional qualification while 34 females were educated up to secondary level only.

As per resurvey, out of total geographical area 74.78 per cent area was reported to net sown area (208.4 ha). The share of area under non-agricultural uses and permanent pastures and grazing land has increased from 7.2 per cent to 16.1 per cent and 1.8 to 9.1 per cent respectively, while share of area under barren and cultivable land area has declined from 16.1 per cent to nil. During benchmark survey, out of the total 158 households, 74 per cent of households had agriculture land while during resurvey, 58 per cent of households had agriculture land. The average size of land holdings has declined from 2.14 ha in 1962-63 to 1.621 ha in 2020. The main reason behind this significant land holding size declining was that population is increasing very rapidly and land holding is distributed in small fraction which is noticed also at all India level. The main crops grown during the kharif season were paddy and cotton which contributed about 15.8 and 6.6 percent area respectively. The main crops grown during rabi season were Tobacco and wheat which accounted for about 62.4 and 2.24 percent area respectively. Very few farmers are growing summer bajra season and none of the farmers grown perennial crops. Thus, tobacco is the major crop grown on almost two third of the gross cropped area of the sample households of village.

The relative allocation of gross cropped area under major crops during 1962-63 and 2019-20 indicate that though the cropping pattern during both the surveys was mainly focused on tobacco crop, share of tobacco crop has increased by 27 per cent in existing one in 1962-63 which indicates the development of mono-cropping pattern in the village. There is a tremendous improvement in crops yield in recent survey over base survey. The remarkable feature of the yield levels of paddy, bajra and tobacco in the village. The yield of bajra crop has increased by 159 per cent while yield of tobacco crop has increased by about 129 percent, and paddy crop yield increased by 113 percent. Total livestock population in village in 2019 was 333 of which 68.5 percent were cattle, 28.2 per cent were buffalo, and 3.3 per cent were goat. Buffaloes were the milch animals in Moti Khadol village.

The profitability of major crops cultivated in Moti Khadol village in recent survey indicate that the all crops are profitable except Guar crop. Guar crop has incurred loss by one third of total crop growers. Except fodder crops, all other crops were sold in nearby Mahudha mandi. The fodder crop output was sold in village itself. As far as concern about prevailing market price of major crops which received by selected farmers is comparatively higher than other districts farmers in state because they are well aware about new agriculture technique and they have good irrigation facility. The benchmark survey data indicate that nearly 60 percent of the total expenditure in the village was on food and drinks while during the resurvey period, same share has declined to about 28 per cent of total expenditure of household. The expenditure on education has increased from 2.6 per cent in 1962-63 to 21.6 per cent in 2020, which is welcome shift household in expenditure. Medical expenditure which was hardly 4.1 per cent during benchmark survey which has significantly increased to 24.5 per cent in 2020. Thus, though there has been increase in life expectancy rate as well as development in terms of medicine and availability of health facilities, expenditure in medicine has increased to the level of one fourth of total expenditure of households. Almost 8 per cent of total expenditure during resurvey period was accounted for communication and entertainment expenditures (i.e. DTH, Mobile, phone).

The benchmark survey data on purpose wise borrowing revealed that as much as 75 percent of current debt were contracted for unproductive purposes. The resurvey data indicate that 60 per cent of total amount borrowed was as a crop loan followed by 11.5 per cent amount as home loan, about 8 per cent for RO plant and around 4 per cent for tractor and truck loan. Most of the loan amount seems to be for productive purpose except loan taken for decoration. About 83 percent selected households were opined that economic conditions of the villagers have improved while 62 per cent opined that economic condition of households have also improved. When villagers were asked about village infrastructure specially road/electricity etc., about 68 per cent of responses indicated improved condition of village infrastructure. About 58 per cent of the respondents were opined that agricultural situation was also improved. While across the caste category and

religion group, half of the OBC and Christian opined that economic conditions of households in village as well as village infrastructure has not changed.

Ecology, Vulnerability and Sustainability

6.1 Introduction

This chapter mainly deals with the natural resource profiles of village and its changes and also includes extreme events and exposures to shocks (ecology), degree of hardships faced (vulnerability) by rural groups. crops and livestock, major coping strategies of household levels for different extreme events relating to farmers, labour class and poor peoples and major adaptation strategies by different stakeholders to combat extreme events during last 5 years.

6.2 Natural Resource Profile of the Village

6.2.1 Flora and Fauna in the village and changes therein

The Moti Khadol village is situated in the Charotar area of Kheda district which is located in Central part of Gujarat. As mentioned earlier, May is the warmest month and January is the coldest month of the year. There is not much rainfall in Kheda tehsil all year long having annual rainfall is 788 mm. Out of total responses, 53 per cent of households opined that there is shift in rainfall pattern in the village. Any change in climatic determinants could not only adversely impact food security and nutrition but also affect the well-being of the population that derives its income from the sector. Shifting cropping patterns to more heat adapted and less water consuming varieties is a strategy already practiced by farmers. Reports indicate a shift in cropping patterns to local varieties of pulses, green gram, millets and mustard, which need less water. Tobacco crop has dominated the cropping pattern as was seen in benchmark survey. Dairying of cows was promoted; indigenous varieties with heat resistance capacities are identified and promoted to minimize related losses in milk production.

6.2.2 Land, Water, Soil, Forest and Livestock resources in the village and changes therein

The soil of Moti Khadol was generally ground (sandy loam). It is very fertile and suitable for tobacco, paddy and bajra. The soils of the district can be classified into the following cropping main types: goradu (gravelly), black, sandy and pattern rocky type. The principal crops grown in Kheda are the ordinary millets and pulses, rice, wheat, tobacco and a little indigo. Bajra is the principal crop and the staple grain food. Tobacco is the most valuable crop produced in the district. It is grown mostly in the Charotar tract. Castor seed and sesame are the only oilseeds grown in the district. As this village is situated on the bank of Mahor river which is mostly seasonal but during heavy rainfall period, river water gets entered in village and nearby village farm which submerge about 300-400 bigha farm land. Due to the same, approach road to other farm get blocked. The land erosion was reported due to such events.

The high level of TDS has been reported in drinking water and during the summer period, the level of TDS level been reached to 3000-4000 level. Therefore, sweet drinking water was fetched from the far away tube wells because tube well closed to village also has high TDS problem. Gram Panchayat has installed water purification RO plant to provide drinkable water to villagers for drinking purpose towards which Panchayat charges little amount but. However, TDS problem was not noticed in our first survey during 1962-63. Due to high TDS in water, health issues were reported by Christian family's members. Some of them are suffering from disability in walking, taking and mental illness.

Livestock resources:

The table 6.1 presents a comparative livestock status in Moti khadol village. The milch animal population has increased very significantly in village in recent survey. The significant growth has been reported in case of number of cows while number of buffaloes are almost constant over the period of time. The number of sheep and goat has declined in village. The number of work stock like Bullocks have declined significantly in village and main reason behind this was

that agricultural work is being completed with machinery like tractors and other implements.

Table 6.1: Livestock status in Moti khadol village

Cattle	1956	1961	1962-63	2019-20 Survey
(a) Bullocks	85	99	93	0
(b) Cows	---	---	---	228
(c) Young stock	---	14	1	0
Buffaloes				
(a) He- Buffaloes	---	3	1	0
(b) She- buffaloes	93	82	88	94
(c) Young stock	82	69	61	
Sheep	2	1	--	0
Goats	33	49	61	11
Donkey	15	7	10	0
Poultry	8	24	1	0

6.2.3 Ground water level, pollution and changes therein

The ground water level in village did not declined in the recent past which is 55-60 feet. The high TDS in ground water is the main problem being faced in villagers which was not reported in the benchmark survey conducted. As the industrial development is almost zero in village so that pollution issue was almost observed and air quality was very healthy in village.

6.2.4 Input use (fertilizer, FYM, pesticide, etc.) in agriculture and changes therein

The market of several of the home produced inputs is so imperfect and or limited that values cannot be imputed the measure of accuracy that is essential for a meaningful analysis. Therefore, only a broad picture of input structure, incorporating the significant among them is sought to be presented. Main attention is focused on those inputs use of which is likely to change, in volume or quality, significantly in foreseeable future; the inputs discussed are wage paid labour, seeds fertilizers, manures, water charges and land revenue. They also, broadly correspond to the out of the pocket expenses incurred by the farmers. In current survey we are observed that the availability of irrigation water high intension of chemical fertilizer and pesticide were used for high production in tobacco crop by farmers in Moti Khadol village while last survey reported that the

most of farmer's in village used farm manure and less use of chemical fertilizer due to less irrigation facility in the village.

6.3 Natural and Manmade Disasters

Tables 6.2 indicate that the occurrences of drought during the last 5 years were reported to be negligible whereas floods incidences were occurred often in last five years. Farmers as well as labourers were found to be most vulnerable groups among the villagers of Moti Khadol. On the other hand, villagers reported that paddy, wheat and tobacco are the most vulnerable crops and bajra and cotton is the least vulnerable crops. Heat waves are also reported to occurs often and farmers as well as labourers are the vulnerable groups. No case of Suicides and few cases of accidents were reported by the Household in Moti Khadol. No case of Violence and robbery are reported during the last 5 years in selected village. After Corona pandemic only, the few cases of job loss are reported.

Table 6.2: Frequency of extreme events during last 5 years and exposures to shocks in Village

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	No	Farmers & labours		Paddy, Wheat & Tobacco	Bajra, Cotton
Flood	Yes	Often	Farmers & labours		Paddy, Wheat & Tobacco	Bajra, Cotton
Cyclone	No	No				
Erratic Rainfall	No	No				
Heat wave	Yes	Often	Farmers & labours		Paddy, Wheat & Tobacco	Bajra, Cotton
Cold wave	No	No				
Land slides	No	No				
Epidemic	No	No				
Major accident	No	No				
Suicide	No	No				
Robbery	No	No				
Violence	No	No				
Loss of job	No	No				
Price crush	Increased	Often	Farmers		Paddy, Wheat & Tobacco	Bajra, Cotton
Any others	No	No	No	No	No	No

6.3.1 Degree of Hardship Faced (Vulnerability) During Last 5 Years (in 0 – 5 scales) in Village:

The degree of hardship faced (Vulnerability) during last 5 years (in 0 -5 scales) in Moti Khadol village worked out in table 6.3. It can be seen that due to flood and heat wave damages the crops as well as hardship to cattle were reported, while low level hardship of reported being reported for poor, and women. Other no degree of hardship faced was reported in the village.

Table 6.3: 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	-	-	-	-	-	-	-	-
Flood	2	2	2	2	2	2	2	2
Cyclone	-	-	-	-	-	-	-	-
Erratic Rainfall	-	-	-	-	-	-	-	-
Heat wave	3	3	3	3	3	3	3	3
Cold wave	-	-	-	-	-	-	-	-
Land slides	-	-	-	-	-	-	-	-
Epidemic	-	-	-	-	-	-	-	-
Major accident	-	-	-	-	-	-	-	-
Suicide	-	-	-	-	-	-	-	-
Robbery	-	-	-	-	-	-	-	-
Violence	-	-	-	-	-	-	-	-
Loss of job	-	-	-	-	-	-	-	-
Price crush	-	-	-	-	-	-	-	-
Any others	-	-	-	-	-	-	-	-

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

6.3.2 Major coping Strategies at Household Levels for Different Extreme Events

Major coping strategies at household level for different extreme events during last 5 years in Moti Khadol village worked-out and presented in Table 6.4. It can be seen that to combat with slight flood kind of situation the crop raising farmers had used crop insurance as coping strategy. Labour class as well as poorest people farmers had migrated outside for jobs and also adopt borrowing

as coping strategy. Thus, in the whole village the poorest peoples were the hardest hit from flood/ heat wave.

