TREND AND PATTERN OF RURAL DEVELOPMENT IN HISAR DISTRICT, HARYANA

Thesis Submitted for the Award of the Degree of

DOCTOR OF PHILOSOPHY

in

Geography

By

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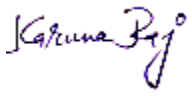
DECLARATION

I hereby declare that the thesis entitled **"Trend and Pattern of Rural Development in Hisar District, Haryana"** submitted for the award of Doctor of Philosophy in **Geography**, is an original research work carried out by me under the guidance/supervision of **Dr. Karuna Raj,** Faculty of Geography, Lovely Professional University and **Dr. Manoj Kumar**, Associate Professor of Geography, Govt. PG College, Hisar.

The thesis or part thereof has not been previously submitted for the award of any degree or diploma.



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CERTIFICATE

This is to certify the thesis entitle **"Trend and Pattern of Rural Development in Hisar District, Haryana"** under my supervision/guidance for the degree of Doctor of Philosophy in the subject of **Geography** from the **Lovely Professional University, Jalandhar**.

To the best of my knowledge: (i) the candidate has not submitted the present work to any other university/institution of India and abroad for any degree or diploma, associateship or other similar titles (ii) the thesis submitted is a record of original research work done by her during the period of study under my guidance/supervision, and (iii) the thesis represents independent research work on the part of the student.

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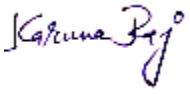	
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ABSTRACT

Justification of the study:

In India, there are about 6 lakh villages with 68.84 percent population of the country as per census of India (2011). Rural areas being in the backward position will be the main obstacle in the overall economic development of India. Agriculture is the main occupation of the Indian population. Based on the 2011 census data, an estimated 61.5 percent of the population is engaged in agricultural activities. The effect of modernization and mechanization in agricultural activities has created an imbalance in the difference between the farmers of the rich and poor class, because due to more access, the rich farmers have adopted more modern machinery in agriculture than marginal farmers. The main need of the present time is to orient this huge man-power engaged in primary work towards non-agricultural occupations. Until the 1970s, the development of the rural sector meant only agricultural development, with a central orientation towards increasing agricultural production. The present day's ideology of comprehensively inclusive rural development is completely different from the traditional narrow concept, which includes inter-related social, economic and political dimensions.

Therefore, the present study is an attempt to understand the trends and patterns of rural development in Hisar district of Haryana state.

Study Area:

Hisar district is situated between $28^0$53'45" N and $29^0$34'50" N latitude and between $75^0$19'44" E and $76^0$18'15" E longitude. The whole area of Hisar district is 3,983 square kilometers having 3,835.53 square kilometers rural area and 147.47 square kilometers urban area. A total of 263 villages of the present Hisar district (2018)as base year are included in this study.

Objective:

- To evaluate the pattern of socio-economic and infrastructural development during 1971 & 2011.
- To examine the quality of life across in sampled villages as well as different section of society.
- To explore the role of agriculture in rural development.
- To analyze the status of women empowerment (education, work participation rate, decision making, outside work, elected in Panchayat, under veil).
- To evaluate the role of social welfare schemes and services.

Hypothesis:

- There is no significant impact of urban centre on rural development.
- There is no significant impact of national highway on rural development.

Organisation of the study:

The present study is organized into eight chapters.

Result and Discussion:

There was significant variation in the spatial pattern of rural development in 1971 &2011 at village level. In 1971,7 villages (2.73 percent) were observed in area of very high development but it declined to two (0.76 percent) villages in 2011. The village, Arya Nagar of Hisar-II block, was the leading developed village in the study area and located within the 8 km buffer of urban centre such as Hisar city as well as national highway i.e., NH-9 and NH-52. These villages covered only 0.48 percent area of the total rural area i.e., 3742.83 sq. km. and catered 1.06 percent of the total rural population i.e., 1137420. A total of27 (10.55) villages were included in the category of area of high rural development in 1971. It is increased to 30 villages (11.41 percent) out of 263 in 2011. But, majority of villages of this category was observed within 8 km buffer followed by 16 km buffer from National Highway and urban center. These 30 villages had 10.27 percent

of total area and served to 13.39 percent population. A significant increased (8.56 percent) of villages were observed in the areas of moderate development during 1971 to 2011 i.e., 91 (35.55 percent) and 116 (44.11) villages respectively. In 1971, 92(35.94 percent) villages were observed in the category of low development with slightly lowering in 2011 i.e. 87 (33.08 percent). The areas of very low rural development also witnessed decreasing share of villages i.e. 39 (15.23percent) in 1971 and 28 (10.65 percent) villages in 2011. The village, Tharwa, was the least developed village in the Hisar district. These villages covered only 7.22 percent of total area and catered to 5.22 percent of total population. During 1971 to 2011, there was noticed a gradual shifting in the villages of this category from south and south-eastern to north and north-western part of the district.

The Person correlation between female literacy rate and rural development showed the value of r = 0.557 which indicate that female literacy rate had a significant and moderate positive effect (r = 0.3 to 0.6) on rural development followed by population density (r = 0.542), literacy rate (r = 0.521), education (r = 0.50), health (r = 0.50), technical & banking (r = 0.450), sex ratio (r = 0.393), non-agricultural worker (r = 0.344). There was a significant and week positive relationship between irrigated area (r = 0.294) and rural development. Work participation rate (r = -0.181) had a significant and week negative relationship with rural development.

The study depicts that in 2011, three villages (1.17 percent) namely Ludas, Panghal, Bass Azam Shahpur had shown significant improvement in their rural development score as compared to 1971. Therefore, these villages hence recognized as very high progressive villages. A total of 44 villages in 2011 (17.19 percent)accounted with a good improvement in their rural development score in comparison to 1971.Hence, the villages of this category designated as high progressive villages. In 2011, 92 villages (35.94 percent) were observed with slightly positive rural development score in contrast 1971. So these villages were nominated as static villages. More than one-fourth of the villages (28.13 percent) out of 256 registered with low negative rural development score as

recorded in 1971. This group of villages designed as low retrogressive villages. In total 45 villages (17.58 percent) recorded with a significant negative rural development score in contrast to 1971. Accordingly, these villages were grouped as high retrogressive villages. The villages of this category also mapped in each and every part of the district. The composite index of rural development (dependent variable) was regressed on distance from urban centre (independent variable) to test the hypothesis. The p – value is .000 which is less than .05. **Thus, null hypothesis stands rejected.** It means that urban centre has played a significant role in shaping the pattern of rural development. It is also evident that as the distance increases from urban centre, the composite score of rural development decreases ($b = -9.219$, $p < .05$). Moreover, the R square = .049 depicts that the model explains 4.9% of the variance in the composite index of rural development.

The composite index of rural development (dependent variable) was regressed on distance from National Highway (independent variable) to test the hypothesis. The p – value is .000 which is less than .05. **Thus, null hypothesis stands rejected.** It means that national highway has played a significant role in shaping the pattern of rural development. It is also evident that as the distance increases from national highway, the composite score of rural development decreases ($b = -7.268$, $p < .05$). Moreover, the R square = .089 depicts that the model explains 8.9% of the variance in the composite index of rural development.

Brahmin's numerical strength in the sample households is only 4.2 percent households. In 2021, Brahmin caste has got moderate position in the level of rural development. In the sample households,1.48 percent households belong to Mahajan caste. In the present study, this caste has attained moderate level of the rural development. Jat caste is the dominant caste of Hisar region. Therefore, it is the leading community having 34.57 percent households. In 2021, Jat caste has secured leading position in the level of rural development. Yadav caste has accounted with 10.12 percent households in the sample villages and found in the category of moderate level of the rural development. Saini's are observed with 4.94 percent households in the sampled villages. Presently, this caste is

included in the category of low level of the rural development. Kumhar (11.85 percent household) is the second top community in numerical strength in the Hisar region. This community has found his place in the moderate level of the rural development. Khati (4.94 percent household) has also accounted with moderate level of the rural development. Nai (1.73 percent household) is included in the category of very low level of the rural development. Lohar (4.2 percent household), is observed with very low level of the rural development. Chamar caste has registered with low level of the rural development. Dhanak caste has registered with moderate level of the rural development. Balmiki caste has registered with low level of the rural development.

The study reveals the trend of rural development of nine sampled villages of the Hisar district during 1971, 2011 & 2021. The village Kutia Kheri has been attained the status of progressive village. The main reason for this great improvement is due to the dominance of Jat caste a leading caste in the level of rural development. The village Arya Nagar (Hisar-II block) has designated as retrogressive village. The village Gunzar (Hisar-I block) is designated as static village. The village Thurana (Hansi-II block) is represented as static village. The village Dhana Kalan is recognized as retrogressive village. A majority of villages namely Khasa Mahajan (Agroha block), Dhana Kalan (Hansi-I block), Koth Khurd (Narnaund block), Gunzar (Hisar-I block) and Thurana (Hansi-II block) have been recognized as retrogressive villages. The blocks Agroha, Hisar-I, Hansi-II, Narnaund with their respective villages (Khasa Mahajan, Gunzar, Thurana and Koth Khurd) have been designated as retrogressive village.

In nutshell, the study indicates that the trend of spatial variation in level of rural development has been minimized and approaching towards average level of development during the study period. But, among different section of society at caste level, there are observed still significant variation in level of rural development. The study indicates that castes have been played an important role to design the pattern of rural development. There are also observed a significant gender disparity in literacy, educational level, work participation rate, administration etc.

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Chapter – I

Introduction

1.1 Introduction

Rural development means betterment in the socio-cultural, physical and economic condition of people. Rural Development is that which can enhance various characteristics of living of human being of a particular place like socio-economic, political, cultural and physical etc. (Kumar S.). The rural development program is currently a global challenge. The trend of migration from village to city has intensified due to increasing globalization and modernization which has created imbalance in the regional environment including the city. Rural development program is necessary to save global peace and cities from ports. Important mineral wealth of a country, primary basic requirement of human beings, etc. are present only in rural areas, whereas from the economic point of view there is a big difference between urban and rural areas. Today, thinking of filling this gap, one can imagine a happy future, otherwise the increasing burden will not only result in the deterioration of the cities, but the rural areas under the burden of poverty will be the focal point of many problems like crime, terrorism.

Rural: It is very difficult to define the word 'rural'. There are different criteria for demarcating rural in different countries of the world. On this basis, it would not be surprising to say that there is no traditional definition of rural. Rural remarks the condition of living standard of people in a particular area. It is an area where people dominantly engaged in primary activity and production of goods directly for the firstly in concern with nature. Areas characterized by primary functions for agricultural work have been labeled as rural, which supply food and other resources to the middle and upper class society through these actions.

Rural area indicates the particular location in geographically settings, where population lives in low density village or on other farm and scattered houses. The measurable characteristic identified the difference between the urban and rural i.e. rural population

engaged in primary activity at large scale. Availability of lack of services such as condition of roads and mode of transport, health status, school infrastructure, lighting, water supply or other in rural area decide the lifestyle of people. Rural areas are the focal point of the soul, cultural heritage, national spirit, etc. of a country, but in spite of such big features, rural development stands on the margins.

Some of the special salient features of rural areas are the following:

- Rural areas are smaller than cities and town in size and density, as well as they have less inequality.
- The rural environment is in the lap of the natural environment, they have direct proximity to sunlight, air, soil, mineral resources, fauna etc.
- Rural area is associated with traditional culture, low level of fashion etc.
- In the rural environment, close social engagement is found while the number of social classes is also less.

Development is indicated as a change of community from traditional thinking to modern ways. It is introducing the all over development of individuals or society. It's a procedure of advancement in which something grows.

Sustainable Development: is one which fulfils the present need keeping in mind the future situation. Sustainable development tells us to use our resources to meet the current needs keeping in mind the generations to come.

In India, the concept of Rural Development is very burning issue as it is still a developing country. It can be analyzed as an important process of improving qualitative rural lifestyle by providing basic resources to the rural sector. This helps to improve every aspect of rural lives such as economy, housing, education, health, and socio-cultural components of the rural society or area. The isolated and sparsely populated area can be interpreted as the concept of rural (Agrawal S., 2019). The approach to rural development was often based on the traditionally effective use of natural resources, including agriculture, animal husbandry and forestry. But, in recent years, the rural development

has taken a different shape involving in secondary and tertiary activities. The important processes for this change are urbanization, population pressure and network of global food production. This has changed the perspective towards rural development and helped to make this process a significant concept of interest. Not only the government but bankers, industrialists, financiers, philanthropists also portray great interest in the matters of rural development. The importance of the concept of rural development in India is a central theme in providing the quality life to the majority of the people participating in the economic development. In India, there are numerous factors having a great impact on rural development. Weak infrastructure, orthodox society and the political imbalance has a magnitude effect on the process of rural development in India. After independence, the country has made a significant investment in the rural economy, so that qualitative rural development ideas or schemes can be implemented (Mosse, 2020).

1.2 Rural Development in India:

According to the Census report of 2011, India's 68.84 percent of the population resides in villages. (Kumar, D.S.V., 2018). In this context, the concept of rural development becomes very important. The rural backwardness is an important reason which hinders the economic growth of India. Though, 61.05 percent of the Indian population's occupation is agriculture which is deeply connected with the rural area. Thus, rural development remains a significant issue for this country. The economic inequality and more focus towards urban development remains important reasons for rural backwardness in India. Though in earlier decades the process of rural development was interpreted as the same as agricultural development, now the perspective has changed. Now, rural development has different aspects which need to be maintained in order to provide overall rural development. Economic, political, and social factors need to be addressed and maintained for proper rural development. To fulfil the objectives of rural development, economic stability and opportunities need to be provided to low-income households (Sussman, G.E., 2019). Not only has this but to do successful rural development, the social situation also needed to be maintained. Preserving gender equality, providing social and political safety can be regarded as the significant steps of

rural development. Especially in India, it becomes very important to make a qualitative improvement in the standard of living of the rural people by providing food, permanent residence, clothing and basic education. In this context including rural people in decisions making and planning is also very significant. To ensure development, increasing productivity in various manners can be seen as an important step. Through providing these necessities rural development can be initiated in the Indian rural areas properly, but it needs proper planning and the foundation of strategies to provide properly (Neumeier, S., 2017). Also, throughout the process, various factors need to be managed to be able to fulfill the needs of the low-income families in rural areas. That is why, it's very important to understand the agricultural, technical, infrastructural, and population-oriented aspects effectively.