Table 6.4: Major coping strategies at household level for different extreme events

Extreme Events	Crop farming Community	Dairy farmers	Fish farmers	Labour class	Poorest peoples
Drought					
Flood	Insurance	-	-	-	-
Cyclone	-	-	-	-	-
Erratic Rainfall	-	-	-	-	-
Heat wave	-	-	-	-	-
Cold wave	-	-	-	-	-
Land slides	-	-	-	-	-
Epidemic	-	-	-	-	-
Major accident	-	-	-	-	-
Suicide	-	-	-	-	-
Robbery*	-	-	-	-	-
Violence	-	-	-	-	-
Loss of job	-	-	-	-	-
Price crush	-	-	-	-	-
Any others	-	-	-	-	-

Notes: 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, please specify.

6.3.3 Major Adaptation Strategies by Different Stakeholders to Combat Extreme Events.

The major adaptation strategies by different stakeholders to combat extreme events worked-out and presented in the Table 6.5. It was observed during survey and group discussion, that except flood kind of situation no such any extreme climate or other event so happened in the village during the last five years' period. While, state and central government scheme like crop insurance scheme, PMFBY, Soil Health Card/PMFSY/ MGNREGA were adopted by farmers to combat with drought/Flood/ Cyclone and loss of job in this village. For erratic rainfall as well as for heat waves, generally villagers have reported adoption of crop diversification and livelihood diversification at individual level in the village.

Table 6.5: Major adaptation strategies by different stakeholders to combat extreme events

Extreme events	Individual level	Government level	By NGO	Community level
Drought				
Flood	Insurance	PMFBY	-	-
Cyclone				
Erratic Rainfall				
Heat wave				
Cold wave				
Land slides				
Epidemic				
Major accident				
Suicide				
Robbery				
Violence				
Loss of job				
Price crush				
Any others				

Notes: 1= Livelihood diversification; 2=Crop diversification; 3=Crop insurance; 4= Health insurance; 5=General insurance; 6=Pond making; 7=Relief programme; 8=Income support schemes; 9=MGNAREGA; 10=Livelihood creation; 11=Afforestation; 12=Immunization; 13= Infrastructure (road, irrigation, storage) development; 14=Easy lending; 15=Loan waiving; 16=Community preparedness; 17=specific (mention)

6.4 Perception about Ecological Changes in the Village

Around 53 per cent of households have reported that there is change in rainfall pattern as well as heat and cold waves and air over the period of time (Table 6.6) while more than 89 per cent of them have denied the increase in incidence of diseases and expenditure on medical (table 6.7).

Table 6.6: Any change in rainfall pattern or heat/cold waves or air

Rainfall pattern	All
Yes	53.0
No	47.0
Total	100.0

Table 6.7: Increased incidence of disease and medical expenditure in your family during last five years

incidence of disease	All
Yes	10.9
No	89.1
Total	100.0

6.5 Chapter Summary:

Out of total responses, more than half of the total households opined that there is shift in rainfall pattern in the village. Tobacco crop has dominated the

cropping pattern as was seen in benchmark survey. Dairying of cows was promoted; indigenous varieties with heat resistance capacities are identified and promoted to minimize related losses in milk production. The significant growth has been reported in case of number of cows while number of buffaloes are almost constant over the period of time. The number of sheep and goat has declined in village. The number of work stock like Bullocks have declined significantly in village and main reason behind this was that agricultural work is being completed with machinery like tractors and other implements. The ground water level in village did not declined in the recent past which is 55-60 feet. The high TDS in ground water is the main problem being faced in villagers which was not reported in the benchmark survey (1962-63). As the industrial development is almost zero in village so that pollution issue was almost observed and air quality was very healthy in village. The occurrences of drought during the last 5 years were reported to be negligible whereas floods incidences were occurred often in last five years. No case of Violence and robbery are reported during the last 5 years in selected village. After Corona pandemic only, the few cases of job loss are reported. To combat with slight flood kind of situation the crop raising farmers had used crop insurance as coping strategy. Labour class as well as poorest people farmers had migrated outside for jobs and also adopt borrowing as coping strategy. Thus, in the whole village the poorest peoples were the hardest hit from flood/ heat wave. It was observed during survey and group discussion, that except flood kind of situation no such any extreme climate or other event so happened in the village during the last five years' period. While, state and central government scheme like crop insurance scheme, PMFBY, Soil Health Card/PMFSY/ MGNREGA were adopted by farmers to combat with drought/Flood/ Cyclone and loss of job in this village. . Around 53 per cent of households have reported that there is change in rainfall pattern as well as heat and cold waves and air over the period of time while more than 89 per cent of them have denied the increase in incidence of diseases and expenditure on medical. Thus, overall, no extreme event has been reported by the villagers during last five years' period.

Policy and Governance

7.1 Introduction

This chapter mainly deals with the coverage under different government sponsored schemes and participation in Gram Sabha/Gram Sansad meeting by caste and economic, crop-wise list of major varieties cultivated and major livestock rearing in Moti Khadol Village.

7.2 Nature and Coverage under Different Government Sponsored Schemes

The coverage under different government sponsored schemes is given in Table 7.1. It can be seen from the table that under the BPL card scheme, total nine households were found entitled in the village during 2014-2019 and only two households had availed this facility and all of them were satisfied with the scheme. Under KCC Card Scheme, total 75 households were entitled and around 89 per cent of them have availed the facility. Under public health insurance card scheme, 68 per cent of total entitled households were benefited. About 34 households were entitled under MGNAREGA job Card Scheme, but the none of them had benefited as current TDO officer had suspended all MGNREGA works due to validation of job card and other issues. Also none of the households had undertaken soil health check-up. It was reported that (which was very surprised to note) without the knowledge of farmers of village, soil samples were taken from their field and soil test reported were received by the Sarpanch which were found lying in gram panchayat. These soil health card were not distributed among the farmers. Half of the entitled households for Crop Insurance have availed the facility. While all the entitled households under ICDS/Mid-day meal, Scholarship scheme, PMKSY, PMKISAN, LPG Ujjala, Old Age Pension, Widow pension and disabled pension have availed the facility. None of the household was reported entitled under farm loan waiver scheme, PMKVY, PMAASHA, SG Farm income support schemes.

Table 7.1: Coverage under different government sponsored schemes

Sr. No.	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	9	2	22.22	100
2	KCC Card	75	67	89.33	98.51
3	Public Health Insurance Card	122	83	68.03	90.36
4	Soil Health Card*	49	0	0	0
5	MGNAREGA Job Card	34	0	0	0
6	ICDS/Mid-Day Meal	80	80	100	100
7	Govt. Scholarship Schemes	3	3	100	100
8	Govt. Housing Scheme (IAY/PMAY)	52	25	48.08	88.00
9	Crop Insurance: PMFBY/Others	75	67	89.33	98.51
10	Irrigation: PMKSY/Others	0	0	0	0
11	Seed Minikit scheme	0	0	0	0
12	Farm machinery or implements	2	2	100	100
13	Life Insurance (Govt sponsored)	0	0	0	0
14	CG Farm Income Support (PM-KISAN)	70	70	100.00	82.86
15	SG Farm Income Support Schemes	0	0	0	0
16	Old Age Pension Schemes	2	2	100	100
17	Farm Pension Scheme (PM-KMY)	0	0	0	0
18	Widow Pension Scheme	9	9	100	33.33
19	Farm Loan Waiver Scheme	0	0	0	0
20	LPG scheme (PM UJJALA)	33	33	100	100
21	PMKVY/Organic Farming	0	0	0	0
22	MSP/PM-AASHA Scheme	0	0	0	0

Note: We have found SHCs laying in Gram Panchayat which were not distributed among the farmers.

7.3 Perception about Government schemes

As discussed above, majority of the beneficiaries have reported satisfaction about the schemes in force in the village. Around 70 per cent of beneficiaries of public health insurance card were not satisfied over implementation of the scheme. While during discussion, the villagers have suggested for complete coverage of village under these schemes (those who are eligible as per prescribed norms) so that everyone eligible can be benefitted.

7.4 Participation in Local Governance

Out of total households, at overall level, more than 30 per cent of households from all categories had participated in the meetings of Gram Sabha and Gram Sansad, while 38 per cent member of households of general category, 30 per cent of OBC household members and hardly 14 per cent of SC category members have attended these meetings without fail. Those remaining household members who could not participate in Gram Sabha meeting may be due to their busy schedule of field work, uneducated and due to old age. Less than one third of total households have participated in the gram sabha/gram Sansad meetings which indicate poor participation of villagers in decision making. Out of total, around 85 per cent of the household persons had approached to elected representatives like Panchayat/MLA/MP for village and panchayat development related issue and most of them were satisfied with that elected representatives have addressed their issues and tried to solve their problems willingly.

Table 7.2: Participation in Gram Sabha meeting by Caste and Economic status

Particulars	% of respondents participated in such meetings			
	Economic Categories			
	APL	MAPL	BPL	Overall
General	38.38	0.0	0.0	37.37
OBC	30.00	0.0	100.00	31.37
SC	13.73	0.0	0.00	13.46
All Categories	30.00	0.0	50.00	30.20

It can be seen from the table 7.3 that relative status in the village power structure across the caste category group was mostly dominated by General Hindu followed by OBCs while SCs are having medium to poor status in village power structure. Thus, despite of drastic changes in village, the power formula has not changed so far.

Table 7.3: Relative status in the village power structure

Relative status level	Hindu			Muslim	Christian	All
	General	OBC	SC	OBC	SC	
Nil	0.0	0.0	0.0	0.0	0.0	0.0
Top	12.1	0.0	3.1	2.9	0.0	6.9
High	36.4	5.9	0.0	5.9	10.0	20.3
Medium	41.4	52.9	53.1	52.9	15.0	43.6
Low	10.1	41.2	43.8	38.2	75.0	29.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

The reasons for the one sided power structure and status in the society were poor economic conditions of OBCs and Christian SC households along with no political affiliation as such as well as qualification (table 7.4). Caste was the dominant factor for power center in the village. While during the field survey, all the respondents have denied any incidence of deprivation on the accounts of caste, gender or any association with political party (Table 7.5).

Table 7.4: Reasons for such power/status in the society

Reason for	Hindu			Muslim	Christian	All
	General	OBC	SC	OBC	SC	
Caste	69.7	29.4	84.4	55.9	30.0	62.4
Qualification	12.1	0.0	3.1	2.9	5.0	7.4
Political affiliation	3.0	0.0	0.0	0.0	0.0	1.5
Economic Condition	13.1	70.6	12.5	41.2	65.0	27.7
Nil	2.0	0.0	0.0	0.0	0.0	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 7.5: Is there any caste/gender/political deprivation in your village (%)

deprivation	Hindu			Muslim	Christian	All
	General	OBC	SC	OBC	SC	
Yes	1.0	0.0	9.4	0.0	5.0	2.5
No	99.0	100.0	90.6	100.0	95.0	97.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

All the respondents have reported that they had approach their friend and relatives in case any advice is require on livelihood specific, social specific issues, as well as in case of educational matters. While in case of legal issues, they preferred to contact relatives followed by friends. Thus, villagers have more faith on relatives and friends to solve their issues as and when they faced (Table 7.6 to Table 7.9). Majority of the households in the selected village have sold their output to agents followed by in the nearby market (table 7.10).