1.3 Rural Development Strategies of India:

To properly execute the process of rural development, there are various strategies that India has constructed. These strategies shape the overall rural development process of India effectively (Sharma, L.K. 2017). These strategies aim to properly identify the different needs of the rural people and fulfil those needs with significant support in various areas.

- All the agricultural fields should be provided with irrigation facilities.
- Providing crop insurance for the farmers residing in rural areas.
- Providing a minimum support price or MNP for different types of crops to the farmers to financially support them.
- The agricultural necessities like seeds, pesticides, fertilizers should be provided free of cost to the farmers instead of giving direct cash.
- For farmers performing agriculture providing life insurances.
- Providing loans for the farmers who want to buy tractors, electric motors, and water pumps on subsidy.
- Subsidy rates should be provided in the rural area for providing electricity.

- In case of any natural mishap where crops can be damaged, like floods, the government needs to come to the rescue of the farmers with significant remedies (Faradiba and ZET, 2020).
- Unemployment issues should be resolved with effective processes.
- Government should provide loan to educated youth of rural areas to start start-ups as there are no other activities available other than agriculture.
- Government must focus on creating and developing new and existing agricultural markets to provide the best support to the agriculture-based rural society.
- To make the agricultural process more successful, rural education and agricultural training need to be incorporated as part of the institution-building activities.
- New storages need to be established.
- The infrastructural aspect of the rural areas needs to be maintained.
- Transport, health facilities, communication related supports to be provided in the rural area.
- Agricultural marketing of production-related development needs to be a significant part of the rural development plan.
- To be fair farmers should be provided with the necessary policy and price-related information properly.

The overall rural development strategy of India is centered to agricultural realism of the rural region. Thus, providing every type of support to the farmers, Indian rural development process is initiated.

1.4 Principles and Schemes for Rural Development in India:

There are several principles that are followed to do the process of rural development such as;

- Utilization of locally available resources in the process of entrepreneurial ventures by the villagers for maintaining prosperity in the rural areas.
- Reducing discrimination towards the rural population by providing entrepreneurial occupation for rural people.

- To avoid rural migration issues, providing alternative occupations to the rural populations.
- To make the rural development process efficient and effective, to provide potential, money, available material, modern machinery, best management and new markets to the rural population.

To make rural development more significant and a focused process, the Indian government also provided some schemes regarding rural development in India. These strategies and schemes become very important as more than providing for the agricultural sectors, the procedure of rural development in India helps the economic state of the country very much. Also, through maintaining these principles the rural development can be executed properly without any type of issues (Singh, K. and Mann, V., 2020).

Over the years, the central government of India has implemented multiple programmes for the advancement of the rural societies in India. Some of the commonly known processes within the context of rural development in India include Pradhan Mantri Jan-Dhan Yojana, Old Age Samman Allowance, Kisan Credit Card (KCC), Minimum Support Price (MSP), Pradhan Mantri Kaushal Vikas Yojana (PMKVJ), Ujjwala Yojana, Indira Gandhi National Widow Pension Scheme, Employment Guarantee Scheme & MGNREGS, Indra Awas Yojana, Swaranjayanti Gram Swarozgar Yojana, Sarva Shiksha Abhiyan, Beti Bachao-Beti Padhao, Swachh Bharat Abhiyan, Haryana Disabled Persons Pension Scheme etc. Along with these schemes, the government of India has applied a range of approaches such as Area development Approach, Sectoral approach, integrated development approach, community Driven development and Growth Centre approach. Different ministries within the Government of India are responsible for formulation and implementation of these schemes that are important for the organizational outcome. From the available studies, it can be identified that the government of India draws experience within the administration of United Kingdom and came up with some alternative models including sectoral, territorial, multisectoral and local that have been taken to the rural development policy which amplifies the rural development of India.

Through these principles and schemes, the focus of the Indian rural development program can be identified successfully (Rao, 2019). To be evident, this process mostly focuses on the agricultural aspect of the rural areas. But different aspects like educational and infrastructural issues are also being addressed in the development process which can prove to be very significant for the overall development process.

Rural development implies both the social transformation as well as economic betterment of people. In order to provide best opportunities for economic prosperity to the villagers, it is very important to consider the increasing role of people in terms of rural development schemes, better implementation of land reforms and decentralization of planning and easy access to credit. .

1.5 Significant factors of Indian rural development:

There are various ways that Indian rural development can be implemented and strategies can be interpreted successfully. In the process of doing so, various factors need to be maintained to successfully initiate this process. Several functions need to be maintained to successfully implement the development programs (Unwin, 2017). This will help to provide a proper guideline that will be efficient in understanding the trends and providing necessary recommendations in the process of conducting the study.

1.6 Justification of the study:

In India, there are about 6 lakhs villages with 68.84 percent population of the country as per census of India (2011). Rural areas being in the backward position will be the main obstacle in the overall economic development of India. Agriculture is the main occupation of the Indian population. Based on the 2011 census data, an estimated 61.5 percent of the population is engaged in agricultural activities. The effect of modernization and mechanization in agricultural activities has created an imbalance in the difference between the farmers of the rich and poor class, because due to more access, the rich farmers have adopted more modern machinery in agriculture than marginal farmers. The main need of the present time is to orient this huge man-power engaged in primary work

towards non-agricultural occupations. Until the 1970s, the development of the rural sector meant only agricultural development, with a central orientation towards increasing agricultural production. The present day's ideology of comprehensively inclusive rural development is completely different from the traditional narrow concept, which includes inter-related social, economic and political dimensions.

The Government of India has started various development projects and programs for the all-round development of rural areas. The Ministry of Rural Development, which is an apex body under the Government of India, is committed to drafting policies, regulations and acts for the upliftment of rural areas. Agricultural production, handicrafts, fish & poultry farming and dairy farming are the major primary participants in rural trade and economy in rural areas (Rao, 2019).

Similar to the diversity of rural sections, there is an intensity of diversity in policy discourse. The initial two axes that mark the channel of policy development; there is a balanced representation between the productive and social sectors and between the state and the market (Ashley C. and Maxwell S., 2001).

Many research results make it clear that in the last few years, a pattern of reduction in the dependency and connectivity of the Indian population on the agricultural sector has emerged. Due to increasing burden of population and hierarchical land distribution method in joint family, non-availability of land for agricultural works, lack of improvement in traditional irrigation system, less access to technological up-gradation in crop production, floods and continuous lapse in proper management of land etc. has forcibly shifted the villagers to non-agricultural activities (Das and Das, 2014). Therefore, the present study is an attempt to understand the trends and patterns of rural development in Hisar district of Haryana state.

1.7 Study Area:

Hisar district, one of the 23 districts of Haryana, is the study area of the present study. Hisar district is situated between $28^0$53'45" N and $29^0$34'50" N latitude and between $75^0$19'44" E and $76^0$18'15" E longitude. The whole area of Hisar district is 3,983 square

kilometers having 3,835.53 square kilometers rural area and 147.47 square kilometers urban area. Hisar city serves as the district headquarters. Hisar district is a part of Hisar division, which is headed by a commissioner. A total of 263 villages of the present Hisar district (2018) as base year are included in this study (District census handbook 2011).

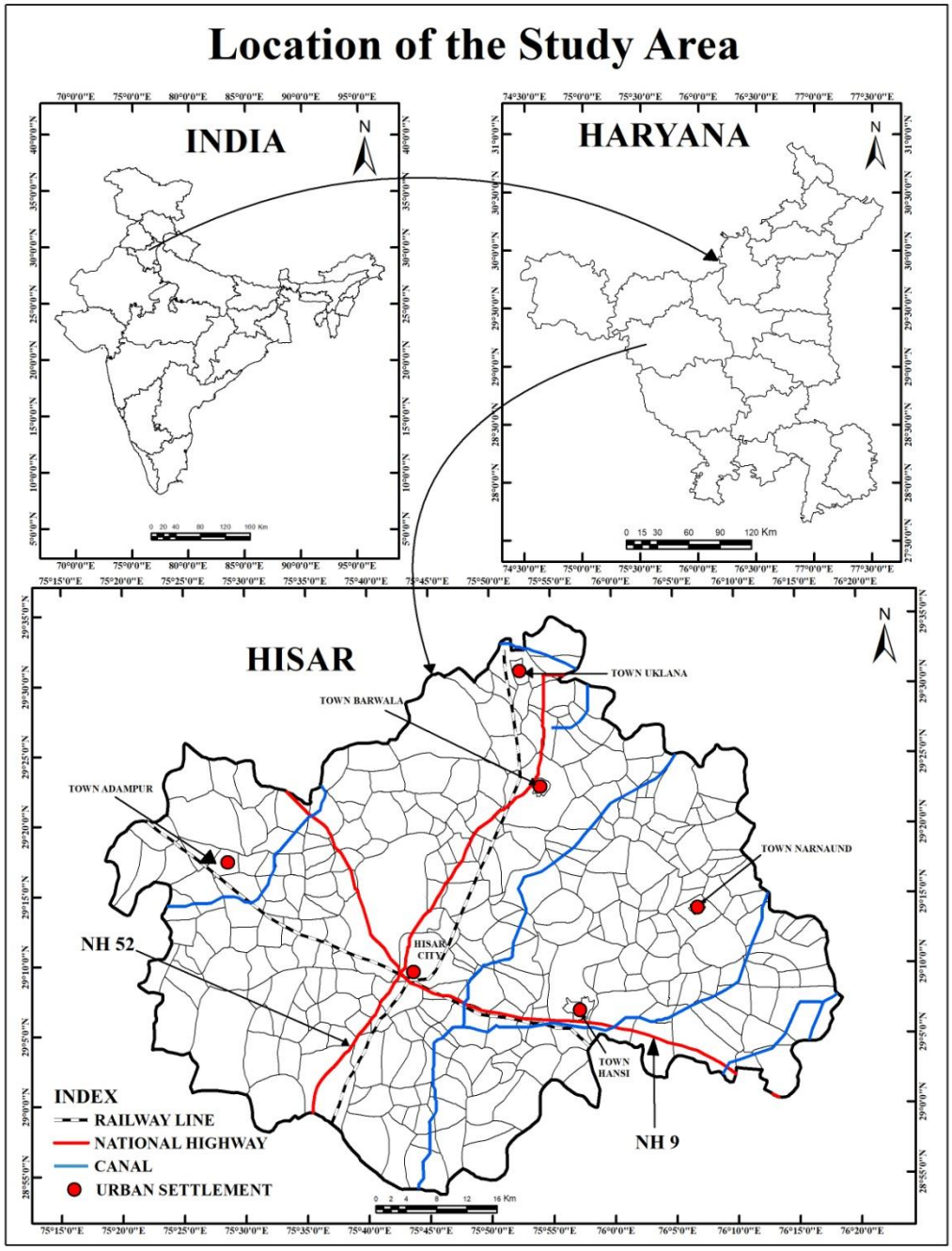


Fig. 1.1

As of 2011 India census, the population of the district was 1743931, of which 68.26 percent was rural and 31.74 percent urban population. The rural population density of the district was 150 persons per square kilometer and the rural sex ratio was 880 females per 1000 males. The rural literacy rate of the district was 68.90 percent with significant variations in male (79.71 percent) and female (56.64 percent).

The work participation rate was 31.64 percent with significant gender disparity. A majority of workers (83.01 Percent) were engaged in agricultural activities. More than 90 percent of total area was under net sown area in the district in which 85.68 percent was irrigated. The most spoken dialect of the district is Haryanvi. The district has the dominance of Hindu population (98 percent).

1.8 Objective:

- To evaluate the pattern of socio-economic and infrastructural development during 1971 & 2011.
- To examine the quality of life across in sampled villages as well as different section of society.
- To explore the role of agriculture in rural development.
- To analyze the status of women empowerment (education, work participation rate, decision making, outside work, elected in Panchayat, under veil).
- To evaluate the role of social welfare schemes and services.

1.9 Hypothesis:

The following null hypothesis has been framed to know the pattern of rural development at village level;

1. There is no significant impact of urban centre on rural development.
2. There is no significant impact of national highway on rural development.

1.10 Data Base and Methodology:

The present study has used both primary and secondary sources of data to understand and evaluate the pattern of rural development. The hard copy of administrative map of Hisar District was procured from District Census Handbook of Hisar District-1991. It was scanned at 300dpi and georeferenced using appropriate projection parameters i.e. Projection- Universal Transverse Mercator (UTM), Datum- WGS-1984 and Zone- 43N for database generation. The village boundaries of the villages were digitized and appropriate attribute data such as village name, population, etc. were also integrated. The cartographic work has been prepared on the GIS platform using QGIS – open source software.

The secondary data related to geographical setting of the Hisar district has been attained from Hisar district gazetteer, handbook of Indian Metrological department, Irrigation department of Haryana, Stastical abstract of Haryana 2018 to 2021.

Table 1.1

Data Base

Source of data	Satellite	Scanner	Year	Spatial Resolution	Spectral Resolution	Swath
GLCF	Landsat 5	TM	1988	28.5	Green, Red, NIR	185 km.
Bhuvan	Resourcesat-2	LISS-III	2018	23.5	Green, Red, NIR	141 km.

The satellite images of 1988 (Landsat TM-5) and 2018 (Landsat IRS P-6, LISS-3) have been downloaded from open source web portal i.e. GLCF and Bhuvan portal respectively. Land use and Land cover map of the Hisar district has been prepared with the help of supervise classification using Saga GIS into five major categories i.e. vegetation, built up land, wasteland, agriculture land and water bodies.

The secondary data relating to social, economic and infrastructural variables (Household, Population, Sex Ratio, Literacy, Female Literacy, Work Participation Rate, Other Worker, Net Area Sown, Irrigated Area, Educational Infrastructure, Health Infrastructure and Banking & Technical Infrastructure) have been collected from census of India – 1971(technical infrastructure not included due to non-availability of data) & 2011 at village level of Hisar District and gazetteer of Hisar, etc. The variables relating to secondary data have been computed and mapped as under; Size of household has been calculated by dividing the total population of the village to number of households of that village. To understand the trends of population distribution and concentration, the villages are categorized such as population above 10000, 10000 – 6000, 6000 – 3000, 3000 – 1000 and below 1000. Population growth rate has been calculated using formula (Population of 2011 – Population of 1971 / Population of 1971* 100). Sex ratio has represented as the number of females per 1000 males. In 1971, there is no availability of data relating to below 06 years population but this data is available in 2011. So, crude literacy rate has been calculated in 1971 & 2011 to understand the trends of change in literacy. But, to understand the pattern of literacy rate in 2011, literacy rate has been calculated by dividing the literates to total population excluding below 06 years population. Further, to understand the gender gap in literacy, gender disparity index modified by Kundu and Rao, 1985 has been applied. In work participation rate, main worker has been used in the present study to make the data comparable in 1971 & 2011. So, main work participation rate has been calculated by dividing the main workers to total population multiplied by hundred. To see the composition of workers, the workers have been segmented into cultivators, Agricultural labours and other workers (secondary & tertiary workers). To make the land use data comparable in 1971 & 2011, the land use data has been adjusted in four categories such as forest, area not available for agriculture, cultivable waste land and net sown area. Further, net sown area has been discussed in percentage calculated by dividing the net sown area of the village to geographical area of that village multiplied by hundred. In the present study, the proportion of net irrigated area has been calculated by dividing the net irrigated area to net sown area multiplied by

hundred. To understand the pattern of educational infrastructure, the available data has weighted relating to school (primary as 1, middle as 2, matric as 3, senior secondary as 4) and higher education (college, ITI / Polytechnique colleges as 5) and computed a composite score. Health score has been computed given weightage to dispensary as 1, primary health centre as 2, community health centre as 3 and hospitals as 4. To understand the facility of technical services and banking infrastructure, the presence of common service centres, ATMs and banking facilities have taken into consideration.

Then, to understand the pattern of level of rural development, a composite score has been computed by summing up the 12 selected indicators and divided into five categories of rural development (Table 1.2) using Z – Score techniques interpreted in chapter 7.

Table 1.2

Level of development	**Z – score**
Very High	2 and above
High	1 to 2
Moderate	1 to -1
Low	-1 to -2
Very Low	-2 and below

Source: Kumar M. (J. Soc. Sci.)

Karl Pearson's correlation has employed to measure the strength and relationship between independent variables (12 selected variables) and dependent variable (level of rural development). The present study has also tried to understand and evaluate the relationship between the level of rural development and the size of rural settlement such as population above 10,000, 10,000 – 6,000, 6,000 – 3,000, 3,000 – 1,000 and below 1,000.

To understand the relationship between the rural development and physical distance from the urban center and national highway three buffer zones from urban centres i.e., Hisar

city and Hansi town and national highways i.e., NH-9 and NH-52 are identified such as below 8 kilometers, 8 to 16 kilometers and 16 and above kilometers and accordingly analyzed the level of rural development.

Further, the level of rural development has been also checked at block level and tried to understand the distributional pattern of the villages in all nine blocks by the level of rural development. The tools used in analysing the data collected include simple percentages, descriptive statistics and correlation analysis.

In order to understand the quality of life, the primary data have been collected from selected nine villages. These villages have been selected with the help of stratified random sampling. Firstly, the nine blocks of Hisar district has been taken into consideration to provide representation each blocks. Then, one village from each block has been selected at random basis. The primary data relating to Social, economic, housing, sanitation, assets etc. have been gathered through interview schedules at household level from each selected village. A total of 405 households have been covered in this study. While doing survey, the social (caste) and economic (income) condition of the households with the help of Sarpanch, Panchayat members and old age persons have been kept in mind.

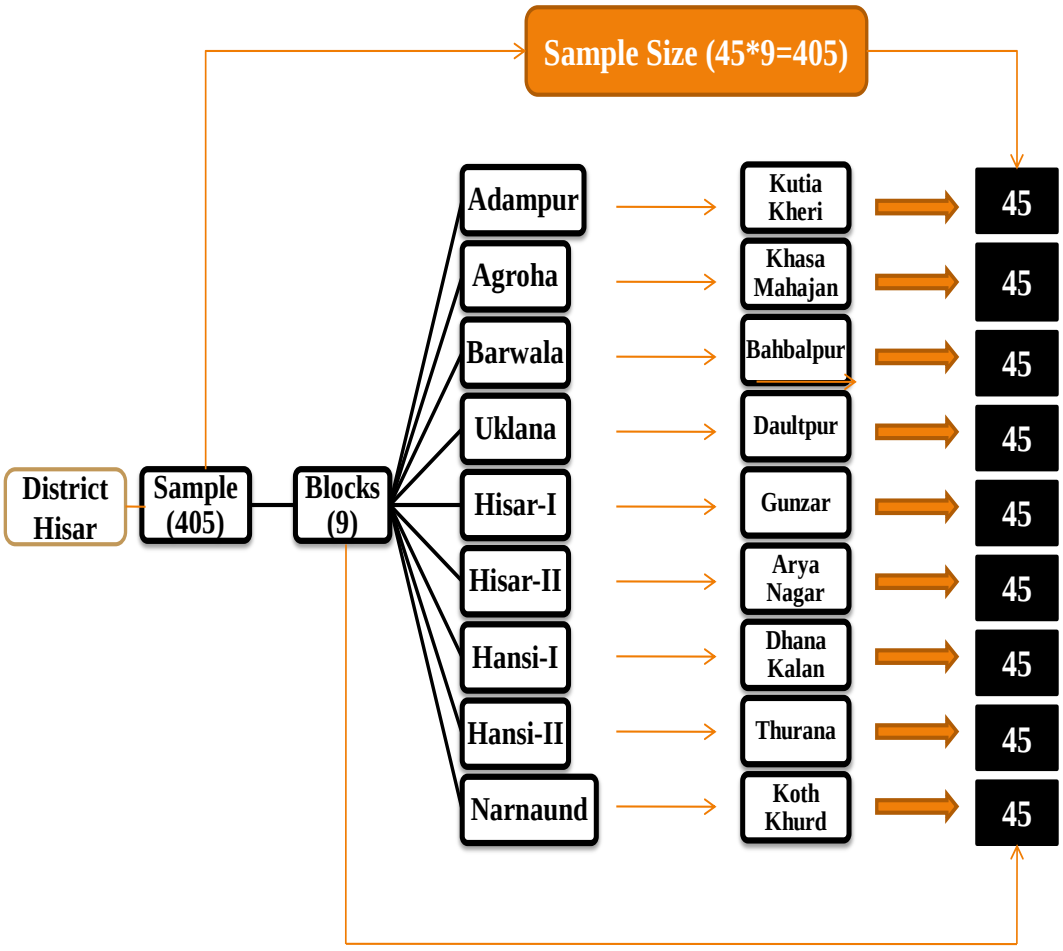


Fig. 1.2

Further, to understand the pattern of level of rural development of selected villages as well as caste level, a composite score has been computed by summing up the 28 selected indicators and divided into five categories of rural development using Z – Score techniques (as shown in Table 1.1).

The following data have been tabulated, analysed and interpreted:

Sr. No.	Table 1.3 Primary Data Base Variable
1.	Person per households
2.	Pucca house
3.	Room per house
4.	Per capita expenditure on electricity per month
5.	Availability of tap water
6.	Availability of LPG
7.	Availability of Separate Kitchen
8.	Availability of flush toilet
9.	level of cleanliness
10.	Sex Ratio
11.	Dependency ratio
12.	Literacy Rate
13.	Gender Disparity in Literacy
14.	Educational Attainment
15.	Gender Disparity in Educational Attainment
16.	Work participation rate
17.	Share of secondary & territory worker
18.	Share of government worker and reservation
19.	Household income
20.	Per capita land holding
21.	Availability of household amenities
22.	Access to banking services
23.	Newspaper readers
24.	Female decision making
25.	Female workers outside home
26.	Females in Panchayat elected bodies
27.	Share of females not following veil system
28.	Share of Family members not fallen ill in last one year
Source: The World Bank, Kumar et. al	

Accordingly, nine selected villages and different castes have assigned their level of rural development and status as progressive, static and retrogressive. The trends of rural development of selected villages have been attained and highlighted through statistical diagrams during 1971, 2011 and 2021.

A simple linear regression analysis method has been used to test the designed hypothesis.

1.11 Organisation of the study:

To fulfill the objectives of the study this particular study follows a significant structure. The present study is organized into eight chapters.

Chapter I presents the introduction about rural development. It contains justification, objectives, database and methodology and organization of the study. This chapter also highlights the brief introduction about the study area. The location map of the Hisar district as well as villages has been prepared.

Chapter II contains the detailed review of literature related to trends and pattern of rural development. The major issues relating to rural development such as population structure and composition, education, health, sanitation, poverty, gender issues, social welfare schemes, transport etc.

Chapter III presents the details about geography of Hisar district. It includes administrative setup, location and extent, climate, rainfall, temperature, flora and fauna, canal and transportational network, agricultural and landuse, industry & trade, etc.

Chapter III presents the details about geography of Hisar district. It includes administrative setup, location and extent, climate, rainfall, temperature, flora and fauna, canal and transportational network, agricultural and landuse, industry & trade, etc.

Chapter IV analyzes the socio-economic & infrastructural conditions at village level in the study area. It discuses about 12 indicators (Household, Population, Sex Ratio, Literacy, Female Literacy, Work Participation Rate, Other Worker, Net Area Sown, Irrigated Area, Educational Infrastructure, Health Infrastructure and Banking & Technical Infrastructure) in detail with the help of tables and maps based on secondary data.

Chapter V examines the quality of life of the people of nine sampled villages of Hisar district. This chapter is largely based on primary data. In this chapter, social, economic, housing & sanitation and women issues related indicators of quality of life are discussed.

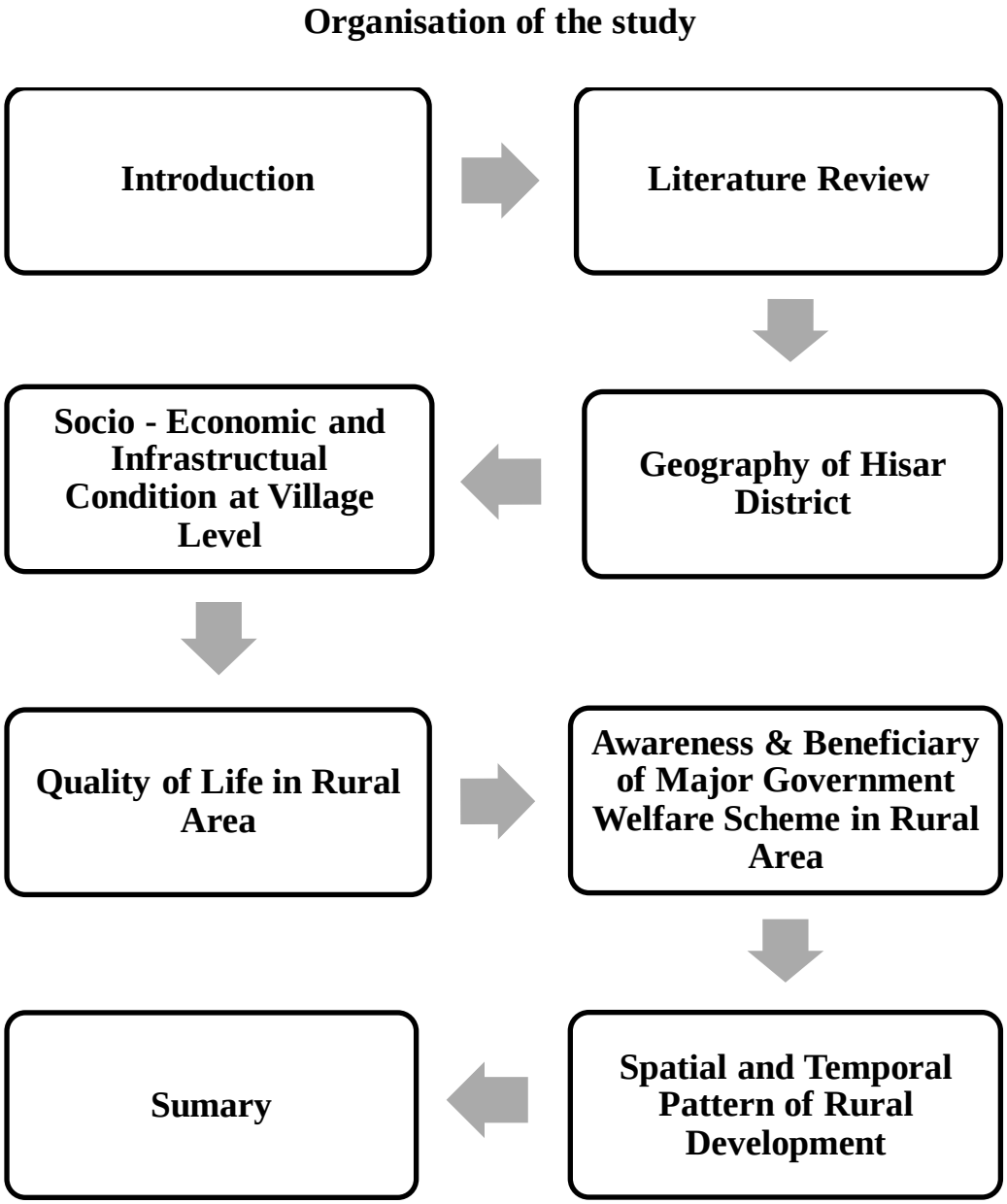


Fig. 1.3

Chapter VI focuses on different government schemes of social welfare (Pradhan Mantri Jan-Dhan Yojana, Old Age Samman Allowance, Kisan Credit Card, Minimum Support Price, Pradhan Mantri Kaushal Vikas Yojana, Ujjwala Yojana, Indira Gandhi National Widow Pension Scheme, Pradhan Mantri Suraksha Bima Yojana, Employment Guarantee Scheme, Indra Awas Yojana, Swaranjayanti Gram Swarozgar Yojana, Sarva Shiksha Abhiyan, Beti Bachao-Beti Padhao, Swachh Bharat Abhiyan, Haryana Disabled Persons Pension Scheme etc.) in the study area.