Table 7.6: For any advice/decision on livelihood issue whom do you approach

livelihood issue	Hindu			Muslim	Christian	All
	General	OBC	SC	OBC	SC	
Friend	8.1	5.9	3.1	0.0	5.0	5.4
Relative	13.1	0.0	25.0	11.8	5.0	12.9
Friend/Relative	78.8	94.1	71.9	88.2	90.0	81.7
Advocate	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 7.7: For any advice/decision on social issue whom do you approach

Social Specific	Hindu			Muslim	Christian	All
	General	OBC	SC	OBC	SC	
Friend	0.0	0.0	0.0	0.0	0.0	0.0
Relative	26.3	5.9	28.1	14.7	15.0	21.8
Friend/Relative	73.7	94.1	71.9	85.3	85.0	78.2
Advocate	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 7.8: For any advice/decision on education whom do you approach

Education specific	Hindu			Muslim	Christian	All
	General	OBC	SC	OBC	SC	
Friend	23.2	0.0	37.5	17.6	15.0	21.8
Relative	2.0	0.0	0.0	0.0	0.0	1.0
Friend/Relative	74.7	100.0	62.5	82.4	85.0	77.2
Advocate	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 7.9: For any advice/decision on legal issue whom do you approach

Legal advice	Hindu			Muslim	Christian	All
	General	OBC	SC	OBC	SC	
Friend	2.0	11.8	0.0	5.9	5.0	3.5
Relative	53.5	88.2	62.5	70.6	80.0	63.4
Friend/Relative	44.4	0.0	37.5	23.5	15.0	33.2
Advocate	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 7.10: Where do you to sell your output (%)

Output sell medium	Hindu			Muslim	Christian	All
	General	OBC	SC	OBC	SC	
Neighbours	3.5	0.0	0.0	0.0	0.0	2.6
Market	37.6	60.0	70.0	52.9	0.0	43.6
Agents	58.8	40.0	30.0	47.1	0.0	53.8
Total	100.0	100.0	100.0	100.0	0.0	100.0

7.5 Socio Economic Problems in Village

The socio-economic problems of the village are presented in Table 7.11. It can be seen from the table that the major problems narrated by the villagers are drinking water problem as groundwater has high TDS followed by low employment opportunities, not having facilities like health, street lights,

connecting roads and schemes like BPL and pensions. The poor households in 'waghari awas' were not included in BPL category when survey was conducted in 2008. Liquor drinking habit was reported increasing among villagers.

Table 7.11: Socio-economic problems in village

Socio-economic problems in village	General	OBC	SC	All
Problem -1				
Area affected by flood	0.00	0.00	1.87	0.50
Drinking water problems (High TDS, Quality issues)	89.90	81.63	66.67	81.70
Market is not available	3.00	2.06	0.00	2.00
Mobile connectivity	0.00	2.06	0.00	0.50
No employment opportunities	5.10	10.19	27.82	12.40
No Hospital	0.00	2.06	0.00	0.50
No problems	1.00	0.00	0.00	0.50
Retail shop is not available	0.00	2.06	0.00	0.50
Road not connected to farm	1.00	0.00	0.00	0.50
Street light not available	0.00	0.00	1.87	0.50
Window pension not received yet	0.00	0.00	1.87	0.50
Total	100.0	100.0	100.0	100.0
Problem-2				
Drinking water problems (High TDS, Quality issues)	3.00	10.19	24.09	10.40
Employment opportunities generated	3.00	2.06	3.73	3.00
Gutter issues (blockage, not closed, not available)	3.00	6.17	0.00	3.00
Health related facilities should be improved	1.00	0.00	0.00	0.50
Infrastructure (road, street light, etc.) related problems	8.10	0.00	3.73	5.00
lack of industry nearby	1.00	0.00	0.00	0.50
Liquor drinking habit developed in youngster.	1.00	0.00	0.00	0.50
Need more coverage under Govt scheme (BPL card, PMAY, Old/widow/disability pension, etc.)	2.00	22.43	3.73	7.40
Need teachers in school and improvement in educational infrastructural facilities	3.00	0.00	0.00	1.50
No Bank	0.00	4.11	0.00	1.00
Price of produce is very less	1.00	0.00	0.00	0.50
Transport facilities is rarely	1.00	0.00	0.00	0.50
village connecting road to farm land is difficult in rainy days	4.00	6.17	0.00	3.50
Total	31.30	51.04	35.20	37.10
Problem-3				
Connecting road between village and shamshan bhumi	1.00	0.00	0.00	0.50
Due to increased marriage age in future gender gap will be increased.	1.00	0.00	0.00	0.50
Employment opportunities are lesser	1.00	0.00	0.00	0.50
encroachment in govt land	0.00	0.00	1.87	0.50
Market	0.00	2.06	0.00	0.50
No toilet were constructed	0.00	4.11	0.00	1.00
Transportation issues	1.00	0.00	0.00	0.49
Unavailability of PHC	1.00	0.00	0.00	0.49
Widow pension required	0.00	2.06	0.00	0.50
Total	5.10	8.13	1.87	4.97

While across the groups, same trend was observed in case of problems reported by the respondents. Some of the problems were reported in addition to

first one were need of inclusion of village households under different government schemes; infrastructure related problems (such as road, street light, etc.); need of weather road connecting the village and field as during rainy season, it is very difficult to reach field for farm operations), issues related to gutter, etc. Few of the respondents have reported their third problem as non-availability of toilets at home, encroachment on government land by some people and non-availability of PHC in village.

7.6 Major suggestions for improvement /development in Village

In order to have further improvement/development in village, the villagers have given few suggestions which are presented in Table 7.12. It can be seen from the table that the main suggestion made for improvement in development in village was to make to work on basic infrastructure followed by need to create employment opportunities as well as good health services in the village level.

Table7.12: Major suggestion for improvement /development in Village

Suggestions	General	OBC	SC	All
Suggetsions-1				
Basic infrastructure issues need to be solved (drinking water, road, street lights, gutter, etc.)	94.9	95.8	93.8	95.0
Need to create employment opportunities	5.1	4.2	4.2	4.5
Need to good health services in village level.	0.0	0.0	2.1	0.5
Total	100.0	100.0	100.0	100.0
Suggetsions-2				
Basic infrastructure issues need to be solved (drinking water, road, street lights, gutter, etc.)	2.0	4.2	4.2	3.0
Need to create employment opportunities	3.0	0.0	0.0	1.5
Total	5.1	4.2	4.2	4.5
Suggetsions-3				
Need to have adequate education infrastructure facilities	2.0	4.2	4.2	100.00
Total	2.0	4.2	4.2	100.00

7.7 Chapter Summary:

It was observed form the discussion that there were different government sponsored schemes being implemented in the selected village and except BPL and widow pension scheme, beneficiaries were satisfied with other schemes. Out of nine, only two were found entitled in the village. Less than one third of total

households have participated in the gram sabha/gram Sansad meetings which indicate poor participation of villagers in decision making. The relative status in the village power structure across the caste category group was mostly dominated by General Hindu category. All the respondents have reported that they had approach their friend and relatives in case any advice is require on livelihood specific, social specific issues, as well as in case of educational matters. While in case of legal issues, they preferred to contact relatives followed by friends. Thus, villagers have more faith on relatives and friends to solve their issues as and when they faced. Majority of the households in the selected village have sold their output to agents followed by in the nearby market. The major problems narrated by the villagers are drinking water problem as groundwater has high TDS followed by low employment opportunities, not having facilities like health, street lights, connecting roads and schemes like BPL and pensions. Liquor drinking habit was reported increasing among villagers. The suggestion made for improvement in development in village was to make to work on basic infrastructure followed by need to create employment opportunities as well as good health services in the village level.

The next chapter presents the summary and policy implications.

Summary and Policy Implications

8.1 Introduction:

The villagers comprise the core of Indian society and also represent the real India. In order to ensure that the fruits of India's progress are shared by all sections of the society and India's economy to be strong, the rural economy needs to grow. The government has identified several elements of social and economic infrastructure, critical to the quality of life in rural areas and is working towards it. Over the years, the Indian government has introduced several schemes that have not only helped the Indian citizens improve their economic situations, but have also addressed their physical needs. However, rural areas are still plagued by problems of malnourishment, illiteracy, unemployment and lack of basic infrastructure like schools, colleges, hospitals, sanitation, etc. This has led to youth moving out of villages to work in cities. This could be compared to the brain drain from India to United States and other developed countries. Our villages need to grow in tandem with cities and their standard of life has to improve for inclusive growth to happen. If rural India remain poor, India remains poor. 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. Therefore, village studies are important as it provides the working of various existing agrarian and other associated socio-economic institutions governing the village life and drivers of changes. It also provides with insight into the pace with which villages transform and adapt to changing environment and developments and integrate with urban areas.

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. 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 and useful source of basic information about villages. Thus, it is this realization that led to a spate (series) of village surveys by various Agro-Economic Research Centres of the Ministry located at different States of India, one among them is our Centre.

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 surveys of National Sample Survey Organizations, although these data could serve the essential purpose of understanding the broad general purpose of larger contexts.

The village society is characterized as a highly static society and village people excessively immobile. However, this kind of common understanding has undergone a tremendous change with the introduction of Five-Year Plans and the revolution in mass media. The earlier village life, which did not have any political and economic power, has now acquired adult franchise, democracy and accelerating transformation. During the last five decades, rural societies have witnessed massive changes. The village life today has reached a stage, where the glamour of urban life has made inroads in villages. It is in this context; it is important to have resurvey of villages surveyed earlier.

Since the primary unit of the rural economy is the village, it was felt that periodic surveys and resurveys of selected villages exposed to the various forces of change might be of some help in understanding this process of change. In order to fulfil this objective, this Centre, in the earlier phase of its development, initiated a number of village studies both in Gujarat and Rajasthan state. Total 21 village surveys and 4 village resurveys are conducted by the Centre in the past which were used in policy formulations. In view of above, the present study entitled “Village Survey Study in Gujarat- Moti Khadol village, Kheda District”, was conducted with the following main objectives of (a) to create a longitudinal panel dataset, to capture the socio-economic dynamics of the village. The purpose was to assess the pace, process and pattern of rural change by means of repeated surveys in the selected village followed by the re-survey of the same villages at an intervals of 5 years and (b) focus was on agricultural changes and changing pattern of rural livelihoods and its implication for future development. The study also evaluated the efficacy of government interventions in rural areas and key drivers of changes in village economy.

The present village resurvey work was undertaken in the village of Moti Khadol of Mauda tehsil of Kheda district of Gujarat which was first surveyed in 1964 (Desai, 1967) covering data year 1962-63. Initially it was planned to conduct a bench-mark survey of social and economic condition of Moti Khadol village prior to the establishment of a Milk Producers’ Cooperative Union under the auspices of the Kaira District Cooperative Milk Producers’ Union (or popularly known as “Amul”) in the village in 1962-63 in order to study the impact of this milk marketing agency on dairying in particular and on the village economy in general through a resurvey of the same village after about five years. This, however, could not be done because the Union had not chalked out a definite programme of the villages which it would cover during the coming few years. As the second best alternative the villages in which the Cooperative Milk Marketing Societies had just been organized was considered. Accordingly, out of three villages (Moti Khadol in Nadiad Taluka, Lasalwada and Ishwarpura in Kapadwanj taluka) where the societies had just begun and which satisfied the general condition for inclusion in the programmes (viz., the

manageable size, approachability, potentiality of growth, etc.), Moti Khadol was selected for the comprehensive socio-economic survey and survey was conducted in 1964 covering data for the year 1962-63. This is re-survey report of same village conducted in 2019-20.

8.2 Data and Methodology:

This study is based on both primary and secondary level data. The secondary data were collected from the government publications (Primary Census Abstracts, Agricultural Census, Livestock Census, etc.), online databases and published reports and research papers and related websites. The required secondary data were also collected from the offices of State, district, tehsil, development block, village and village level institutions. The primary data were collected from the village households of selected village by survey method through five types of survey schedules.

As per the study designed suggested by the Coordinator of the study, one village from the list of villages already surveyed before and was moderately developed was selected. As mentioned in earlier chapter, initially it was planned to conduct a bench-mark survey of social and economic condition of Moti Khadol village prior to the establishment of a Milk Producers' Cooperative Union under the auspices of the Kaira District Cooperative Milk Producers' Union (or popularly known as "Amul") in the village in 1962-63 in order to study the impact of this milk marketing agency on dairying in particular and on the village economy in general through a resurvey of the same village after about five years. This, however, could not be done because the Union had not chalked out a definite programme of the villages which it would cover during the coming few years. As the second best alternative the villages in which the Cooperative Milk Marketing Societies had just been organized was considered. Accordingly, out of three villages (Moti khadol in Nadiad Taluka, Lasalwada and Ishwarpura in Kapadwanj taluka) where the societies had just begun and which satisfied the general condition for inclusion in the programmes (viz, the manageable size, approachability, potentiality of growth, etc.), Moti khadol was selected for the comprehensive socio-economic survey and survey was

conducted in 1964 covering data for the year 1962-63 and report was published in 1967 (Desai, 1967). This is re-survey report of same village conducted in the year 2019-20 and report submitted in 2021.