Chapter VII evaluates the spatial and temporal pattern of rural development in the study area based on both secondary and primary observations. It categorised the level of rural development in very high developed to very low developed area. This chapter also focuses on the relationship between different indicators of rural development. It also answers the raised hypothesis.

Chapter VIII presents the summary of the present study.

Chapter - II

Review of literature

This chapter covers the review of various aspects related to rural development including housing, sanitation, education, social welfare schemes. Keeping in mind the objective of the present study, historical, empirical, spiritual, theoretical literature related to the subject has been reviewed.

2.1 Rural Development

- **Rao (1998)** presented an overview of the rural employment situation and pointed out that though prosperity is positively related to agriculture, poverty is found to be higher even among states with a better resource endowment position. Structural differences and structural mismanagement are the main reasons for this phenomenon. He emphasized the need for dovetailing the programme meant for achieving a higher agricultural growth with those aiming at improvement in the off-farm sector. He also stressed the need for having some programme at the household level targeting rural artisans, small and marginal farmers, agricultural laborers etc. Similarly at the village level, some programme should be thought of which will ensure development at that level. He mentioned that the contribution of the private enterprises to GDP is much higher (72 per cent) when compared to that of the Government enterprises and in view of this, the strategy must be to give further stimulus to the private enterprises in the form of extending necessary technical support and finances. The paper on TRYSEM depicts the successes and failures in the programme. The present phase of the implementation of TRYSEM is providing mixed results. It was suggested that about two lakh village tanks may be developed using the TRYSEM funds which will go a long way in improving the resource base of the area. It was indicated that hardly 0.8 per cent of the funds earmarked are spent for the development of the artisan sector and this needs to be increased significantly. Integration of various schemes and networking with various

institutions will be necessary to achieve the desired results in this sector. Rao further mentioned that re-orientation of the present strategies would be necessary to improve the productive efficiency in the agriculture sector so that surplus is generated for the promotion of the non-farm sector in rural areas. The participatory approach may be attempted for achieving the desired goals.

- **Mohammad et al. (2015)** identified indicators that accelerate rural development. Five components responsible for inequality were identified among developed and underdeveloped communities in Bandarban district. In this paper, twenty nine communities were selected for primary information. The results show that there is a local disparity in the sharing of facilities operated for rural upliftment. There is a need to implement the integrated ideology of administration on the basis of geographical features for the multidimensional achievement of development.

- **Saurabh K. V. (2018)** According to the World Bank, rural development is a plan to benefit those villagers who are in search of livelihood and other basic facilities for living. It is a development policy whose main objective is to reduce the existing inequality gap in urban and rural life. There is a need to pay more attention to agricultural planning, food security and public participation in government programs through rural research.

- **Narkhede P. and Ghom P. (2018)** He has tried to identify the various problems and challenges of rural development. Many government schemes have been drafted to provide equal standard of living to the rural people, but due to lack of implementation, the rural people are still deprived of basic necessities. Based on a case study of four villages in Maharashtra, India, suggested that the concept of smart village can be implemented by solving these challenges.

- **Okeke et al. (2019)** private entrepreneurship is a boon for the welfare development of rural areas. He reviewed the theoretical nature of the economic structure of rurality. 309 samples of Anambra State were selected for information gathering by Taro Yamane's. On the hypothesis test, it was found that the imprint of entrepreneurs

in financial aid, reducing unemployment, strengthening the economy, etc., is a spur on rural development. However, they do not appear to have any special effect in increasing access to basic needs. Under the schemes planned in the public sector, private entrepreneurs suggested direct participation so as to ensure their share in the business hierarchy, to speed up rural development.

- **Vanclay F. and Castro-Arce K. (2020)** new ideology has potential for sustainable development. Revisited the mechanism of administrative efforts of rural development in the structure from the base of the society to the top order. He described the bottom-linked manner of administration as a modern and multi-dimensional platform on which various organizations of rural development make collective efforts. A study of the Costa Rica region found that to bring revolutionary changes in the community, the first administrative system needs to be efficient because society is energetic for this mobility. Institutions that contribute to social uplift need to pay more attention to energy and balanced distribution of local resources so that the integrated development of each level of social structure is possible.

2.2 Population

- **Ismael A. and Ngahthis I. (2012)** this paper is a qualitative and quantitative assessment of the impact and importance of rural population on socio-economic development. He conducted theoretical and practical investigations in the context of cultural-economic characteristics of changing rural density. Demarcating the relationship between the rural population and their environment, it was found that the current resource use system is unstable. Demographic changes and imbalances in rural areas affect the dynamics of the socio-economic development pattern. The findings of data from 330 rural households in Shaqlaw district found that population accumulation is closely linked with the socio-cultural development of rural areas. The study of population density is essential for rural population and sustainable resource use.

- **Barakade A. (2012)** this paper examined the impact of population growth on society. Computation of the second data of the last three decades found that the results of negative growth in the population of Satara district have been found. The dynamic growth rate controls the social scale of the economy, industry and employment availability, education, agricultural productivity, technical environment etc. Orientation towards higher education, family economic status, health facilities, political balance and means of entertainment etc. for the best welfare of the population need to be paid attention to changes in aspects.

- **Akani R. O. and Ewomazino M. A. (2015)** the concept of population growth has mainly shown a mirror to the society that how the increasing population negatively affects the use of available resources and overall development. According to their belief, increasing population promotes poverty and pushes any area towards underdevelopment, especially the underdeveloped countries. Nations can be transformed from underdeveloped to develop in the concept of holistic development by linking the rural population with economic production and supply of services.

- **Saroha J. (2018)** the pattern of growth in world population has been fluctuating and unbalanced. He tried to identify the indicators of population growth, on the basis of these indicators, to study the trends of world population growth and the differences in population growth at the continental level.

- **Khan et al (2021)** in this paper the dependence of human resources and economic growth was reviewed. He drew attention to the negative and positive effects of changing population for sustainable development. Economic development is dynamic only by the use of inactive natural resources by human power. Population growth is a major determinant of an area's social awareness level, political stability, economic development and developed cultural background. He investigated the

spatial development on the basis of data from 1971 to 2011 of Hadouti region of Rajasthan.

2.3 Education

- **Kumar P and Mittal S. (2000)** he mentioned the role of education in the modernization of rural areas. Sustainable development lies in the qualitative way of using available resources. Education is the key to increase agricultural productivity, eliminate poverty, generate employment opportunities and improve technology etc. Rural areas, which are mainly integrated in primary activities, especially in agriculture, and this rural structure, can be changed by converting its traditional methods into modern methods with the help of education.

- **Aref A. (2011)** Good education is the only accessible way to eradicate poverty. Education is central in the list of sustainable development. Education is paramount in eliminating poverty and other community barriers. In this paper, those weak links were identified which are an impediment in the attainment of education and eradication of poverty. Multidimensional development of society requires attention to other factors including education so that these social problems can be overcome and a background of integrated development can be created.

- **Kour H and Gakhar K. (2012)** a comparative study of the education system has been done in this paper. Based on the descriptive review and second data of the education system, the education situation of Haryana was assessed in the context of other states. Many changes in education policies have increased its reach to students. Policies such as abolition of boards of various classes, grading system, and change in assessment pattern, free and compulsory education have proved effective in including students in the education system. While Haryana's level of primary education enrolment is lower than other states, it is surprising that the enrolment of students in each age group is more among boys. Regarding various administrative schemes related to education, it is suggested to publicize the importance of this.

- **Gupta A. and Pathak S. (2013)** educated woman is the identity of developed civilization. The appearance of a conservative and exploited woman has to be changed in modern ways because only an educated and empowered woman is able to protect her rights, face various obstacles of life and raise her voice against the traditional ideology. Even today, inequality at the regional level is a big stigma in our country on the basis of gender. In this paper, the socio-cultural-economic status of the woman has been examined in the context of the development index using the second data. It was suggested to improve the structure of government schools because free education can intensify the slow rate of literacy by motivating the students towards education.

- **Shah R. N. (2013)** examined the historical background of the educational infrastructure. Literary and numerical literature related to the subject was reviewed. After independence, on the conclusion of the second data of different decades, it was found that there is inequality in the growth of literacy rate in different states of India. In some states, the level of education is higher than the average literacy rate in the country, while in other states the education situation is in darkness. There has been a demand to take concrete and strategic steps to educate and enable the younger generation of the country.

- **Nagaraja G. and Sreekanthachari G.J. (2013)** threw light on the relationship between education and economy. The village is called the real civilization of India, but even after so many years of independence, this civilization smells of illiteracy. The low literacy level of the rural population is the reason for the weak economic system of the country. This paper also emphasizes the factors of failure of education system in various cultural backgrounds. The axis of development rests on the shoulders of educated people. The Indian constitution has also given the fundamental right to education along with the basic requirement. There is a need for joint efforts of educated people and various policies of administration to increase the progress of the country.

- **Osuala et al. (2014)** checked the position and vital significance of Information and communication technology in advanced cognitive evolution. In his study, he gathered primary figures of 150 participants from five institutions of Imo State tertiary and concluded that ICT may play an important role in cognitive assessment, but its low trend still indicates its slight use. He suggested that ICT could act as a meaningful tool in high growth of education at global level in future. Because it facilitate the teacher to development of the students, but it also boosts the skills of the teacher and the students.

- **Samanta S. and Das D. (2014)** examined the importance of education in human development. The role of education is central in the all-round development of human beings, including the concept of sustainable development. If the population is educated, it will contribute to economic growth and integrated development on the strength of its skills. In this paper, the qualitative aspect of various schemes related to education has been reviewed. In future, India will be the largest country of working population and desired results can be achieved by educating this large group of population.

- **Karrar H. (2014)** examined the role of demographic characteristics in the scale of developmental trends. Education and sex ratio are the main indicators in human development of a particular place. These indicate the qualitative development of a place based on the position of the two components. The key to upliftment in economic-technological development, lifestyle, place of women in society, employment rate and skill capacity, is education, whereas balanced development means that women exhibit synergy between men, i.e. gender characteristics. An increasing trend of education has been recorded in Karnataka based on the estimation of Census 2011 data by Spearman's method and this increasing trend is likely to increase other variables.

- **Meenu and Talwar D. (2014)** this paper discusses the relationship between education and sex ratio at the district level. Analysis of decadal data found that there

is a negative correlation between these two components in different districts of Haryana. The highest and lowest literacy rates of the state have been recorded in Gurugram and Mewat respectively. Surprisingly, opposite results were found in sex ratio, maximum in Mewat and minimum in Gurugram. The state's lower average sex ratio than the average sex ratio of the country is a matter of concern. Although there has been an increase in literacy rate and sex ratio in the last decade, but there is still a need to spread awareness among people through the use of various policies, campaigns and techniques.

- **Karrar H. (2014)** in this paper, the role of various independent aspects of the population was mentioned in the development of education. The qualitative aspect and sex ratio of humans are determinants of demographic characteristics, while the interrelationship between the two components is inherent. The developed civilization is visible in the study of the census data of Kerala as it is the top ranking state in India's hierarchy of literacy and sex ratio.

- **Suri K. (2016)** Education is a dynamic apparatus in which transformation of socio-economic, behavioral and political development of not only the individual but also the community is done. In this research paper, to raise the level of education, a national level campaign like Rashtriya Mdhyamik and Sarva Shiksha Abhiyan was studied. He used the second data to check the literacy of Jammu and Kashmir and assessed that the condition of literacy rate in the rural environment is very weak, mainly due to lack of infrastructure. He explained the reason and also clarified that the level of education can be increased again by renovating the building, making community cooperation and sanitation facilities available.

- **Oriji et al. (2016)** express the potential of modern technical patterns of e-education. He explored the problem of how to shift the traditional and classical mindset of institutional staff to e-education. He delighted and argued methodology like easy access, self improvement and provide to learner. He identified the prominence of ICT in the education system and suggested that if the new method of teaching is

used, it will be more effective in communicating than the old method as it provides efficient platform at global level where collaborate professionally.

- **Bhagat R.D.D. (2017)** Education is the backbone in overall sustainable development. Lack of access to teachers and educational material in rural schools is the biggest drawback of the education system. He studied quality perspective of education. The main problems such as low awareness of parents, student-teacher ratio and poverty are found in education. Students do not have access to the relevant education, due to which there is an increase in quantitative education rather than qualitative. He suggested consequently upgrading the education through involvement and support of the community.

- **Singh V. (2018)** observed the status of literacy on the basis of deficiencies and defects in the education system. The high proportion of women in the number of illiterates in rural areas presents a picture of the education situation. It has been recommended to increase government expenditure on education.

- **Velimir et al. (2019)** distinguished the importance of E-learning in academic system. He checked the gravity of E-learning process in all over scholastic environs especially at higher level education. He reviewed the historical and theoretical perspectives of classical and e-learning system. He highlighted the main advantages of e-learning such as covering the teacher-student gap and providing individual study material all over the world. He distinguished between the traditional and e-education and found the dominance of e-learning over classical education on the bases of its potential supremacy.