8.3 Profile of the Selected Village

Moti khadol is one of the 41 villages in the Mahuda Taluka in the Kheda district of Gujarat State. Kheda district is divided into eight talukas, viz. Nadiad, Thasara, Kapadvanj, Mehmedabad, Kathala, Matar, Balasinor, Mahuda, Kheda and Virpur. According to Census 2011 information the sub-district code of Mahudha block is 03877. Total area of Mahudha was 248 km² including 233.93 km² rural area and 13.81 km² urban area. Mahudha has a population of 1,32,560 peoples. There were 26,359 houses in the sub-district. There are about 41 villages in Mahudha block. Moti Khadol village is situated 5 km away from sub-district headquarter Mahudha and 23 km away from district headquarter. From Nadiad, the largest town in Kaira district and the taluka and sub-divisional headquarters, the village is at a distance of 22.4 kilometers in the north-east direction while from Mahudha, the thana headquarters and the nearest marketing centre (for food crops) and the railway station the village is only 5.6 kilometers in the east. Geographically, this village is spread-out latitude 22.8064476 and longitude 72.9903446999999 and geographically area of the village is 278.7 ha. As per census 2011 village code of village Moti Khadol is 517660.

Moti Khadol village is situated in semi-arid climate in middle agro-climate zone of the Gujarat. The climate here is considered to be a local steppe climate. The average minimum temperature during winter season (November to January) was around 29 °C in year 2019 while during summer season; temperature was around 49 °C. May month is always hottest month and January is the coldest month of the year. The annual temperature of the Moti Khadol village ranges between 30 to 45 per cent. Temperatures vary considerable from season to season. As per climatological data of nearest Indian Meteorological Department (IMD) Station at Ahmedabad (Latitude 23°04' N: Longitude 72°38' E), the summers are generally hot and winters are cool. Means maximum temperatures

ranges between 28.4°C during January to about 41.8°C during May and the mean minimum temperatures vary between 11.7°C during January and 27°C during June. The relative humidity in Anand as per IMD varies between 32 per cent during March and 79 per cent during August. The wind velocity in the district varies from about 74km/d during November and 174 km/d during June. There is not much rainfall in Kheda all year long. The annual rainfall is 788 mm.

The Kheda district lies in the Cambay basin situated between Saurashtra crater and Arvalli Swell and deccan shield in the east. The basin comprises both marine formations. Major part of the district is underlain by alluvium which intern is underlain by tertiary sedimentary formations within The Cambay Sedimentary Basin. The soil of Moti khadol was generally ground (sandy loam). It is very fertile and suitable for tobacco, paddy and bajra. The soils of the district can be classified into the following cropping main types: goradu (gravelly), black, sandy and pattern rocky type. The principal crops grown in Kheda were the ordinary millets and pulses, rice, wheat, tobacco and a little indigo. Bajra is the principal crop and the staple grain food. Tobacco is the most valuable crop produced in the district. It is grown mostly in the Charotar tract. Castor seed and sesame are the only oilseeds grown in the district.

Kheda district has a special place in Indian history for a project that was instrumental in decentralizing television broadcasting in India. Here's the little-known story of Kheda Communications Project. The Kheda Communications Project or KCP is a field laboratory that aimed at the development and local communication in Kheda district of Gujarat. This project began in 1975 and continued till 1990. The Kheda Communications Project (KCP) did not end with this historical transmission. It continued to experiment with the process, style and content of the audio-visual communication to create a model that would be effective in taking development programmes to rural India. KCP was yet another pioneering experiment using television for educational purposes in India. KCP had some special features that made the project truly special in the realm of Indian Television. Moto Khadol village is well connected with road and rail transport. Nadiad, Umreth, Mehmedabad, Kapadvanj are the nearby Cities. Moti

Khadol is not isolated village and can be conveniently reached both by the rail and the bus routes

8.3.1 Demographic Profile of the Village

Moti Khadol is a medium size village located in Mahudha Taluka of Kheda district, Gujarat with total 221 families residing having total population of 965 of which 495 were males while 470 were females as per Population Census 2011. Out of the total population, schedule Caste (SC) constitutes hardly 0.93 per cent of total population of village while village did not have any Schedule Tribe (ST) population. The population of children with age 0-6 was 102 which make up 10.57 per cent of total population of village. The average sex ratio of village was 949 higher than Gujarat state average of 919. Child Sex Ratio for village was 1040 which was higher than Gujarat average of 890. The village had higher literacy rate (87.72 %) compared to Gujarat (78.03 %), of which rate of male literacy stands at 95.28 per cent while female literacy rate was estimated to be 79.67 per cent. Out of total population, 450 were engaged in work activities, 88.67 per cent of workers describe their work as main work (employment or earning more than 6 months) while 11.33 per cent were involved in marginal activity providing livelihood for less than 6 months. Of 450 workers engaged in main work, 151 were cultivators (owner or co-owner) while 158 were agricultural labourers. Total marginal workers of village were 18.2 per cent of total workers in the village

8.3.2 Livelihood/Employment and Migration Status

The village has developed over the period. Most of the people in the village have settled outside (such as Ahmedabad, Vadodara, Surat, Nadiad, USA etc.) and the main reason for migration was children's education and jobs. While livelihood of the village is mainly based on agriculture and animal husbandry activities along with support of rural artesian trade especially leather crafts, wood, and caste based profession, and wool established in the village. The rearing of livestock is being done at large scale i.e. each household has two to three milch animals. In general, each household has its own transport facilities.

During 1962-63, it was observed that total 96 persons belonging to households had out migrated from Moti khadol while 105 persons in 22 households were immigrants to the village. During recent survey in 2020, same trend was observed wherein out of 233 households, 31 households have reported migrated specially Patel youths have migrated to abroad such as London/Canada/US/Africa for better opportunities as a service/business and many young boys and girls had gone abroad on student visa for higher studies. No case of immigration has been reported.

8.3.3 Agriculture Status of the Village

- The total geographical area of Moti Khadol village was reported to be 278.7 ha, of which 74.78 per cent area was reported to net sown area (208.4 ha). The net irrigated area accounted for the 96.1 per cent of net sown area mostly through canal and followed by tube well.
- Irrigation facility on which the whole process of agricultural transformation hinges has enlarged during last five decades or so. The irrigated area by the Moti Khadol has increased to 96 per cent of total net sown area in 2011. All the net sown area is irrigated by the groundwater (tube-well). The flow of water is very good so that most of the farmers irrigated area with flood irrigation method whereas negligible area was irrigated with micro irrigation system like drip/sprinkler. No solar irrigation pump is reported in the village. Water rate for irrigation from tube-well is Rs. 60 per hour.
- The proportion of the area under food crops to gross cropped area was estimated to be 75 per cent. Generally, farmers of village are cultivating mostly single crop in a year, i.e. Tobacco which fetches them good returns with high productivity along with paddy and bajra on small area.
- Under land tenure system, leasing-in and leasing-out tenancy with share cropping basis of the output is prevalent among the land holders of Moti Khadol village. Under land reform measures, consolidation of holdings was done many year ago in the village. The rate of leased-in for irrigated and

rained land for one year is reported to be Rs. 7000 to 8000/per bigha/per year and Rs. 5000/per bigha/per year respectively.

8.3.4 Livestock resources (Cattles/Birds/Others)

- Total livestock population in village in 2019 was 333 of which 68.5 percent were cattle, 28.2 per cent were buffalo, and 3.3 per cent were goat.

8.3.5 Developmental Institutions & Infrastructure

- Moti Khadol is a panchayat in the state of Gujarat (Village Code 161902) and is under Kheda zilla panchayat and Mahudha inter panchayat. The Panchayat was housed in its own building. At present nine-member gram panchayat is in place having five members from general category, three members from SC category, one from OBC category. The last election was held in 2017. There were 875 voters in the village. Grants was received for welfare work from 17th Finance Commission and MLA account.
- Moti Khadol Dudh Utpadk Dairy has presently 272 members of which 250 were the milk pourer. The per day milk collected in dairy were estimated to be around 2300 Lit however only 350 litter was supplied by local villagers and rest was supplied by nearer village. Mostly payment is made in cash every day to milk producer. Cattle feed is made available by the society for its members in two sizes, i.e 70 kg bag for Rs. 1320/- and 50 kg bag for Rs. 920/-. Besides, society provides veterinary services on demand with visit fee of Rs. 100/- in regular case of Rs. 250/- in emergency case. The office bearers of the society are paid salary, Viz. Secretary (Rs. 11350/- pm), Milk Collector/Tester (RTs. 11705/- pm) and Helper (Rs. 9710/-). Besides, dairy society pays Rs. 30000/- for two months. Dairy society has its cattle feed godown in village.
- Village has primary school up to 5th standard schooling. In the benchmark survey, it was mentioned that the village primary school was established on 04/07/1957 for 0-7 class but after 2015 this school was demoted to 5th class because many villagers were interested to read their children in

private English medium schools. The total student in school is 47 in 2019-20 and two teachers were posted in village.

- There is no bank or ATM facility available in the village, as Mahuda tehsil place is very close to village.
- No social organisation such as SHGs and farmer's clubs are reported working in village. Two SHGs (Mahakali SHG and Jayanti SHG) were functioning in Village which got closed seven years before due to lack of deposits/money.

8.3.6. Village Infrastructure

- In village, there is no provision store, so villagers have to go to Mahudha market to purchase the item. Even there is no facility of any bank.
- There is no post office in village. There are no facilities of government dispensary or PHC in this village.
- The main problem of this village is the high total dissolved solids (TDS) in the water thus the villagers have to fetch drinking water from outside of village, i.e nearby Nani Khadol village is the main source of drinking water towards which Rs. 100/- per hh per year charges are being paid by the villagers. Besides, the tube-wells in nearby farms are also used. Village has own RO plant system but it is currently closed. Groundwater level in the village is around 55-60 feet but water has high TDS content. Water and Sanitation Management Organization (WASMO) has visited the village but no such report is available in gram panchayat.
- No public distribution system ration shop was available in village. Same was available in nearby village which is 1 km away, i.e. Nani khadol.

8.3.7 Cultural Profile of the Village

- The popular Gujarati festivals like Navratri (Nine Nights), Janmaasthmi (Lord Krishna's birth anniversary), Maha shivratri etc., the folk entertainments such as Garbaas, Bhajan etc., were organized in the village.
- The village has eleven temples and two churches. The Swaminarayan temple is at its gate.

- During current survey, some rigidity was observed across the religion and caste groups. Patel's were living in separate section while others were living in mixed localities. Also Patel's never send their children to school located in village
- No illegal activities are reported in this village. During the survey, it was observed that peoples of this village are very polite and helping nature. The most of youngsters are well educated and participated in every social work. However, some of the villagers have started consuming liquor and around 250-300 village consume 'Gutkha Pan Masala'.

8.3.8. Occurrence and frequency of natural calamities

- No drought/cyclone/other natural calamities are reported by the villagers while sometime heat waves during summer and flood during rainy season has been experiencing by the villagers.

8.4 Social Dynamics

8.4.1 Profile of Selected Households:

- According to the 1961 census the population of Moti Khadol was 768 in 165 households; thus the average size of a household was 4.65 persons. The 1962-63 survey data also revealed a population of 731 in 158 households in the year 1962-63. Hence, the average number of persons per household worked out to 4.62 which was almost the same as the average size worked out on the basis of 1961 census figures. The decrease in the population and also in the number of households recorded in benchmark survey over the 1961 census figures can be explained by the fact that eight households had emigrated from the village. Also, one household in the village did not respond to survey enquiry. Thus, in actuality the number of households in Moti Khadol had increased by two during the period of the census enquiry and benchmark survey of said village.
- As per the census 2011, the population of village was 965 while as per resurvey conducted in 2020, total population was estimated to be 1110.

Thus, population of village has increased by 45 per cent in 2020 over 1961. Over the period, there was slight decline in average size of household till 2011 which was little bit improved in 2020 as per our survey. In re-survey of selected households, it was very surprising to note that the population of children (0-6 years) population to total population has decreased by 3.8 per cent points, which was 12.9 per cent in earlier survey has dropped to 9.0 per cent only. The rate of literacy has also increased in current survey, particularly significant increase in female literacy was achieved.

- As per benchmark survey, there were 213 residential houses while 17 other were used for both residential and cattle shed purposes. Thus, 158 households in Moti Khadol lived in 230 houses; meaning there by that some households owned or used more than one house. Out of the total households in villages during 1962-63, 40 per cent houses were kuccha and 47.4 houses were of mixed nature. Thus, remaining 12.3 per cent households were pucca in nature. The recent survey 2020 data indicate the drastic change in the socio-economic status of villagers as almost three fourth of households are pucca in nature while remaining were either kuccha or mixed type.
- It was very strange to note that during the benchmark survey, 57.6 per cent families were reported as nuclear families and almost same proportion has been reported in resurvey in 2020. Most of the nucleated families are reported in Christian community. As observed in other places, families are getting nucleated over the period of time which is not seen in this village.
- The age and gender-wise distribution of the population in Moti Khadol village indicate that distribution of population in age group 0-15 years together has significantly declined in recent survey over base period (from 37.76 per cent in 1962-63 to 21.84 per cent in 2019-20) indicates the adoption of concept of smaller family size. While there is increase in population in the age group of 36-55 years means working population has

increased by almost 7 per cent points and thus rural economy has also improved in recent survey. Children population has declined significantly showing demographic structure change in village means generally people want to have 1 or 2 child only which was observed during the current survey. While increased share of population in the age group of 56-60 and 60 and above by 5.43 per cent points together indicate village having significant population in senior citizen group for which necessary facilities need to be in village.

- The marital status by age groups in Moti Khadol village indicate that in earlier survey period, more than half of the children aged between 16-20 years were married while in current survey, it was noticed that almost 9 per cent of this age group children were married which is a very important change observed over the period of time. Early marriage is not socially, economically and physically better for children before attending age of 21 years. The recent shift may be because of the fact that most of male and female are giving priority to get better education and employment before getting married. About 81 percent persons were married in age 26-30 group in earlier as well as in recent survey. In recent survey, total 41 cases were reported under widow/er category (75.68 per cent persons) which belongs to age category of 56 and above age.
- The distribution of households by family size in Moti Khadol village indicate that out of the total households reported, the highest number of households (about 68 percent) had four to eight family members and they accounted for about 76 per cent of total population of village whereas in earlier survey, corresponding figure in same category (4-8 family members/hh) was 62 percent in village households. The share of minimum number of about 5 per cent of total households had 9-10 family members and above, while in current survey, corresponding figure was 5.15 per cent of total households had the same. It indicates that over the period, family's composition has not been changed much. The average family size has increased from 4.62 to 4.72 persons per household.

8.4.2 Caste/religion wise Distribution:

- Hindu religion accounted for the three fourth of total households as well as population of selected village in 2020. The share of Islam community accounted for around 16-18 per cent and rest were Christian households/population. Over the period of time, share of households of Christian households have been declined while share of Muslim/Islam households have increased and share of general households have remained almost same.

8.4.3 Literacy Pattern by Sex:

- As per benchmark survey, village had a high ratio of literacy. The overall literacy ratio of population was 51.1 percent, rich is far higher than the corresponding percentage for the district (36.3) and for the State (30.3). A happy feature of this high literacy ratio was that all literates i.e. 374, in the village had taken some formal education. Another happy feature was that both among the adults and the children of school going age the literacy ratios were high 55.8 among the former and 65.9 among the latter. The reasons for the high overall literacy ratio as also amore: the adults and the Children of school going age, were the availability of educational facility since 1860 and more important.
- During resurvey in 2020, same kind of trend was reported. There is significantly declined in number of illiterate population in over the period of time, i.e. from 69.41 per cent in last survey in 1962-63 to 6.3 percent in recent survey. In case of male, increase was from 79 per cent to 91 per cent while corresponding figures for female are 31 per cent to 85 percent. The primary level education has significantly increased in recent survey that to very impressive growth was achieved in female literacy in village in current survey. Near about 21 percent population was literate up to post

graduation level in current survey whereas in earlier survey in 1962-63, this was just 1.18 percent.

8.4.4 APL/BPL wise Distribution:

- Out of total households, 99 per cent of household belongs to APL category. All the general category households as well as households from Christian religion were categorized above poverty line criteria, while only one household each from OBC and SC category was reported under BPL category, which was very surprise to note. During survey, it was reported that nine households are eligible to be included under BPL, while only two are listed in the BPL list. Thus, there is a need to have proper listing of household as per stipulated criteria under APL /BPL category.
- While during benchmark survey, no such classification was existing, thus distribution of households as per income level was presented which indicate that 89 per cent of SC households were earning less than Rs. 600/- . Furthermore, the relationship between caste and economic well-being (as expressed in terms of household income) is clearly evident and thus the process of change in the feudal nature of the society in Moti Khadol was very slow. The data reveals that relatively richer strata in the village was largely composed of the superior caste Hindus; Intermediate caste Hindus, Higher and Lower castes, in that order whereas a larger proportion of lower caste, scheduled caste and Christian Households belonged to the low income groups viz., below Rs. 300 to may be pointed out that as much as 67 percent of the Higher caste Hindu households earned less than Rs.90 per annum as they were largely composed of Brahmins (7 out of 9 households) who pursued the profession of priesthood, the poorly paid occupation.

8.4.5 Birth and Deaths:

- As seen earlier, more than 99 per cent of households in village are above poverty line which may have some impact on these parameters. Across the caste groups, highest number of births are reported in Muslim community

and highest number of death are reported in OBC Hindu. No such classification was reported in benchmark survey.

- While during the benchmark survey, a redeeming feature of the mortality situation in the village was that even the highest death rate of 21 per 1000 of population was lower than the death rate of 27 per 1000 for the country as a whole. This indicate -that people' of the village enjoyed a good health and whenever they suffered from serious illness they availed of the medical facilities available at Mahudha, only five kilometers from the village. However, it is pertinent to note that of the 58 deaths occurred during 1958-62, 34 or 59 percent were in the infant age group i.e. less than one year; thus indicating the under-nourishment of the babies and their negligence by their parents. The infant mortality rate for the five years 1958-62 works out to 203.5 per 1000 live births a staggeringly high rate as compared to the- corresponding rate of 83 for India in 1961. It is difficult to account for this disturbing feature of Moti Khadol as the village was not subject to any kind of child diseases or epidemics during the period of reference. However, the general and frequent complaints of such illness as high fever and insufficient milk of mother may explain the high infantile mortality during benchmark survey period.

8.4.6 Enrollment and drop outs in different educational level (gender-wise)

- Even though the village had a school of its own only in 1957 it enjoyed the educational facility for more than nine decades as there was a school in the adjoining village Nani Khadol since 1869. The school in Nani khadol was under private management until 1962 when the District Local Board (now the District Panchayat) took over the management. The school provided education up to the seventh standard. A school up to the seventh standard was established in Moti Khadol in 1957. The funds required to start this school were raised partly by the; village people and partly by the government. The school was housed in four pucca rooms. The number of teachers in the reference year was three; of which two were trained and one untrained. The nearest high school was in Mahudha the semi-urban

marketing Centre, five-kilometers from Moti khadol. Since 1959 or so the village had been fortunate in having- a private high school (for 8th to 10th standard) in the adjoining village Nani khadol. The facilities for college education (for arts-, commerce, science and, law degrees) were available at distance of twenty-three kilometers at Nadiad from where the State transport bus services run regularly on the Nadiad-Dakor route on which the village was situated. It can, therefore, be said that the education facilities during available to the Moti khadol benchmark survey were satisfactory as compared to that available to an average village in rural India. The benchmark survey noted a promising picture for the first five years i.e. 1958-59 to 1961-62, as the numbers male and female children as well as total children registered at the school had increased. While number of children registered at the school in 1962-63 decreased by 15 as compared to earlier year. The main reason for that decline was the decrease in the number of female children registered at the school due to the transfer of one and only is teacher in the year 1962-63.

- While during resurvey in 2020, number of children enrolled in school were drastically declined to around 40 may be due to the fact that school provides education up to Vth standard only. The equal share of boys and girls in total enrolment was important to note here.
- The benchmark survey indicates that of the total children attending school 40 percent (i.e. 48 in absolute number) were girls whereas the girls at school formed 62.3 percent of the total girls of school going age. The latter percentage is more than double the corresponding percentage of 30.5 for adult women, which suggests that the old discriminating attitude of people towards female education had changed for the better in the last 15-20 years. However, the lead of the male children to the extent of literate though marginal was maintained. Further, only one girl belonging to the Muslim Community had discontinued her education because of work at home. The benchmark survey indicated the insignificant relationship between caste and the education of a child. The caste factor which was important before 15-20 years in determining the education of both males

and females had lost its force in the village. In other words, members of all castes had chanced, their earlier ideas on the value of education in general and of female education particular even in 1962-63.

- As mentioned earlier, the village primary school was established on 04/07/1957 for 0-7 class but after 2015 this school was demoted to 5th class because many villagers were interested to send their children in private English medium schools. The enrolment level of children (aged between 5-15 years) in school indicate that majority of the children were enrolled to Gujarati medium vernacular children while children from General category as well as from Christian household are enrolled to English medium private school.

8.4.7 Food Security & Child nutrition (BMI):

- As per BMI index values, female child found to be healthier than male child. Out of total female child, 34.8 percent of female child were found healthy, none of them were obsessed and 65.2 per cent female child were underweight. While in case of male children, 30.4 per cent were found healthy, none of them was with obesity while 69.6 per cent were underweight. If we see class wise nutrition level, we found that all the students of class III were underweight. The boys of class II were found healthy. Overall, despite of progressive nature of village, the nutrition level of the children seems to be unattained and need proper attention towards their diet. While across the religion and Caste category, child nutrition was very poor in children from other backward classes that to particular social economically backwards households.

8.4.8 Access to basic amenities and changes therein

- As mentioned earlier, during benchmark survey, there were four wells sunk in the village for drinking and other cosmetic purpose of these four wells, one was a hand pumps were installed to draw water. The Christians, Harijans and Muslims drew water. The Christian, Harijans

and Muslims drew their supply of the water from the river Mohor. When the river dried during summer members of these caste/were given water from the public well though they were not allowed to draw it themselves. Sanitary conditions in the village were rather unsatisfactory. There was no drainage; the scavenger service was provided by the Harijans who cleaned the main streets of the villages once in a week while the small streets remained dirty. In monsoon the village roads had latrines. There were no street lamps in the village.

- As per resurvey 2020, out of the total households, all the households have reported having legal electricity connection while about 82 per cent of total households have drinking water connection and most of them also fetch water from nearby Nani khadol village pipeline as well as from the tube well of nearby farm. Village is severely facing problem of high TDS in groundwater for which no solution has been found so far. About 88 per cent of households have toilet facility in their houses and 79 per cent of households have LPG gas connection. This picture is self-explanatory about the basic amenities expansion in village has reached to satisfactory level in current survey and villagers are aware about self-hygiene and cleanliness which is must for betterment of life, particularly after COVID19 pandemic. While three cases of Covid19 contamination has been reported of which one case is reported expired.

8.4.9 Participation, Inclusiveness and Empowerment:

- Out of the total households, one third of households have participated in the gram sabha meetings and on an average, everyone has participated more than five times in a year. Almost 55 per cent of had actively participated in Gram Sabha and Gram Sansad meeting whereas remaining household members who could not participate were either busy, uneducated and due to old age they did not participate or not invited for meeting. About 57 per cent household members have approached to elected representatives like Panchayat/MLA/ MP for village and panchayat development related issue while more than half of them were not satisfied.