- **Yadav et al. (2021)** literacy is a demographic indicator related to human character, social and economic development, which increases human health, economic production and income, quality life. The level of community development and individual lifestyle depends on education. He investigated the pattern of difference in

literacy of rural-urban population of Rajasthan. To increase female literacy and quality education, there is a need to pay attention to improving infrastructure.

2.4 Gender & Empowerment

- **Sharma R.B. and Gupta M. (2004)** this paper discuss the exploitation of women by traditional conservatism. In rural areas, women have been abused for centuries in social structures with specialties like religious faith, under-education and old customs. Due to this social concept, women have remained miles away from their rights and freedom. In the community hierarchy, the woman is neglected at every level. The actual picture of women is displayed only by the use of words like helpless, weak. It is also common in a male dominated society to suppress the voice of the conscious woman and make her a victim of violence. There is an appeal for the upliftment of women by awareness campaigns, abolishing gender based prejudice and spreading rigid rules in the society.

- **Mukhtar and Ogunlela (2009)** referring to the disregard of women in community development practices. They put the impact of gender inequality on primary activity on the basis that even if women have up to 80% participation in tasks like food supply and agriculture, their share in decision making is minimal. This study formed the basis of the importance of women in the traditional local farming system of Sub-Saharan region. To improve the condition of women, he suggested to increase the access to demandable resources by removing local boundaries and said that women can be empowered by effectively contributing self-help groups, NGOs and implementing gender policy.

- **Barakade A.J. (2012)** they invested in the declining level of sex ratio. Maharashtra is a state with regional disparity in sex ratio with geographical disparities. On comparative examination of the census data of two decades in this paper, it was found that there has been a decline in the sex ratio in different districts. Due to traditional thinking, excessive neglect of girls as compared to boys has affected the

entire demographic hierarchy. Due to these frustrations prevailing on the basis of gender, the sex ratio position is imbalanced in different districts of Maharashtra. Suggested, increasing the freedom of opportunities for women with education to improve gender outcomes.

- **Lokhande A. M. (2012)** this paper explains the economic status of women in society. In the small business program, which is directly related to the increase in the income of women, it has focused the attention of the world by removing social exceptions like poverty. In this paper, an attempt was made to know whether these finance programs actually improve the standard of living of its members. He obtained primary data from various districts of Maharashtra and stated that after becoming a group member of women, there has been a growth of 133.73 percent in income and 76.27 percent in saving. Women can be given favorable status in society by doing away.

- **Murtaza F. K. (2012)** examined the impact of schemes of higher education on the empowerment of women. Contrary to the biased system, the advent of industrialization and modernization has brought about a desirable change in the attitude towards women, which has increased the morale of women, resulting in increased self-reliance among women. The Aga Khan Development Network in Gilgit-Baltistan provides opportunities for women to become self-reliant, improve their knowledge and skills, which will lead to an all-round development of the society.

- **Samantroy E. (2013)** this paper emphasizes on highlighting the aspect of women's protection in developmental fabric. The security of women is mentioned in the central concept of sustainable development. He studied gender bias spread across the region on a particular basis. Domestic and external relations of family, religious tradition and cultural traits, this social structure have played a central role in gender division. For the foundation of a balanced and integrated society, there is a need to

create competent and educated women and to emphasize on the concrete security plans of the administration.

- **Mishra P.R. and Som S. K. (2014)** gender characteristic is an indicator of a person's identity. This is an important component of determining the development level of a place's population group. Gender-based participation in economic-cultural activities, gender independence in the use of resources, literacy, etc., fosters the developmental system. Looking at the data of the last few decades in West Bengal, it is concluded that the continuous reduction in the sex ratio of 0-6 age group has emerged as a serious problem which will have a negative impact on the entire sex hierarchy. To reduce the burden of this negative impact on the rural society, concrete laws and schemes have been demanded from the administration.

- **Amjad et al. (2014)** this paper discusses the contribution of women to the economic strength of small business firms. They randomly selected 6 small firms and 200 women samples. Based on the data, it was concluded that 65.12 percent women have increased in economic condition and 66.28 percent women have increased participation in household decision making, construction work etc. These small firms have a positive impact in the lives of women, leading to making them self-dependent. He said that training and new projects should be implemented to increase participation of women workers.

- **Agarwal M. and Patel P.J. (2015)** they portrayed the diminishing role of women in the ambition of a global superpower. Various demographic determinants of development are evidence that there has always been a problem of prejudice and gender differences in the thinking towards girls and women. Practices prevalent in society are only oriented towards providing good facilities to sons. This approach needs to be changed in families to implement the norms in which girls are given equal respect as boys. These orthodox ideologies that engulf the society need to be controlled in time so that positive growth can be made in gender rather than negative.

- **Theuri S. F. and Sherah M. R. (2015)** explored the influence of women in access to food security. Gender inequality has a wide impact on domestic processes like decision making, physical access to property and food availability. In Kenya, there is a huge shortage of food from limited land for a large number of women only, with which problems like illiterate and malnutrition are dominant. They obtained information from 382 homes from Kinango-subcounty by cross sectional survey using questionnaire and concluded that 39.5% of respondent disagreed with equal access to human capital and 49.2% to physical access. He suggested that food security could be strengthened by increasing men's participation in dietary production with women.

- **Ismail et al. (2015)** investigated the role of women in social activities, decision making and rural development in the contemporary situation. Presently, their position in the decision process is low. He reviewed the section of strong women and said that if they are provided domestic and social responsibilities and opportunities, then their participation in rural upliftment will remain high. He suggested that if there is a policy for equal access to available resources and community functioning, the gender gap can definitely be reduced.

- **Khan S. (2016)** addresses the embarrassing suffering of women under Taliban law. In view of the gender empowerment trend, he argued that how women are empowered under the peculiar barriers of country law policies. He reviews the perceptive literature in the context of Afghan women and concludes that political disturbance and social evil affected not only women survival but also gender issues. They found that despite having such a violent tendency, the possibilities of organizing the uniqueness of women still exist. For this, a bottom-up policy and group strategy, this will be effective in advancing women.

- **Gavhale R. S. (2016)** this paper examines the social status of woman in the context of sex ratio. In India, the woman has the status of a mother, but its pitiful anguish is a matter of concern. Discrimination on the basis of gender is not a new thing in

underdeveloped countries, but with increasing atrocities and decreasing values over time, there is also a decline in the thinking of society towards women. In this study, the sex ratio was studied among different caste groups and found that gender discrimination is higher among upper class castes as compared to lower class castes. Traditional practices and religious fanatics spread in the society is the root of this problem. Improvement in education system can increase the stature of women by changing the views of the people.

- **Samineni S. (2016)** Women empowerment is a major aspect to take stock of in the current social system. To empower women, we need to create an environment in which women can be financially strengthened and linked to the ideology of nation building. This paper emphasizes on the social status of rural women by giving them employment opportunities in which the role of self-help groups is important. The collection of perception-based data such as income avenues, education level and purchasing capacity concluded that the situation of women at the village level is pathetic. They suggested that entrepreneurs should come forward in providing opportunities to women at the ground level.

- **Yahaya et al. (2017)** pointed to the global challenge of gender equality. Gender inequality disrupted the freedom of women and created problems like unemployment, starvation and differentiated homogeneous environmental conditions in which the capitalist economy and social issues are the biggest factors which proved to be impediments to development. He reviewed Marxist theory with the industrial age and current scenario of gender. He suggested economic equality for the freedom of life of men and women, which will not only remove human inequality but will prove meaningful in its development.

- **Kashyap C.G. and Bango M. (2018)** they measured the work participation of women within social bonds. Upon reviewing the seriousness of cultural determinants, it was found that every work of women is entangled in the web of traditional thinking. On investigation of the second data, it was concluded that

educated women are aware of their freedom and rights. There is a difference in the method of work share of tribal women of different states, but the result of the increase in employment and literacy rate of these women is satisfactory. The low literacy nature of women is a hindrance in getting out of the conservative fabric. Special training is required to intensify mobility in women's social activities.

- **Parida et al. (2018)** studied the role of communication tools in the dynamics of rural development. He reviewed the connection of communication and awareness. Despite many administrative efforts, the local people are still unaware about the various rural upliftment schemes in vogue. In this study, 380 respondents from two districts were determined by the multistage method of sampling. The findings of the primary data found that women's mobility increased in personal decisions and social work. The low impact of community frustrations and the increase in education level oriented women to move forward. From time to time, it was suggested to use information about government schemes through the use of technical and communication tools.

- **Ghosal J. (2018)** this study discusses the developmental aspect of women. In a developed country like India, the level of development of women is still much lower than men. In our society, due to the prevailing male-dominated concept, women cannot get proper place, because people can be elevated only by changing the mindset about women. Small entrepreneurs should come forward to increase the income of women at the household level. Women and men can step together and create a favorable social environment without discrimination. He argued that by empowering men’s thinking with women’s empowerment, we can have strong participation in community development and nation building.

- **Diana et al. (2019)** these studies are in favor of empowering women by connecting them with micro business groups. Women can increase their share in social development by strengthening their economic standard and removing diseases like poverty and gender inequality in the society. He related the difference between women’s participation in productivity functions and rural empowerment. Micro

entrepreneurs certainly have a big stake in the economic upliftment of the society. They suggested that firms provide training services to improve the social value of local women.

- **Kushandajani K. (2019)** observed the participation of women in the social, political and economic development of rural areas. Administrative programs such as health, education, domestic violence reduction, agriculture, entrepreneurship and poverty alleviation, etc. have improved the standard of living of women with income. To take rural development to a higher level, the direct participation of women has to be increased and to encourage women empowerment; there is a need to increase the state fund.

2.5 Health

- **Obong et al. (2001)** investigated the nutritional status of rural childbirth women who were engaged in tasks like teaching and farming. He used the $n=2p\ (1-p)\ F/D^2$ formula for sample size. He obtained the health data of 300 women through group discussion and interview survey which included the nutritional content and diet in food and aspects like malnutrition. By discriminated against 21 percent of girls and marrying 27 percent of girls out of school, parents were responsible for lowering the level of female education, which has a direct impact on nutritional and economic status. The data obtained showed positive correlation to body mass index and age marriage and negative correlation to workload and protein, calcium and iron. He suggested that by taking away cultural practices through education, by increasing the nutritional level of less privileged women, they can get better health results.

- **Ashok et al. (2002)** studied the development-oriented policies implemented by the government in the health sector. With the changing demographic pattern, many challenges have emerged in the health sector; as a result, some infectious diseases still dominate the morbidity pattern, mainly in rural areas. The population of urban areas has more access to health resources than the rural population. The present study

suggests planning for rural health and work towards reducing the rural-urban gap in health resources.

- **Herselman E.M. and Ouma S. (2008)** generalized the impact of e-health in the current scenario. By expanding the services by e-sector, not only newly developed but also less developed countries have also brought revolution in healthcare. He collected the primary information through interview and inspection method using random sampling. He evaluated five health centers in Kenya and said that it is possible to service the last person using technology in rural area hospitals. He suggested that by using ICT to identify the resources of the rural level health centers, the possibility of better results by expanding the facilities by creating cheaper infrastructure.

- **Satia K.J. and Kumar A. (2010)** understood the importance of effective leadership and organization in the health sector in the event of low community development. He studied Jharkhand Health Services and found that only 39.1 percent of women are educated, weak infrastructure and politics is the main reason behind the weakening of these services. They drew the results based on the health services of Koderma, Chainpur and Behradih Subcentres. He tested the utility of the National Rural Health Mission for the challenges of providing healthcare in the less educated areas. They argued that in the long term, fixed human behavior related to health can be changed through the LDOE process as it emphasizes on providing health facilities to the maximum population which will lead to positive results in future.

- **Mohanty K.S. and Seth N. (2016)** dissimilitude in the use of economic human health physical care facilities has continued for centuries. In a developing country like India, there has been spurt in the results like life expectancy and neonatal mortality of rich and poor. They covered 1,01,662 households using the Blinder-Oaxaca Decomposition technique to conclude that there is a 7:2 ratio of health expenditure among the rich-non rich. Life span of Indian human and survival of

newborn is dependent on health expenditure. According to them, this difference due to endowment can be normalized by providing the least-cost health benefits.

- **Tewari S. (2016)** measured the status of women in a changing India. A study of rural women of India, a country with large economies, found that 36.1 percent of the adult age and 66 percent of their lives have been victims of physical violence while lower class women have experienced the most. Only 48 percent of married women being educated show their low economic working number and status which is one of the main causes of violence. Educating the females will have to be excluded from the cycle of social evils like caste, religion, discrimination and put them into economic processes so that they can have an independent future.

- **HA E. et al. (2017)** in his study the level of those delivering primary health services was evaluated. He studied the facilities and their selection of the National Health management Information system and recognized that there are regional variations in various stages of its structural implementation. They obtained qualitative and numerical data of 390 health providers by questionnaire list and concluded that 51.3 percent performed poor, 41 percent fair and 7.7 percent good. He remarked that the training of NHMIS can be improved by reducing the gap in health information.

- **Acharya S.S. (2018)** pointed towards health problems spread in rural area. He studied the constructive reforms in Indian health care in the last 70 years and found that there is still a large gap in access to health care among different communities and ethnic groups. Even though the pregnancy registration for lower class women is 87 percent, reaching the doctor is 54.6 percent while in upper class women this percentage is up to 70 percent, which indicates a large difference in infant mortality rate of these classes. To provide equal health facilities to all sections, we have to implement its policy keeping in mind the social factors so that rural uplift can be done by increasing the health level in the near future.

2.6 Transport

- **Popa C. and Nistor F. (2014)** identified the importance of transportation as it shows the leading role in economic activities. Currently, he reviewed the importance of transportation from ancient time to contemporary scenario of global world and told that the century of the present and future, based on the principles of sustainable development, demand for new transport economic market. This new economic market will provide opportunities for better management of new facilities and transportation at the right time, keeping environmental security in mind for the near future and investment in road sector will lead to regional reforms of least developed countries.