8.4.10 Perception about different changes in the village:

- As per benchmark survey, there was a hierarchy in the households of particular Caste category as well as religions. Christians were considered as belonging to the same status as that of the Harijans since they were regarded as former untouchable Hindus in those days. While the Muslims did not form a part of the caste hierarchy though they have a statue of their own which is not on par with any of the Hindu Castes. The society of Moti Khadol was dominated by the Hindus in 1962-63 as well as in resurvey in 2020. In fact, the Christians were the second largest single community terms of households and population in the village, where the largest single community in both these terms were the Patidars, the intermediate caste Hindus during both benchmark as well as resurvey time. The rigidity in the caste system was prevailing may be less as compared to benchmark survey due to progress of society in its approach, while still no general Patel community households send their children in the school located in Village and this community is located as separate area while all other caste category and religion people are staying in mix locality.
- In recent survey, no gender biasness was seen in village. In current Gram Panchayat election, Moti Khadol deputy Sarpanch seat is occupied by the women from general category. Out of nine selected members, four are women elected representatives working on Gram panchayat body of which three are from general category and one from SC category. The newly elected members are active in village activities and they have taken interest in development work in village with full enthusiasm.
- No political bias or deprivation was seen in village and village is properly connected with district headquarter. During benchmark survey, some sort of rift between the Christian and the Hindus (on the ground of religion) was reported and also of the half-hearted cooperation of the minor castes like Bariya, Vaghri, Harijan was highlighted as a constant threat to the smooth working of the Panchayat. While no such biasness was not

reported but still some sort of gap in communication and understanding prevails in general and other caste categories particularly Christian which sometime disturb the village environment.

8.5 Economic Status

8.5.1 Livelihood and Employment:

- The distribution of households by occupation/livelihood in selected Moti Khadol village indicate that during recent resurvey, out of total household, around 62 per cent households were dependent on agriculture and allied activities, 14.36 per cent households were working in service sector job and 6 per cent households were doing business and trade in village. One of the important observations was that 4 per cent households were working as casual and marginal laborer and around 4.5 per cent each household were dependent on pension/old age pension/widow pension etc. and caste based profession in the recent survey. The households from OBC and Christian community were largely engaged. While the highest number of households from Christian category were employed in government or private service job.
- While across the survey data, proportion of household's dependent on cultivation has declined by 9.9 per cent points between 1962-63 to 2020, i.e. from 47.5 per cent in 1962-63 to 37.6 per cent in 2020. Surprisingly, share of agricultural labour as occupation has also declined by 8.41 per cent points during corresponding period. While share of households having dairy has increased by almost 21 per cent points indicating impact of successful model of AMUL in this area. In fact, the benchmark survey was done to capture this changes which is visible after almost six decades' period.
- Out of total sample household, about 41 per cent adults were working in agriculture sector as a cultivator or agricultural labour or both. The highest share of adult cultivators has been estimated in General as well as Christian category while agricultural labours were significant in OBC and

SC category households. Significant number of adults from Muslim and Christian category were employed in salaried jobs followed by general category adults. Many of the female adults have reported working in house and busy in household activities.

- Out of total households in general category in Hindu religion and Christian regions, about 5 per cent of adults were getting social security pension like old age pension, disabled pension, widow pension. The total adult population of selected village was 968 of which 85 per cent adult persons were involved in economic activity (outside house activity). This shows that mostly adult persons of village were working and their major contribution was in village development as well as rural development.
- Out of total population, 54 per cent male and 46 per cent of female were working in different livelihood in village. The male adults dominantly working agricultural and agricultural labour work than female. Most of the adult female were engaged in household activities and no female worker were working as a marginal labour in village. Out of total, almost 24 per cent of adult male were having private salaried job, while about 8 per cent were engaged in trade and business.
- Though the village economy has remained predominantly agrarian, the relative importance of cultivation in terms of number of households primarily dependent on it in the occupational structure of the village has gone down. As discussed earlier, proportion of household's dependent on cultivation has declined by 9.9 per cent points between 1962-63 to 2020, i.e. from 47.5 per cent in 1962-63 to 37.6 per cent in 2020. Same trend was reported in share of agricultural labour as occupation which has also declined by 8.41 per cent points during corresponding period. While share of households having dairy has increased by almost 21 per cent points indicating impact of successful model of AMUL in this area. In fact, the benchmark survey was done to capture this changes which is visible after almost six decades' period. While more number of occupations have been

reported in the recent resurvey in which dairy and private salaried jobs are the dominant one.

- The benchmark survey in 1962-63 noted that the society of Moti Khadol was in the process of transition; the caste of a person did not necessarily determine the occupation which he was to follow during his lifetime. However, a closer examination revealed that the influence of the caste had only weakened and not disappeared altogether. Most of those household which did not pursue their ancestral occupations were found to combine them with their main source of earning. Only one-third of the total Hindu households in the village had completely abandoned their ancestral occupations while 52 percent of the, households followed them as principal occupation and further 15 percent took their ancestral occupation as a subsidiary means of livelihood. When examined in individual castes it is only among Baraiya, Prajapati and Christians that a significantly high proportion of their households had abandoned their traditional occupations whereas among other Hindu castes most of the house-holds had followed their ancestral occupations either as principal or subsidiary occupations. It may be pointed out that a very high degree of economic mobility among the former untouchable Hindus (viz. Christians) was the result of their adoption of a new religion. One of the reasons for the spread of Christianity among the untouchable Hindus might had been the sense of degradation which they might have experienced because of the compulsion of doing indecent work of lifting dead animals, cleaning streets etc. in the traditional Hindu society.
- The situation has changed drastically as compared to benchmark survey time. Less than 5 per cent of the households have remained in the family business which indicate that certain occupation need not to be done by particular community as was practiced earlier. Rather these occupations were done as a supporting earnings for the household. The Patel community have discontinued the rearing of the livestock. As Patel community members are migrated to foreign country, thus they get support from them.

8.5.2 Pattern of Migration and Changes therein:

- A characteristic feature of a developing society is the high degree of mobility, both economic and to some extent social and spatial, on the part of its members. On the basis of the data on this indicator viz., migration the society of Moti Khadol can be called as undergoing process of development. As per benchmark survey, total 96 persons belonging to 33 households had out migrated from Moti Khadol while 105 persons in 22 households were immigrants to the village. Migrated persons were mostly educated mostly from intermediate caste and Christian religion.
- As per resurvey data, total 111 peoples from 31 households have migrated permanently from the village and all of them were from APL category. Out of total 65 males and 46 females who were migrated, 23 males were graduated or having professional qualification while 34 females were educated up to secondary level only.

8.5.3 Agrarian System

- As per village survey conducted in 1962-63, total geographical area of the village in 1962-63 was 278.70 hectares. Since nearly 75 per cent of the total area of the village was brought under agricultural use and since there was no cultivable waste the limit of extensive cultivation had already reached however, the small double cropped area forming only 7.3 percent of the net sown area suggest that the intensive farming was only marginally practiced and hence future more and more land under second and third crops. However, it is pertinent to note that nearly 40 per cent of the gross cropped area was under tobacco, the farming covered nearly two seasons of about six to eight months and therefore to that extent the scope for intensive farming was limited. In view of the prospect of development of dairying as an enterprise it may be mentioned that the area under permanent pasture and grazing formed vary insignificant proportion (i.e 1.8%) in the total area of the village.

- As per resurvey, out of total geographical area 74.78 per cent area was reported to net sown area (208.4 ha). The share of area under non-agricultural uses and permanent pastures and grazing land has increased from 7.2 per cent to 16.1 per cent and 1.8 to 9.1 per cent respectively, while share of area under barren and cultivable land area has declined from 16.1 per cent to nil.
- Under land tenure system in village, leasing-in and leasing-out tenancy with share cropping basis of the output was found prevalent among the cultivators. Under land tenure system, leasing-in and leasing-out tenancy with share cropping basis of the output is prevalent among the land holders of Moti Khadol village. Under land reform measures, consolidation of holdings was done many year ago in the village. The rate of leased-in for irrigated and rainfed land for one year is reported to be Rs. 7000 to 8000/per bigha/per year and Rs. 5000/per bigha/per year respectively.

8.5.4 Land Utilization and Changes Therein

- The average family size in selected households of Moti Khadol village was 5.10 and they operated land area of average 1.62 hectare. The land man ratio was estimated to be 0.30 which directly related to size of holding. The average cropping intensity was highest in case of marginal land holder group which decreases with land holding size. The average education of head of the family was 8th class which was almost same in all classes and on an average two crops were grown in village every year.
- Farming systems in India are strategically utilized, according to the locations where they are most suitable. Farming system is a set of agro economic activities that are interrelated and interact with themselves in a particular agrarian setting. It is a mix of farm enterprises to which farm families allocate its resources in order to efficiently utilize the existing enterprises for increasing the productivity and profitability of the farm. These farm enterprises are crop, livestock, aquaculture, agro forestry and agri-horticulture. In Moti Khadol village, crops were grown in both

seasons during current survey period. Mostly tobacco was main crop was cultivated by the farmers followed by paddy and bajra.

8.5.5 Crop Diversification:

- During benchmark survey, out of the total 158 households, 74 per cent of households had agriculture land while during resurvey, 58 per cent of households had agriculture land.
- The comparative analysis of distribution of land holdings during last resurvey (1962-63) and current survey 2020 indicate that the average size of land holding size has declined significantly. The average size of land holdings has declined from 2.14 ha in 1962-63 to 1.621 ha in 2020. The main reason behind this significant land holding size declining was that population is increasing very rapidly and land holding is distributed. The average family size in selected households of Moti Khadol village was 5.10 and they operated land area of average 1.62 hectare. The land man ratio was estimated to be 0.30 which directly related to size of holding. The average cropping intensity was highest in case of marginal land holder group which decreases with land holding size. The average education of head of the family was 8th class which was almost same in all classes and on an average two crops were grown in village every year.
- The main crops grown during the kharif season were paddy and cotton which contributed about 15.8 and 6.6 percent area respectively. The main crops grown during rabi season were Tobacco and wheat which accounted for about 62.4 and 2.24 percent area respectively. Very few farmers are growing summer bajra season and none of the farmers grown perennial crops. Thus, tobacco is the major crop grown on almost two third of the gross cropped area of the sample households of village.
- The relative allocation of gross cropped area under major crops during 1962-63 and 2019-20 indicate that though the cropping pattern during both the surveys was mainly focused on tobacco crop, share of tobacco crop has increased by 27 per cent in existing one in 1962-63 which

indicates the development of mono-cropping pattern in the village. The prosperity of the region, as a whole, is due, in no small measure, to the cultivation of tobacco which is the chief commercial crop of the area and for which the soil of the region is particularly suited. Indeed, tobacco holds such an attraction among the farmers that it finds a place in the cropping pattern even of the very small cultivators. Because of pursuit of commercialised farming the adoption of improved agricultural practices has also been widespread and the use of chemical fertilisers and irrigation, in particular, has become very common.

- The estimated HI value is 0.583 being relatively more than half implies a low level of diversification in the Study area. As the Herfindahl and Simpson Index do not show any clear trend in index values. However, the Modified Entropy Index, which overcomes the limitation of Entropy index by using a variable logarithmic base, shows a steady upward trend in the value of index 0.354 implying a low level of diversification in the study area. As tobacco and paddy are two major crops accounting more than there fourth of gross cropped area indicates somehow mono-cropping pattern in the study area.

8.5.6 Irrigated area by sources and changes therein

- The Moti Khadol is located in the tail end of the canal and despite of the laying canal distributary, till date not a single drop of water being received by the villagers. All the area was irrigated through the groundwater while tube-wells nearby faces problem of high TDS level.

8.5.7 Average yield of different crops and changes therein:

- Average yield level of different crops in Moti khadol village in both survey indicate that there is a tremendous improvement in crops yield in recent survey over base survey. The remarkable feature of the yield levels of paddy, bajra and tobacco in the village was that they were far higher than their yield levels for the Kaira district as a whole during benchmark survey

as well. Indeed, the per hectare yield of paddy in Moti khadol was double the district average. The yield of bajra crop has increased by 159 per cent while yield of tobacco crop has increased by about 129 percent, and paddy crop yield increased by 113 percent.

8.5.8 Distribution of livestock resources and changes therein

- Livestock in rural areas is both complementary and supplementary to farming as it provides the necessary draught power and manure for land as it supplements incomes of farmers. It must, however, be pointed out that keeping of livestock in villages is not always guided by profit-motive. The comparison of live stock figures according to livestock of census of 1956, 1961, benchmark survey and resurvey. The importance of bullocks as a draught power during period around benchmark survey of Moti Khadol. Goats were also bred, though in insignificant numbers as milch animals. Donkeys were kept for transport purpose. Absence of cows as milch animals in a village where bullocks provided the draught power is an interesting phenomenon in benchmark survey. One important implication of this phenomenon is that the farmers of Moti Khadol who were using bullock has totally sifted towards mechanization and stopped rearing bullocks. The number of buffaloes found to be remained same during last six decades' period. Total livestock population in village in 2019 was 333 of which 68.5 percent were cattle, 28.2 per cent were buffalo, and 3.3 per cent were goat. Buffaloes were the milch animals in Moti Khadol village.
- During benchmark survey, it was observed that the livestock of Moti Khadol enjoyed fairly good health and vitality. The cattle diseases prevailed but to a negligible extent. The veterinary services were regularly received by the villagers from the government veterinary centre (for animals) at Mahudha, five kilometers from the village. However, the breeds of buffaloes and other animals were invariably 'deshi', though, there were a few buffaloes of improved' 'varieties such as Jaffrabadi, Gir etc. One he buffaloes was maintained by a vaghri family to provide breeding services and for which purpose one was charged per buff aloe per service. The

feeding arrangements were also traditional. The feeds given to buffaloes included bajra, paddy, bavto, fodder, cotton-seeds, kuski, gotu "(of such pulses as moth, tuver) and to, some extent sundhiyu. Other animals were given the same feeds except cotton seeds and in place of which guwar was fed. Though green fodder was not report it constituted major fodder during monsoon as it was available from fields free of cost. With the advent of Milk 'producers', Cooperative Society under the auspices of the DCMPU (popularly, known as Amul) the villagers gets the benefits of assured market and reasonable prices for milk, the facilities for cheap nutritive fodder, artificial insemination services and other medical services extended by Amul which has improved the milk yield of buffaloes.

8.5.9 Tools, implements and machinery use in agriculture

- The main implements owned by the villagers during benchmark survey were ploughs, harrow, handhoes, kassi, danti, kassia and crushers. During resurvey, it was observed that about 14 families owned tractors and recently harvesters and iron ploughs were also purchased by a few families. Large majority of the cultivators owned primitive type of tools and implements in last survey reported but in current survey more than 12 per cent farmers had tractor and most of farmers had farm implements and machinery for used in agriculture

8.5.10 Production and disposal of farm outputs:

- All crops are profitable except Guar crop. Guar crop has incurred loss by one third of total crop growers.

8.5.11 Prevalent marketing channels and procurement arrangements

- Except fodder crops, all other crops were sold in nearby Mahudha mandi. The fodder crop output was sold in village itself. As far as concern about prevailing market price of major crops which received by selected farmers is comparatively higher than other districts farmers in state because they are well aware about new agriculture technique and they have good irrigation facility.

8.5.12 Poverty, Income and Consumption:

- The benchmark survey data indicated that average household annual net income in the village was Rs.1495. In all the occupational groups except cultivation on, trade, transport and service per household annual net income was lower than the corresponding income for the village as a whole. The tremendously high per household income, in transport was due to the fact that one of the two households in the group earned. An annual net income was lower than corresponding income for the village as a whole. The highest net income per household in transport was followed by cultivation, service, trade, arts & crafts, remittances, animal husbandry, non-agricultural labour, profession and agricultural labour in that order of important. Further, the occupations in which per household net annual income was less than Rs.1000 were agricultural labour, animal husbandry, non-agricultural labour, profession and remittances maximum per household income of Rs.10,056 in transport was little more than five times of income (Rs.1890) in the next important occupation (from the point of view of per household net income) of cultivation, while this maximum average income (Rs.10, 056) was nearly seventeen times lowest per households income of Rs.595 in agricultural labour
- The composition of annual income of households in 2019-20 in Moti Khadol village by livelihood groups shows that the annual average income from all sources is estimated to be Rs 381107 in all occupational groups in village. The average income of cultivator is estimated to be Rs 369385. The highest income earned was by pensioners and government salaried persons in village and the lowest income earned by agriculture labours groups. The off farm income generated through labour earnings, other off farm and asset hiring income like tractor and other agricultural equipments rented out and agricultural labour getting highest income in village. The overall average income of village is very economical viable and this suggest economic activities in village is better. The Gini coefficient

estimated across the land holding groups as well as landless group indicate that there is inequality across the groups (0.284).

- The benchmark survey data indicate that nearly 60 percent of the total expenditure in the village was on food and drinks while during the resurvey period, same share has declined to about 28 per cent of total expenditure of household. The expenditure on education has increased from 2.6 per cent in 1962-63 to 21.6 per cent in 2020, which is welcome shift household in expenditure. Medical expenditure which was hardly 4.1 per cent during benchmark survey which has significantly increased to 24.5 per cent in 2020. Thus, though there has been increase in life expectancy rate as well as development in terms of medicine and availability of health facilities, expenditure in medicine has increased to the level of one fourth of total expenditure of households. Almost 8 per cent of total expenditure during resurvey period was accounted for communication and entertainment (DTH, Mobile, phone).

8.5.13 Distribution of households by income and poverty level:

- One household has more than one source of income. As observed earlier, the agriculture and allied activities comprised of crop cultivation, agriculture labour and dairy are the major sources of income followed by salaried persons and retired pensioners. Trade and business was another major source of income for general category Hindu households while casual labour was another source of income for lower caste households in the village.

8.5.14 Asset profile of the rural households

- Out of total sample households in the village, all the households owned their own house in village which has an average value about Rs. 5.98 lakh in 2020. Out of total households in 2020, 14 households possessed tractor in current survey while during last survey recorded no tractor was in the

village. Bullock carts was common mode of transportation during benchmark survey has totally disappeared from village map.

8.5.15 Food security

- As village has developed over the time period due to easy access to nearby markets, about 98 per cent of total respondents have reported that they never went a whole day and night without eating or went sleep hungry. More than 93 per cent households had no worry about food while remaining had sometime thought about same. Almost one half of the total respondents went for outside eating while about one third of total households are eating too much of packed food. This as such there is no issue of food security at village level.

8.5.16 Financial Transactions

- The benchmark survey data on purpose wise borrowing revealed that as much as 75 percent of current debt were contracted for unproductive purposes viz., household's expenditure and marriage and other ceremonies. Surprisingly, nearly 82 percent of the total credit (old as well as that provided during 1962-63) in the village was provided by the relatives residing within and outside the village; more than 50 percent of the credit (Rs.17595) provided by the relatives during the reference year was provided by the relatives staying outside Moti Khadol. The second important source of credit was 'traders' who provided 15.3 percent of the total credit. Institutional credit such as cooperatives and government taccavi apparently provided an insignificant sum. This holds true even considering the amount of Rs.6680 instead of Rs.300 reported by the respondents, as the amount of credit provided by the cooperatives. The insignificant role played by the cooperative society in provision of credit was primarily due to the fact that the society was newly formed i.e. in 1961-62 and hence it had limited resources.

- The resurvey data indicate that 60 per cent of total amount borrowed was as a crop loan followed by 11.5 per cent amount as home loan, about 8 per cent for RO plant and around 4 per cent for tractor and truck loan. Most of the loan amount seems to be for productive purpose except loan taken for decoration.

8.5.17 Perception about economic changes in the village

- About 83 percent selected households were opined that economic conditions of the villagers have improved while 62 per cent opined that economic condition of households have also improved. When villagers were asked about village infrastructure specially road/electricity etc., about 68 per cent of responses indicated improved condition of village infrastructure. About 58 per cent of the respondents were opined that agricultural situation was also improved. While across the caste category and religion group, half of the OBC and Christian opined that economic conditions of households in village as well as village infrastructure has not changed.

8.6 Ecology, Vulnerability and Sustainability

8.6.1. Natural Resource Profile of the Village

- The Moti Khadol village is situated in the Charotar area of Kheda district which is located in Central part of Gujarat. As mentioned earlier, May is the warmest month and January is the coldest month of the year. There is not much rainfall in Kheda tehsil all year long having annual rainfall is 788 mm. Out of total responses, 53 per cent of households opined that there is shift in rainfall pattern in the village. Any change in climatic determinants could not only adversely impact food security and nutrition but also affect the well-being of the population that derives its income from the sector. Shifting cropping patterns to more heat adapted and less water consuming varieties is a strategy already practiced by farmers. Reports indicate a shift in cropping patterns to local varieties of pulses, green gram, millets and

mustard, which need less water. Tobacco crop has dominated the cropping pattern as was seen in benchmark survey. Dairying of cows was promoted; indigenous varieties with heat resistance capacities are identified and promoted to minimize related losses in milk production.

- The soil of Moti Khadol was generally ground (sandy loam). It is very fertile and suitable for tobacco, paddy and bajra. The soils of the district can be classified into the following cropping main types: goradu (gravelly), black, sandy and pattern rocky type. The principal crops grown in Kheda are the ordinary millets and pulses, rice, wheat, tobacco and a little indigo. Bajra is the principal crop and the staple grain food. Tobacco is the most valuable crop produced in the district. It is grown mostly in the Charotar tract. Castor seed and sesame are the only oilseeds grown in the district. As this village is situated on the bank of Mahor river which is mostly seasonal but during heavy rainfall period, river water gets entered in village and nearby village farm which submerge about 300-400 bigha farm land. Due to the same, approach road to other farm get blocked. The land erosion was reported due to such events.
- The high level of TDS has been reported in drinking water and during the summer period, the level of TDS level been reached to 3000-4000 level. Therefore, sweet drinking water was fetched from the far away tube wells because tube well closed to village also has high TDS problem. Gram Panchayat has installed water purification RO plant to provide drinkable water to villagers for drinking purpose towards which Panchayat charges little amount but. However, TDS problem was not noticed in our first survey during 1969-70. Due to high TDS in water, health issues were reported by Christian family's members. Some of them are suffering from disability in walking, taking and mental illness.

8.6.2 Livestock resources:

- The milch animal population has increased very significantly in village in recent survey. The significant growth has been reported in case of number

of cows while number of buffaloes are almost constant over the period of time. The number of sheep and goat has declined in village. The number of work stock like Bullocks have declined significantly in village and main reason behind this was that agricultural work is being completed with machinery like tractors and other implements.

8.6.3 Ground water level, pollution and changes therein

- The ground water level in village did not declined in the recent past which is 55-60 feet. The high TDS in ground water is the main problem being faced in villagers which was not reported in the benchmark survey conducted in 1964. As the industrial development is almost zero in village so that pollution issue was almost observed and air quality was very healthy in village.

8.6.4 Natural and Manmade Disasters

- The occurrences of drought during the last 5 years were reported to be negligible whereas floods incidences were occurred often in last five years. Farmers as well as labourers were found to be most vulnerable groups among the villagers of Moti Khadol. On the other hand, villagers reported that paddy, wheat and tobacco are the most vulnerable crops and bajra and cotton is the least vulnerable crops. Heat waves are also reported to occurs often and farmers as well as labourers are the vulnerable groups. No case of Suicides and few cases of accidents were reported by the Household in Moti Khadol. No case of Violence and robbery are reported during the last 5 years in selected village. After Corona pandemic only, the few cases of job loss are reported.

8.6.5 Major coping Strategies at Household Levels

- To combat with slight flood kind of situation the crop raising farmers had used crop insurance as coping strategy. Labour class as well as poorest

people farmers had migrated outside for jobs and also adopt borrowing as coping strategy. Thus, in the whole village the poorest peoples were the hardest hit from flood/ heat wave.

8.6.6 Major Adaptation Strategies to Combat Extreme Events.

- It was observed during survey and group discussion, that except flood kind of situation no such any extreme climate or other event so happened in the village during the last five years' period. While, state and central government scheme like crop insurance scheme, PMFBY, Soil Health Card/PMFSY/ MGNREGA were adopted by farmers to combat with drought/Flood/ Cyclone and loss of job in this village. For erratic rainfall as well as for heat waves, generally villagers have reported adoption of crop diversification and livelihood diversification at individual level in the village.