- **Demenge et al. (2015)** disclose the dimension of multifunctional roads in infrastructure development. Roads have contributed significantly in enhancing the dynamics of social change. They reviewed the literature and examined the landforms characteristics of rural Ethiopia and discourse the integration link between road design and global hydrology and recall new strange 'multifunctional road'. They studied collapse of roads on water resources based on semi arid region of Tigory, in 2014 and concluded that effect of roads are complex and roads alone are insufficient to bring tenable change in rural poverty. He suggested that the availability of water for irrigation and community development can be increased by preparing the infrastructure of multifunctional roads.

- **Oledinma A. (2015)** described the impact on the level of implementation of transport policy on economic efficiency. He highlighted the difficulties of Nigeria's transportation system by studying its qualitative and quantitative assets. They concluded that the misapplication of government network project was attributed to corruption, politics and weak administration, which had direct and indirect effects on the rural economy. After looking at the data from 2009 to 2011, he found that despite the low allocation in transportation, the index level in its budget was the highest at 37.29 percent. He suggested that by identifying the access and quality of rural

resources and implementing the policy involving water and air transport, we can imagine better results.

- **Nwaogu C. et al. (2016)** investigated how rural activities are controlled by the effects of transport and seasonal changes. He gave evidence that climate variation gives rise to disparity in rural-city activities. In this study, he interviewed 1440 respondents from West African Countries and performed hypothesis tests and used Spearman's correlation and standard variations method. He found that there is a measurable difference between rural-urban road condition and transportation cost facilities directly affect mobility and human functioning.

- **Rokicki B. et al. (2020)** examined the impact of transport structure in the economic growth of the endemic region. In this paper, he inspected the impact of transport-based infrastructure of the Polish by the CGE model and concluded that private investors rather than public have major contribution in road investment. He argued that in order to reduce this momentous variation, long-term investment would have to be increased along with public invoices so that the average unemployment could also be reduced.

2.7 Agriculture

- **Arici I and Kirmikil M. (2013)** Sustainable development is possible by making fundamental changes in rural characteristics through land consolidation. This is the latest approach to connect agricultural activities and rural area with modernity. The main objective of land consolidation is to increase productivity, make corrective changes in the basic infrastructure of the village and connect them to the mainstream of development. This study shows the structural changes caused by their proper use, management and conservation from land consolidation processes in the area of characteristics such as small and irregularly scattered field and unclear land ownership.

- **Raj S. and Syiem R. (2015)** ICTs have been an important contributor to the availability of information in farming activities which has opened up new avenues for development in this field for farmers. Among all the tools of ICTs, the role of mobile has been extremely useful which has not only provided the right information to the farmer but has also played an important role in market access and community attachment by bringing a modern revolution in the agricultural sector by saving time and being economical. Based on the data received from 120 respondents from various mountainous regions of the north-eastern state of Meghalaya, it was concluded that mobile is not only very useful in agriculture but is also has importance in providing health and education services to inaccessible area.

- **Asyerem J.S.F. (2016)** the scene of developmental inequality in the world has been involved in its process for centuries, which has created the level variation in various fields. This paper aims to highlight the role and potential of agriculture in upgrading a developing country because the dominant feature of progressive countries is dependence on agricultural activities. He selected 40farmers from random sample and concluded using Location Quotien method. They showed growth inequality by Williamson and Gini Index which were found to be horizontal 0.86 and vertical 0.43 respectively.

- **Venugopal P. and Kumar V.M. (2016)** this paper emphasizes on developing the rural sector by strengthening the economic structure through the use of e-agriculture. Data from a sample survey of 20 villages in Katpadi Taluk, Tamil Nadu showed that up to 70 percent of the farmers are illiterate who are not aware of e-agriculture. A successful step taken by the Agriculture Commission and IT to develop local markets, which is progressive to enhance the rural economy, which is helpful in improving the rural cultural-economic status and rising the standard of living. Better results can be obtained in this context by sensitizing large rural population about resources of e-agriculture in a developing country like India.

- **Ekobi G. and Mboh L. (2018)** this paper discusses the benefits and difficulties faced by the Taung irrigation scheme for small scale farmers. In order to increase the agricultural area of South Africa, such irrigation system was encouraged which not only increased agricultural production but was also able to increase the income of farmers by addressing the challenges faced by small farmers. In his study, he identified 203 farmers out of 412 involved in this irrigation, for which he used Yamane formula 1967. Through personal interviews, questionnaire and group discussion, he obtained primary data related to income, food and demographics. Factors such as marketing, institutional, lack of input availability, water and transport system are the main impediments in the use of this irrigation system by small farmers. He suggested that there is a need to strongly encourage Taung irrigation method which is effective in increasing the income of farmers along with domestic food security.

- **Ironbar et al. (2018)** this paper examines the policies regarding land conservation of farmers in the ongoing climate change. 180 farmer decided by multi-level random method to get primary data about mulberry, organic fertilizer, mixed and shifting cultivation etc. Descriptive assessment found that the impact of factor such as increasing population density and urbanization has led to a huge crisis in the field of soil conservation which has hampered the socio-economic system of the farmers of Nigeria by weakening the agriculture system. In the conclusion of the data, it was found that the local farmer is worried and aware of the challenges in the climate and is moving towards saving it by using soil favorably in this difficult situation.

- **Cay A. and Ozpinar S. (2018)** investigated the use and importance of mechanization in agricultural production. The quality of the crop in an area can be determined by the use of machines in it. Along with the changing seasons and times, the role of machines is paramount for modernity in agriculture. Information obtained through questionnaires from 70 farmers from 5 villages of Elbistan found that that good variety and rapid crop production is possible only through machines in which

the representation of tractors is high. Tractor incorporates modernity in various activities for crop production like tillage, sowing, irrigation, transport and spraying. Mechanization determines not only farmers' time but also labour and economic savings.

2.8 Sanitation

- **Frone and Frone (2013)** investigated the importance of sanitation and water in economic progress. On reviewing the comparative literature and economic outlook, he found that there is a strong relationship between water and sanitation. Cleanliness status and clean water have a special contribution in the sustainable development of a place. Cleanliness attracts tourists while water supply is the main essential facility for tourists and strong system of both determines the economic growth of a place. Analyzing Romania's data, it was found that only 60 percent people are connected with fresh water supply 40 percent sewerage system which shows its backward condition which is the major hindrance to economic growth and its prospects. He advocated social development along with clean water supply and waste water management.
- **Das and Kumar (2014)** examined the characteristics of rural livelihood under hazardous water quality, low sanitation and toilet infrastructure. Reviewing the literature on progress rate, accessibility and trends in the use of these basic needs, they spanned large gaps between rural-cities. Although India ranks low in sanitation services, the country is trying to bridge the gap in urban amenities. It has also been suggested that we can create a better future by using resources modernly and progressively to fill this huge gap.
- **Musa et al. (2016)** water is the key element which controls all organisms, as clean water is the basis of human life. Regional variation in clean water supply is not new. Local factor among rural-urban households has further increased this disparity. To check for this imbalance, the Blinder-Oaxaca Decomposition and the Probit

Regression Model for access to safe water supply were used on the second data of Nigeria, which revealed both positive and negative aspects. He recommended a policy to make people aware of quality based safe water.

- **Kateja A. (2016)** sanitation is a parameter to determine health status. The sanitation condition and water supply system of an area shows the level of human health there. Water quality and hygiene have an impact on health outcomes. He analyzed the health status of various states in India in the recent decade and correlated the clean water supply and sanitation with health scenario. Indian states have faced serious problem in obtaining clean water for domestic and other purposes. Using the Regression method, the direct and indirect effects of water quality on birth rate and health outcomes were investigated. Awareness programs were suggested for pleasant outcomes of health services.

- **Kumar A. (2017)** noted the accessibility of toilet facilities among various castes in rural India. He studied the standing agenda of the 2030s and recent state of toilet facilities and realized the inconsistent differences between different social groups under community disorganization. Using the 2001-11 census data and Sopher's method in their study, calculated that 67.3 percent of people do not have latrine facilities because they use open space for defecation. It has been recommended to immediately focus on this in order to fulfill this essential facility for the poor and to create equal access.

- **Bhunia A. (2018)** presents a critical account of the impact of hygiene on human living. Various services and projects for human's comfortable lifestyle are progressive, but the dreaded state of sanitation in West Bengal including various states of India is a huge crush to progress which is not only an open treat to diseases but it also creates negative impact on human development index. Using the Composite Index and Kendall's method after collecting the second data, challenged the conclusion that 3/4 houses do not have toilet facility which depicts the sub-

human habitat. Factors such as poor leadership, improper implemented policy were found to be the main reason for sanitation facilities failure.

- **Ohwo O. (2019)** elimination of the spread of sanitation services is a primary requirement for tenable advancement. Based on 2015 data, the proportion of unbalanced sanitation services spread across the Sub-Saharan region was examined. It was found that there is a big difference in the availability of these services between rural and the cities and this scope is constantly increasing, which is the main challenge on the path of sustainable development. We have to increase the level of education and employment to deal with this problem, which will control issues like poverty and corruption and open new doors of development.

- **Hariharan R. (2019)** tests the habitat environmental impact on health. They considered the three factors: unsure water supply, asepsis condition and ventilate level on health status, upon reviewing the current scenario. They gathered information from 120 houses in 3 villages of Sivaganga district and calculated that habitat status has a positive effect on human health. They suggested awareness programs for unlettered natives that would be a simple way to access tenable health outcomes.

2.9 Electricity

- **Jacobson A. (2007)** checked the contribution of renewable power in sustainable social change. He explained the state of electrification in the under-developed countries and said that there has been an increase in the use of solar energy by small scale villagers. Sun energy also caters to educational programs along with economic activities. Whether market, communication, trade related to honorable action is all dependent on electrification. Solar power plays an important role in community development by balancing the distance between the village and the city by uplifting the mental and technical human.

- **Buragohain T. (2012)** investigated ways to improve community living standards in remote rural area by electrification. He examined the historical perspective of rural electrification in which various rural infrastructure sectors such as health, education and employment were improved and corrective results of reducing pollution, poverty and crime. In its study, collected data of 10,000 households from 371 villages in six states was studied. Solar home lighting system has played an important role in tenable advancement of children and women as well as people from all sections of society.

- **Mandal S. and Mondal M. (2013)** observed the importance of renewable energy in the island's rural area. He obtained primary and second information about island villages located off the mainland near the Hugli River and found that only 10 of the 46 villages had access to solar energy. The first solar plant set up in the 1996 in kamalpur village has positively benefited the lives of local residents, but still a large section of the population is living in the dark as only 55.67 percent of the households have solar power available. He suggested, the government should rapidly expand solar power projects at the village level to remove the physical and economic barriers of the villagers and create a sustainable environment for rural development with positive improvement in their social, economic and health status.

- **Mukherjee S. and Biswas B. (2013)** he gave comparative consideration to traditional and modern light sources. This study identified villages where the reason behind lack of electricity supply is their geographical location. Human health level is also low using conventional energy sources. The per capita energy consumption in India is also not so high that it cannot be supplied. Solar energy can be important in ridding humans of this problem because it saves both time and money even in rural areas. Rural electrification programs run by the government can be easily achieved by successfully implementing at a large scale.

- **Ramaswamy S. and Anandan M. (2014)** studied that role of electricity in tenable development. In India, the ratio of energy consumption per individual is not so high.

He revealed that the rural electrification programs run by government are successfully implemented at macro level and to easily access the electrification targets of rural India.

- **Nidhi Verma et al. (2014)** investigated the challenges faced by rural electrification. They found that at the current production rate we cannot reach the target of electricity availability to every household in the near future, for this we have to promote renewable energy. Although schemes such as solar cookers and lanterns were started by the government, these projects proved ineffective in meeting the entire energy needs. Out of 70 percent of the rural population, only 40 percent have access to electricity. To address this shortage, it was suggested that rural households could be made eco-friendly by reducing investment cost in solar energy, providing high technology and subsidies to mitigate seasonal effects.

2.10 Industry

- **M. Owango et al. (1998)** Co-operatives in rural areas are a boon for farmers. Dairy cooperatives have simplified access to the basic needs of economic farmers by dairy products. They calculated the trend of change in the economy of farmers by these societies between 1990-95 using questionnaires, interview data and GIS software. Based on the data, it has been concluded that there has been a significant increase in the prices of producers and milk, but the decline in prices and quality due to increasing distance from urban consumers is a huge problem. He reviewed the loans and other facilities offered by the committees and found that producers with such benefits become proficient in facing the challenges and competition of this sector and this leads to qualitative-economic improvement in their lives.

- **Vijay et al. (2009)** explored the impact of incorporation of technology in traditional milk markets on rural producers. Investigating the share of traditional and modern markets found that the traditional sector is dominated by 85% in the milk sector, but the modern market is slowing down in this area. He obtained data from 390 milk

producing households and examined that while traditional markets are owned by the milk sector, churning on their milk quality is the main aspect of the present. Small scale farmers are at a distance from modern markets due to their backward economic status and low level of education, but access to them is easy for big landlords. Backward infrastructure of rural areas such as transport network, animal health services, distance from the market, low product rate etc. has set boundaries between the farmers and modern market. In order to provide quick and direct benefits to the farmers, he recommended proper management of modern markets among rural farmers and strengthening of their economic system.

- **Ogechukwa D. A. (2011)** small scale industry is the basis of rural progress. In today's competitive and progressive era, the importance of small industries is at its peak. The attention of developed and developing countries of the world is concentrated towards these industries, because only by promoting small business, economic development can be strengthened. The study reviewed the policies of the Nigerian government to orient the small scale industry and their contribution in strengthening their economic condition in their historical context. He recognized the business problems of Nigeria and recommended disposal of these, indigenous employment and improvement of basic facilities.