8.6.7 Perception about ecological changes in the village

- Around 53 per cent of households have reported that there is change in rainfall pattern as well as heat and cold waves and air over the period of time while more than 89 per cent of them have denied the increase in incidence of diseases and expenditure on medical.

8.7 Policy and Governance

8.7.1 Nature and Coverage under Different Government Sponsored Schemes

- Under the BPL card scheme, total nine households were found entitled in the village during 2014-2019 and only two households had availed this facility and all of them were satisfied with the scheme. Under KCC Card Scheme, total 75 households were entitled and around 89 per cent of them have availed the facility. Under public health insurance card scheme, 68 per cent of total entitled households were benefited. About 34 households were entitled under MGNAREGA job Card Scheme, but the none of them had benefited as current TDO officer had suspended all MGNREGA works

due to validation of job card and other issues. Also none of the households had undertaken soil health check-up. It was reported that (which was very surprised to note) without the knowledge of farmers of village, soil samples were taken from their field and soil test reported were received by the Sarpanch which were found lying in gram panchayat. These soil health card were not distributed among the farmers. Half of the entitled households for Crop Insurance have availed the facility. While all the entitled households under ICDS/Mid-day meal, Scholarship scheme, PMKSY, PMKISAN, LPG Ujjala, Old Age Pension, Widow pension and disabled pension have availed the facility. None of the household was reported entitled under farm loan waiver scheme, PMKVY, PMAASHA, SG Farm income support schemes.

8.7.2 Perception about Government schemes

- As discussed above, majority of the beneficiaries have reported satisfaction about the schemes in force in the village. Around 70 per cent of beneficiaries of public health insurance card were not satisfied over implementation of the scheme. While during discussion, the villagers have suggested for complete coverage of village under these schemes (those who are eligible as per prescribed norms) so that everyone eligible can be benefitted.

8.7.3 Participation in Local Governance

- Out of total households, at overall level, more than 30 per cent of households from all categories had participated in the meetings of Gram Sabha and Gram Sansad, while 38 per cent member of households of general category, 30 per cent of OBC household members and hardly 14 per cent of SC category members have attended these meetings without fail. Those remaining household members who could not participate in Gram Sabha meeting may be due to their busy schedule of field work, uneducated and due to old age. Less than one third of total households have participated in the gram sabha/gram Sansad meetings which indicate

poor participation of villagers in decision making. Out of total, around 85 per cent of the household persons had approached to elected representatives like Panchayat/MLA/MP for village and panchayat development related issue and most of them were satisfied with that elected representatives have addressed their issues and tried to solve their problems willingly.

- The relative status in the village power structure across the caste category group was mostly dominated by General Hindu followed by OBCs while SCs are having medium to poor status in village power structure. Thus, despite of drastic changes in village, the power formula has not changed so far.
- The reasons for the one sided power structure and status in the society were poor economic conditions of OBCs and Christian SC households along with no political affiliation as such as well as qualification. Caste was the dominant factor for power center in the village. While during the field survey, all the respondents have denied any incidence of deprivation on the accounts of caste, gender or any association with political party.
- All the respondents have reported that they had approach their friend and relatives in case any advice is require on livelihood specific, social specific issues, as well as in case of educational matters. While in case of legal issues, they preferred to contact relatives followed by friends. Thus, villagers have more faith on relatives and friends to solve their issues as and when they faced. Majority of the households in the selected village have sold their output to agents followed by in the nearby market.

8.7.4 Socio Economic Problems in Village

- The major problems narrated by the villagers are drinking water problem as groundwater has high TDS followed by low employment opportunities, not having facilities like health, street lights, connecting roads and schemes like BPL and pensions. The poor households in 'waghari awas' were not included in BPL category when survey was conducted in 2008. Liquor drinking habit was reported increasing among villagers.

8.7.5 Major suggestion for improvement /development in Village

- The main suggestion made for improvement in development in village was to make to work on basic infrastructure followed by need to create employment opportunities as well as good health services in the village level.

8.8 Conclusions

The study was an attempt to assess the pace, process and pattern of rural change as well as identification of key drivers of such changes in Moti Khadol Village by comparing the data sets of bench mark survey and recent resurvey for areas of future interventions. Study results indicated that village has developed over the period. Most of the people in the village have settled outside (such as Ahmedabad, Vadodara, Surat, Nadiad, USA etc.) and the main reason for migration was children's education and jobs. While livelihood of the village is mainly based on agriculture and animal husbandry activities along with support of rural artesian trade especially leather crafts, wood, and caste based profession, and wool established in the village. The rearing of livestock is being done at large scale i.e. each household has two to three milch animals. The milch animal population has increased very significantly in village in recent survey. In general, each household has its own transport facilities. Generally, farmers of village are cultivating mostly single crop in a year, i.e. Tobacco which fetches them good returns with high productivity along with paddy and bajra on small area. The main problem of this village is the high total dissolved solids (TDS) in the water thus the villagers have to fetch drinking water from outside of village. Most of households have toilets, gas connections and light. This picture is self-explanatory about the basic amenities expansion in village has reached to satisfactory level in current survey and villagers are aware about self-hygiene and cleanliness which is must for betterment of life, particularly after COVID19 pandemic. As village has developed over the time period due to easy access to nearby markets, about 98 per cent of total respondents have reported that they never went a whole day and

night without eating or went sleep hungry. About 83 percent selected households were opined that economic conditions of the villagers have improved while 62 per cent opined that economic condition of households have also improved. When villagers were asked about village infrastructure specially road/electricity etc., about 68 per cent of responses indicated improved condition of village infrastructure. About 58 per cent of the respondents were opined that agricultural situation was also improved. While across the caste category and religion group, half of the OBC and Christian opined that economic conditions of households in village as well as village infrastructure has not changed. Thus, there is a need for work on drinking water problem as well as need to create employment opportunities as well as good health services in the village level.

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**Comments on the Draft Report received from
Agro-Economic Research Centre
(For the States of West Bengal, Sikkim and Andaman & Nicobar Islands),
Visva-Bharati**

1. **Title of report** Village Survey Study in Gujarat
(Moti Khadol Village, Kheda District)
2. **Date of receipt of the draft report** 12 April 2021 (Through e-mail)
3. **Date of dispatch of the comments** 07 May 2021 (Through e-mail)
4. **Comments on the Title of the Study**
 - The title of the study is in line with the title proposed by the coordinating centre.
5. **Comments on the objectives**
 - The overall objectives of the study are appropriate and kept unchanged as supplied by the Coordinating Centre (AERC, Visva-Bharati). Since, it was neither changed nor any specific objectives included, the report is reviewed based on stated objectives
6. **Comments on the methodology**
 - Methodology followed in the study is, by and large, in tune with the stated objectives. The census method was adopted to select the households (all the currently residing 202 households from the total 233 households were selected).
 - The results provided four different measures of crop diversification indices but the methodology discussed only HI. Moreover, ASER tool kit for assessing the educational attainment of children is not used, though the same is discussed in the methodology section. The same is the case with CAGR; BMI; Gini-coefficient and Lorenz curve. Please make necessary corrections
7. **Comments on analysis, organization, presentation etc.**
 - Detailed and worthy presentation is undertaken as to the overview of the Moti Khandol village. Also, detailed analysis is undertaken and organized as required to satisfy the various objectives of the study.

However, following corrections are needed:

- i. There are quite a few typographical errors and discrepancy in data/write-up are there that requires through editing and rechecking. Mis-spelling of few terms/words like Social dynamics (written as Study dynamics in the content page no. viii); Christian (written as Christen); Bajra (written as bajri); etc in several places needs spell check.
- ii. It seems that a large part of the text of the report is taken directly from another report by the same Centre (Village Survey Study in Rajasthan) without making relevant changes in data and/or discussions. For example, there is no data in Table 5.16 but the text is copied as such from Rajasthan report both in the executive summary as well as in the main report. Same is the feature with Chapter-VII on Policy and Governance. Chapter-VII is altogether missing in this draft report but mentioned in the Contents (Page-viii); Executive Summary (page-xl); Scheme of Chapters (Page-11); etc. Please, take care of this.
- iii. There is no uniformity and continuity in table numbering (after 3.2 it is 3.6); titles of tables with results presented therein; units used; etc. The table numbers given in contents are different from the table numbers mentioned in the write-up.
- iv. The table formats used in the report are different from the table formats supplied or even from the table formats used in Rajasthan Village Survey Study. The authors can use different formats but those should be logical in sense. For example the caste categorization made in Table 4.20 or Table-5.1 is different from what is discussed in methodology section or in other tables. Please use standard or uniform categorization categorization of castes across the tables The last survey period mentioned are also different in different Tables (1961, 1962, 1962-63, 1963, 1964, 1973, etc). Please check.
- v. The results discussed four different measures of crop diversification indices but the methodology discussed only one. Further, size category wise variations in crop diversification indices would have been better.
- vi. Classification of children as per BMI category (Table-4.22) is different than what is discussed in methodology section.
- vii. Table 5.14 shows, tobacco is the main crop in the village (62.42% of GCA) and grown in Rabi season. This means, rabi is the main season and keeping fallow in Kharif is common. Is it so? If yes, please give some reason.

- viii. It is not clear why the results pertaining to changes in rainfall patterns (Table 6.6) are presented across the caste categories. What is the justification that rainfall pattern of the village are perceived to be different by different castes?
- ix. A detailed discussion of the table 7.11 would be helpful to provide a clear insight.
- x. The entire write up and tables for Chapter-VII is missing. Though, in the contents and list of tables (without page number) they are mentioned. Please consult and compare with Rajasthan report submitted by your Centre.
- xi. The executive summary is too lengthy (Total 26 pages). Try to reduce the same as short as possible.
- xii. The main purpose/objective of the study is to assess the pace, process and pattern of rural change as well as identification of key drivers of such changes; and areas of future interventions. Please try to highlight such issues while discussions/policy recommendations as far as possible.
- xiii. Miscellaneous: The title of Table 2.1 is missing. Workforce distribution for survey year in Table 4.1 is missing. In many tables (Like Table 3.6, 5.11, etc) the year mentioned is 2019 but used secondary data from 2011 census instead of survey data for 2019/2020. In Table 4.25, title and contents are not in conformity. Mention unit in Table 5.1. In Table 5.20, n=2020 or 202?. In Table 5.23, what is the term occupation indicates here (3rd column)?. For Table 5.29, check the title and data provided as these are not average number of income sources. Page numbering for Tables 6.1 onwards is missing in the List of Table page. Please provide livestock composition data in terms of crossbred/indigenous/improved, if available.

8. Overall view on acceptability of report

- The overall quality of the report is 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 provides many insights and is a valuable contribution in village studies. However, the report requires through editing. The researchers deserve credit for conducting the field survey even under Covid-19 situation. The report may be revised and submitted to the ministry after incorporating changes suggested above.
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Action taken by the authors based on the comments received

- All the suggestions and corrections are adopted at appropriate places in the report.

- 6. All four measures of crop diversification indices are presented in methodology chapter. ASER is added in methodology to keep on record for future use though we could not use in present survey due to Corona Pandemic. Also revised BMI indicators for Children are added and Gini Coefficient and Lorenz curve is presented in respective chapter.
 - 7(i) - Corrected
 - 7(ii) -Corrected
 - 7(iii)- Corrected
 - 7(iv)-Tables prepared for present survey report is as per format suggested by the coordinator, whereas benchmark survey tables are with different class and format, therefore, same are presented as it.
 - 7(v) Added
 - 7(vi) Corrected
 - 7(vii) Yes, it is rabi crop while preparation of same start late kharif season
 - 7(viii) presented as suggested
 - 7(ix) Added
 - 7(x) We had missed attaching same chapter. Added.
 - 7(xi) Reduced as suggested
 - 7(xii) Added
 - 7(xiii) Added/Corrected.

- 8- Edited the report.

Project Team