- **Sharma and Tiwari (2011)** the major economic mechanism of rural countries is agriculture, which is the cornerstone of the local economy along with means of employment and income. In this paper, the developmental trend of agricultural industries related to primary activities of Eastern Uttar Pradesh was checked. Used Composite index method and second data to categorize the industrial region. The region is industrially backward but is a leader in agricultural production. He pointed to the possibility of industrial development of the region in future. On the basis of local agro-industries one can estimate the sustainable development of rural area including local employment availability and their economic status. He suggested

skilled labour, advanced technology, new policy and renewable energy based machines for the development of these industries.

- **Anil et al. (2016)** checked the pattern of upliftment of industrialization and its impact on rural development. A study of the area of Kushinagar district located in Gandak river basin found that the excessive production of sugarcane in the alluvial soil here has given the sugar industry the dominance in the industry, leading to local development. Composite index was used with Sharma 2014 method for weight value. He divided the region into three industrial development categories: high, moderate and low level. The study explored the factors influencing the growth of sugar industry in major farming areas, leading to unskilled labour, social thinking, political and low economic standard, which also accelerates local inequality.

2.11 Tourism

- **Yeon and Woo (2006)** Agro-tourism mirrors the tenable possibilities of rural development. Agro-tourism is a useful link in creating pragmatism in rural-urban areas in which cultural, economic, natural products are adjusted. It is an advanced ideology to orient rural areas towards modernity. The background of the policies and experiences of agro-tourism in Korea is reviewed in this paper. Agro-tourism works in rural values by improving social education, medical system and environment and connecting them with the economic stream of the nation. Agro-tourism attracts tourists by changing the approach of using local resources thereby reviving socio-economic status.

2.12 Poverty

- **Tenaja (1989)** various states have made it clear that a large section of labor households are unable to meet their basic needs as a result of long failed anti-poverty efforts. This category includes those people from labor families who have not enough food, no clothes, no shelter and no education or no medicine. Even in

Punjab, which is reputed as an agricultural state, people are destitute. This plight of the people is an indicator of the failure of various programs and efforts to eradicate poverty.

- **Ali Asadi et al. (2008)** this paper critically explains the complex relationship between sustainable development, human potential and poverty. Sustainable development and rural uplift is the biggest demand of the present era. But poverty is the biggest obstacle to its realization, which has strong roots at the rural level. The poor have been seen as the curse of society and exploiter of natural resources for centuries. This paper explores the literature on human capital in the community, its economic status and attempts to highlight the factors responsible for the curse such as poverty. Integrated human capital has suggested the achievement of sustainable development by eliminating disease like poverty. It is possible to achieve the goal of poverty alleviation by involving the activities of every person of the society in a collective manner in the social environment.

- **Oyekale O. T. (2011)** examines the impact of rural development programs initiated by the Nigerian administration with the aim of poverty alleviation. The results show that some programs of rural development had an adverse effect on the poverty index. There is a need to expand the poverty alleviation programs initiated by the administration so that positive benefits reach the targeted people.

- **Md. Mahi et al. (2015)** evaluated the challenges of rural development programs and poverty reduction strategies that are helpful in poverty alleviation. As a result of the primary data, it was found that there has been a radical improvement in the basic facilities like agriculture, education, health, security, housing etc. in the rural areas by the rural development programmes. The favorable role of rural development programs in poverty alleviation of rural population of Bangladesh is evident.

- **Stuart Hart et al. (2016)** the increase in economic activity in the past has created a new ray of hope for people of lower income levels. In this paper, a literature review

of the programs and institutions related to poverty alleviation, whose contribution in addressing this problem is notable. The new enterprise ideology recommended an emphasis on inclusive business that makes access to sustainable development easier.

- **Rahul et al. (2022)** he examined the role of Regional Rural Banks in reducing poverty in rural areas and in its development. Evaluated by panel data analysis of secondary data for all states and two union territories of India. As a result, Regional Rural Banks have played a positive role in making rural areas poverty free and in their development. He demanded to increase investment in infrastructure and financial literacy of rural banks so that economic development can be claimed in rural areas.

2.13 Government Welfare Scheme

- **Mathur et al. (2012)** in this study, farmers' access to KCC was investigated. The problems of this loan scheme reached the farmers to improve the agriculture sector were analyzed. On the study of three banks of Bihar: Co-operative, Rural and Commerce found that there is regional disparity in loan disbursement of this scheme, but based on the analysis of the data, net savings of beneficiary farmers have been recorded far more than non-profit farmers. . To increase agricultural productivity on a large scale, it has been recommended to make farmers aware of this scheme.

- **Biswas S. (2015) t**his paper is an attempt to highlight the challenges of housing situation in India. Housing is one of the primary needs of humans. The seriousness of this problem is evident from the literature review of this scheme implemented for decades. The housing problem has been accepted in many under-developed nations of the world including our country. The Indira Awaas Yojana has been a unique effort to provide stability to people since independence, although there is still a strong demand for housing in India. This policy needs to be guided smoothly for qualitative improvement in the lives of the rural population.

- **Pal K.P. and Mondal P (2016)** this paper examined the impact of the SSA on the traditional education system in the rural environment. A study in rural areas of West Bengal found that the activity of children belonging to primary occupation families was less than the children of families belonging to other occupations but the enrolment of girls from families belonging to agribusiness was higher than that of boys. The low level of the economic system served to reverse rural education. This campaign is aimed at increasing rural education by providing free education. It was suggested to reduce dependence on agricultural work and to focus on other alternative occupations so that all children can be connected to the main stream of education.

- **De et al. (2016)** this paper illuminates the changes in human life under the influence of Swachh Bharat Mission. Cleanliness is the way to take man closer to nature and for balanced living on the ground; proper steps will have to be taken to make this close and deep connection. Disposal of solid and liquid waste, closed open defecation and qualitative change in the life of urban and rural human beings is the central policy of this mission. Sanitation is an important issue due to today's severe environmental changes, which have a direct impact on human health, education, entertainment, economic and cultural considerations. Cooperation in the national interest has been suggested by adopting the method of cleanliness in domestic works.

- **Goyal R. and Sharma N. (2017)** PMJDY is a solid and multi-utility system of economic development. This is a financial initiative to provide direct facilities to the rural people. In this paper, the role of various rural people of Jaipur in financial inclusion was examined in which primary and secondary data related to socio-economic perspectives was considered. The conclusion shows that level of awareness among the people about this scheme is low. There is a need to motivate people towards this initiative started for multipurpose, insurance, increase in income etc.

- **Pradhan P. (2017)** in this paper, the effects of Swachh Bharat Abhiyan at the ground level was reviewed. Factors such as lack of knowledge, increasing population

burden, and urbanization are major hindrances in the path of this campaign. Although the government claims to make the village open defecation free, but the condition of uncleanliness in the cities is at the peak and the direction of this problem is currently being oriented towards the villages. Timely strict administrative rules and direct involvement of common people can be the key to the success of this mission.

- **Vikhe L.R. (2018**) he reviewed the mechanism of Sarva Shiksha Abhiyan. This is an important scheme to provide qualitative education at the primary level, whose main objective is to provide free education to poor children. The study of the schools in the city and village of district Ahmednagar, Maharashtra, was done on the basis of compilation of primary data. In conclusion, it has been found that this is the best way to increase the skill and education level of all the students and teachers in the working method of this scheme. Debate competition, group discussion, sports, etc., were suggested to include most of the activities.

- **Malipatil and Agnihotri (2018)** Beti Bachao Beti Padhao campaign is based on making women aware of their rights through qualitative improvement in the society. There is a need to change the traditional thinking to eradicate the problem of gender discrimination in the society and to create a positive attitude towards women. The foundation of a balanced environment can be laid only by providing social security, higher education, awareness of rights, freedom of opportunities to women. It has been suggested first of all parents for to form a trustworthy attitude towards the girl child and to follow strict rules for their protection in the community.

- **Roy S. and Desai A. (2018)** this paper highlight the importance of SBM in making the society clean. This plan is the biggest demand today to maintain the natural beauty and erase the filth spread in the mindset of the people. To make this mission a success, every person will have to take steps because this work is not limited only to the cleaning staff. On the basis of primary and second figures of Thane district, he found that 96.1 percent people are aware of this mission. He suggested that children

should be aware of hygiene so that their habits emerge as the focal point of positive results in the future.

- **Tiwari S.S, (2018)** the relationship between KCC and agricultural development is discussed in this paper. The schemes implemented by the cooperative societies to improve the condition of the farmers were reviewed. District Anuppur is an agricultural dominated area, which has one-third participation in the agricultural producers of the state. KCC is a worthwhile scheme implemented to save the farmers of this rural section from exploitation. The study of the economic growth of the beneficiaries of this scheme was done by collecting secondary information. The credit facilities of co-operative banks were reported to have a positive effect on agriculture and it was also recommended to increase its area of interest so that every farmer would be benefited.

- **Sharanya et al. (2018)** assessed the impact of the welfare schemes of the central and local government on the backward castes and tribes. The administration is trying to improve the education level, health facilities, water supply, sanitation status etc. of backward people under special budget. The central theme of this study is to highlight the factors that inhibit the development path of the backward classes. On the study of the Kammattipadam region, it was found that these schemes of social uplift have a mixed and satisfactory effect on the local people. In order to achieve higher results of these schemes, efforts have been suggested to benefit every household.

- **Vezhaventhan D. and Swathi M. (2018)** in this paper, developmental changes in rural areas under the housing scheme were investigated. Habitat is a basic requirement of human being whereas in Indian context its condition is worrying. The central objective of the scheme is to provide sustainable life to the homeless and nomadic people. A study in remote areas of Tamil Nadu found that this initiative has not only changed the lifestyle of the rural people but has also led to a positive increase in their economic status.

- **Shobanageetha K. and Dhanabhakyam M. (2018)** the correlation of housing planning and rural development is discussed in this paper. The housing situation not only attracts the basic needs but it also contributes to strengthening the rural economy. Awas Yojana, which is one of the various schemes for human welfare that has been going on for decades, has been an active participant in the upliftment of rural areas. The results of information received from 110 questionnaires of Coimbatore area show that the beneficiaries have more direct influence on the female side than men. The low level of education also does not show any negative impact because there is more awareness among the people about this campaign. The lack of budget is the main obstacle of this scheme, due to which basic needs have not been met to the beneficiaries.

- **Selvam V. and Rajalakshmi V. (2020)** in this paper, the administrative fabric of democracy was examined. The village is the first unit of any republic and its uplift is possible only through direct rebel participation of women and men. Without the trust of the governing authorities at the centre, it is possible to increase in order from bottom to top with the cooperation of every person of the society. The central focus in this study is to assess the results of various government schemes launched for the upliftment of rural areas. Based on data from Vellore district of Tamil Nadu state, it has been concluded that the lifestyle of women working in MGNREGA has improved. Although these working women are not satisfied with their economic structure, the MNREGA scheme has an important role in alleviating poverty and eliminating unemployment.

- **Das D. (2020)** MNREGA is a basic platform to empower rural India. This scheme is making a significant contribution in the elimination of gender discrimination in the economic sector by guaranteeing employment to women along with men in the rural environment. The working procedure of this scheme, that women are a valuable part of the society, who have equal share on all the resources of the society, is to be clarified. This paper examines the positive impact of MGNREGA in rural uplift. On

analyzing the data of five Panchayats of Assam's Barpeta district, it was found that the work of this scheme is not only limited to employment but it is also a pioneer in identifying future problems and solving problems with future prospects.

Chapter - III

Geography of the Hisar District

3.1.1 Administrative Setting:

Geographically, Hisar was the largest district of Haryana at the time of the formation of the state in 1966. Later, parts of district located at the north eastern periphery were transferred to newly formed district of Jind. Subsequently, Bhiwani district was created in 1974 with the Bhiwani tehsil and Loharu of Hisar being also transferred to the newly formed Bhiwani district. The district was again bifurcated to carve out Sirsa as yet another district of state. Recently, Fatehabad has also been carved out. However, at present it is the second largest district of the state.

The district Hisar is the part of Hisar division of state of Haryana. It is administratively divide into six tehsils i.e. Hisar, Hansi, Narnaund Adampur, Barwala & Bass and three sub-tehsils i.e. Balsamand, Uklana, and Kheri Jalab. At present, the district consists of nine Blocks i.e. Agroha, Adampur, Barwala, Hansi-I, Hansi-II, Hisar-I, Hisar-II, Narnaund, and Uklana. The district has six census towns i.e. Hisar, Hansi, Narnaund, Barwala, Uklana, Adampur and 269 villages and 6 notified towns i.e. Gangwa, Satrod Khurd, Satrod Khas and Satrod Kalan, Mayor and Adampur.

3.1.2 Historical Setting:

The name of the district "Hisar" is a shortened name of Hisar-e-Feroza. In 1354 B.C. Feroz Shah Tughlaq founded the city of Hisar by building a fort. Rakhigarhi in the north-eastern part of the district and Siswal in the western region are sites rich in Pre - Harappan remains which take us back to the time before the 3rd millennium BC of history. The earliest settlers of the district came to the region during Pre – Harappans periods. Subsequently, Harappans settled down at Siswal, Banawali and Rakhigarhi. Changed course of Sarasvati and Drishadvati rivers, severe drought followed by flood and present archaeological findings confirm the extinction of Harappan civilization (Hisar District Gazetteers).

3.1.3 Cultural Setting:

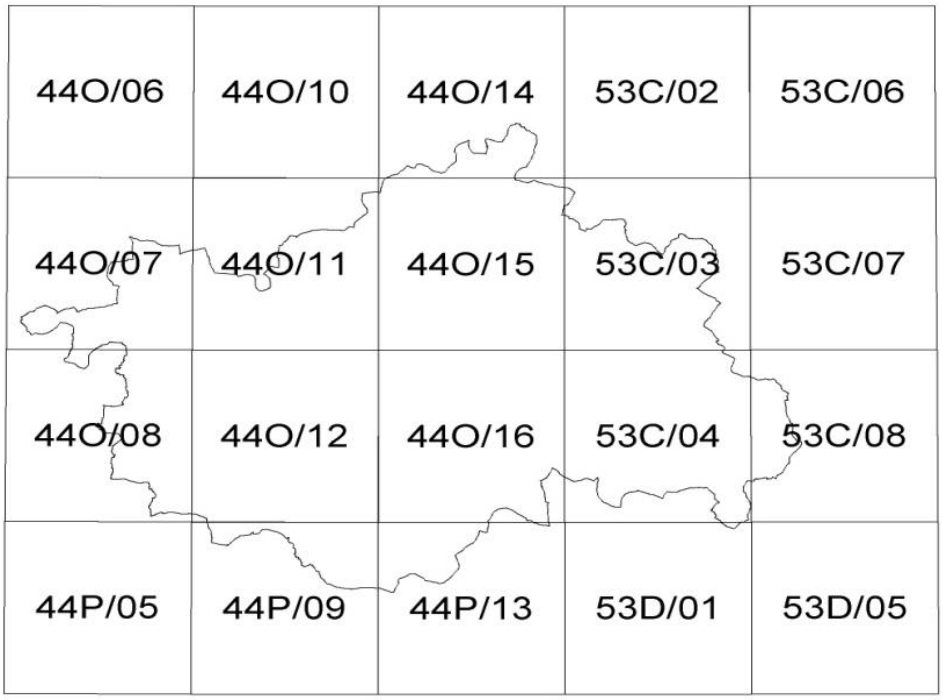
The history of farming communities in District Hisar is believed to date back even before 4200 BC when humans started agriculture in this area. Thereafter, under the influence of the Bronze Age culture, the socio-economic life pattern of the people developed here. The people here believed in the collective way of life and were familiar with mixed farming and trade. The fertile alluvial plain created by the Indus-Sarasvati attracted people to settle in this area. Rakhigarhi, Siswal and other archaeological sites are found in district Hisar, which are considered to be the remains of the Harappan culture. The people of this culture are counted among the most advanced farming community. The impression of holy river Sarasvati is also clearly visible on the culture of district Hisar. A glimpse of the culture here can be seen in the festivals of Diwali, Holi, Ram Navami, Janmashtami, Shivratri, Lohri, Goga Navami, Basant Panchami, Teej etc. Hariyali Teej, Sankranti, Sanjhi, Govardhan Puja, Phag and Kartik Snan are special festivals of the district (Kumar P. 2018). Peda of Hansi tehsil and Halwa and Kadhi of Adampur tehsil are famous food dishes. Ghoomar the folk dance and song folk-drama here is the special attraction of this area. According to 2011 statistics, 97.54 percent of the population in district Hisar belongs to the Hindu culture followed by Islam 1.24 percent, Sikhs 0.7 percent, and others 0.15 percent.

3.2 Geographical Setting of the Study Area:

3.2.1 Location and Extent:

The Hisar district is located between 28°53'45" to 29°49'15" North latitudes and 75°13'15" to 76°18'15" East longitudes. Total 3983 sq.km geographical area occupies by the district. District Hisar is surrounded by Rajasthan State & Fatehabad district in the North-West and West, Bhiwani in the South, Rohtak in the East and Jind district in the North-East. The district is covered in 13 Survey of India (SOI) Toposheets (Fig. 3.1). The location of the district is shown in Fig 3.1.

Fig. 3.1: Survey of India Toposheet Index Map



3.2.2 Physiography:

Above the bedrock topography there is a north-east sloping alluvial deposit. The main concentration of aerated alluvial sand deposits from the Thar Desert is in the south-western region of the district. Geographically, the district has three subdivisions based on the form of sand dunes: 1)- Hisar Plain, 2)- Hisar Bagar, 3)- Balsmand Undulating Plain. Hisar plain is developed as a fertile area due to irrigation facilities, covers a large part of the central, eastern and northern region of the district. Somewhere in this area there are sand dunes, whose spread has been controlled by the plantation. The main concentration of Hisar Bagar is in Adampur Tehsil and some part of Hisar Tehsil which is situated in the western part of the district. Large size sand dunes with altered patterns are the main feature here. The deposits of Balsmand undulating plains are found in the south-western region of Hisar district.

3.2.3 Climate:

The district Hisar situated in semi-arid region. Due to the characteristics like low rainfall, maximum temperature and dryness, the climate of Hisar district is sub-tropical continental monsoon type, with the summer months being influenced by westerly winds that keep temperature as high as 47 °C, whereas the winter season bears the effects of northwesterly cold winds, which cause low temperature touching even -1.70 °C. June is the warmest month of the year with daily mean temperatures typically exceeding 45.2 °C, while January is the coldest month with daily maximum temperatures of 21.5 °C. In the year 1984, the maximum temperature (48.3°C) of district Hisar and the minimum temperature in 1929 (-3.9 °C) were recorded. The region also experiences some rains during summer monsoon, which withdraws by the end of September. Due to the influence of Western Disturbance, there is some rain in winters. In short, the climate of the district is characterized by extreme temperatures and low rainfall.

3.2.4 Rainfall:

Extreme uncertainty and variability characterize the rainfall of the district. The monthly distribution of rainfall is given in Table 3.1. The short period from June to September, also known as the south-west monsoon period, receives about 70 percent of the annual normal rainfall whereas on an average only 28 days of the year are rainy.. The winter season (December to February) with western disturbances receives scanty rainfall. The rainfall behavior is erratic and fluctuations in the amount of rainfall received could easily be observed. For example, the district received 44.67 cm of rainfall in 2008 and 49.58 cm in 2007 (Indian Meteorological Department, HAU). The heaviest rainfall in a day in the district was 346.7 mm in 1926 (Hisar District Gazetteers).

Table 3.1

Mean Monthly Rainfall (in mm)

Month	Monthly rainfall average during 2018 – 19 (in mm)	Monthly rainfall average during 2019 – 20(in mm)	Monthly rainfall average during 2020– 21 (in mm)	Monthly rainfall average during 2018 – 2021(in mm)
January	7.3	15.6	8.9	10.6
February	1.4	13.7	1.3	5.47
March	0	11.8	5.0	5.6
April	1.1	7.1	2.7	3.63
May	0	11.5	10.7	7.4
June	33.6	35.1	51.3	40
July	85.3	114.2	220.6	140.03
August	14.3	115.6	20.6	50.17
September	57.3	71.8	283.9	137.67
October	0	13.2	13.6	8.93
November	0	3.1	0.1	1.07
December	0	6.1	1.2	2.43
Total	200.3	418.8	619.9	413

Source: Indian Meteorological Department

The distribution of rainfall also exhibits regional variations within the district. The total rainfall received in north and northwestern parts of the district is generally more than what it is received in south and southwestern. On an average the district receives rainfall for 24 days in a year.

3.2.5 Temperature:

The district experiences temperatures extremes with May and June recording mean monthly temperature above 40^0C and the months of January and February remains the coldest months with mean monthly temperature above 1-3^0C. The maximum temperature during summers at times exceeds 48.0^0C. The region also experiences hot winds locally called "Loo", which blows from the west, at times clubbed with dust storms. The temperature gradually falls during September and October, with a rapid fall during November and onwards.

Table 3.2

Monthly Average Temperature 2018-2021 in Hisar District (°C)

Month	Monthly temperature average during 2018 – 19 (^{o}c)	Monthly temperature average during 2019 – 20 (^{o}c)	Monthly temperature average during 2020 – 21 (^{o}c)	Monthly temperature average during 2018 – 21 (^{o}c)
January	16.3	14.5	13.1	14.63
February	23.15	18.3	20.75	20.73
March	23.7	19.1	28.1	23.63
April	32.4	40.4	32.45	35.08
May	34.2	34.2	31.6	33.33
June	32.55	30.9	31.35	31.53

July	34.5	33.65	33.95	34.03
August	31.9	32.05	24.6	29.52
September	31.2	30	31.1	30.77
October	26.35	26	25.8	26.05
November	19.9	20.35	19.7	19.98
December	18.65	15.6	14.8	16.35

Source: Indian Meteorological Department, HAU

3.3 Natural vegetation/Wildlife

3.3.1 Natural Vegetation: The natural vegetation in the district bears the effects of dry weather conditions prevailing in most parts of the year. The district has tropical desert type vegetation which is scanty and sparse, in which xerophytes are the main ones. Arejand, Rohera, Khairi, Beri, Reru, Jal or Van, Barh, Peepal, Mesquite or Paharikikar, Kachnar, Amaltas, Lasura, Tamarind, Banna etc. are included in the forest plant species. To promote the forest area under forestation programs, Shisham, Kikar, Siris, Neem, Eucalyptus are planted along the roads and fields. The plantation of jand, farash, khairi, castor, kana and ruhera have also been initiated in the recent past from the soil conservation point of view and to check the soil erosion under the influence of high velocity winds during the summer season.

3.3.2 Shrub: Mainly Hins, Bansa, Panwar, babool, Itwilah, Karir, Phoa, Khip and Ak are species of shrubs, while in some parts medicinal herbs like Bansa, Indirain, Asgandha, Glow, Kharuthi, Bhakra, Dhatura are grown. However, uncontrolled grazing is the main reason behind the reduced grass in the area. The quality and quantity of grass found in barren land is extremely poor.

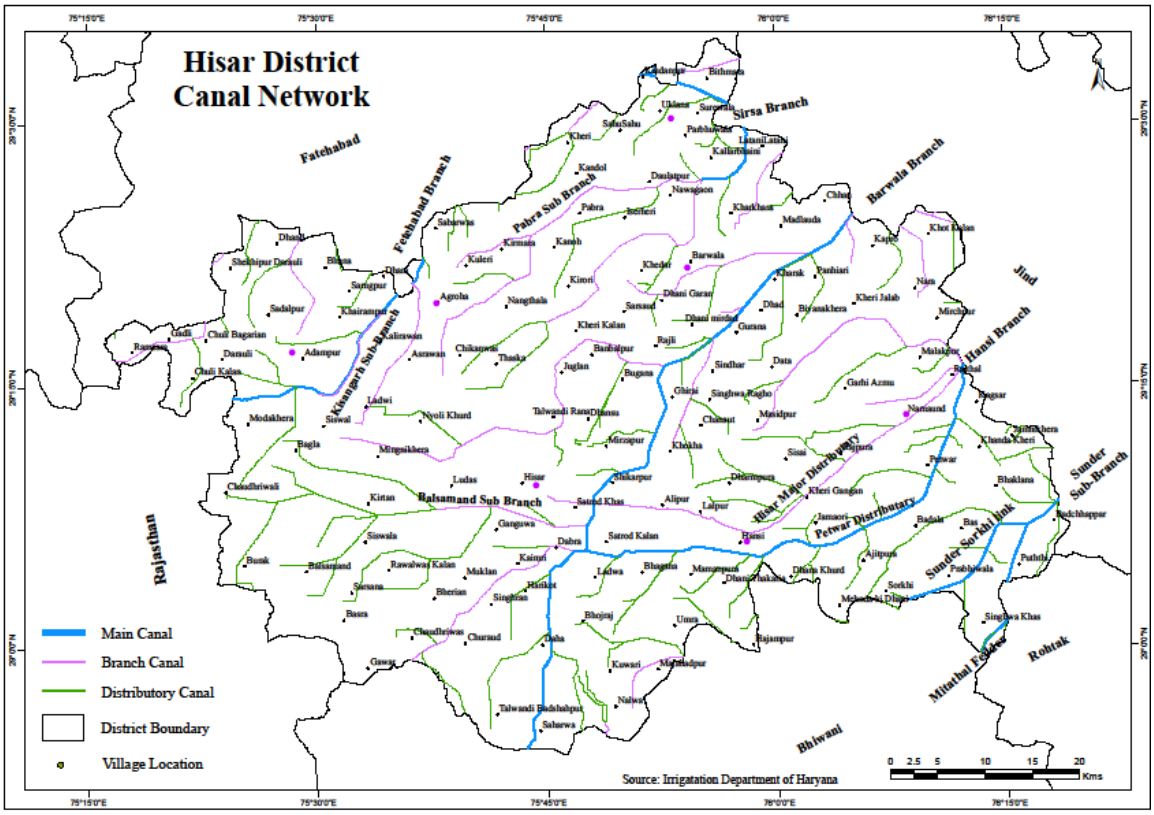
3.3.3 Wildlife: Various groups of animals including monkey and common langur are found in the district. The district is home to carnivorous animals like wild cat, civet,

mongoose, jackal and Indian fox. Gray musk and bat species are seen in some parts of the district. Species of fauna like squirrel, Indian porcupine, gerbil and rat are found. The main animal related to shrubs is the rabbit. Chinkara are found in less population in the district, which is continuously decreasing in numbers. Blackbuck and Nilgai are found in the majority near Bishnoi villages, where these animals are consciously protected (Hisar District Gazetteer).

3.4 Canal Network

Despite being located in the Yamuna sub-basin, the absence of natural drainage in the district is interesting. However, artificial drains are limited in Bas, Hansi-I, Narnaund and Barwala blocks of the district. Presently the course of the Vedic Drishdawati (Chautang) river is extinct, while the Hansi Canal now flows on its channel. Some parts of the Ghaggar plain are prone to floods during the monsoon season. The irrigated area is mainly covered by canals due to poor quality of ground water. Hisar district area is irrigated by most of the agricultural area has irrigated by the canals i.e. Kishangarh Sub-Branch of Fatehabad branch connected with Bhakra Canal, Balsamand and Pabra Sub-Branch of Barwala Branch, Sirsa Branch from Bhakra Main Line, Hisar Major Distributery and Deosar Feeder of Western Yamuna Canal System through Hansi Branch. The net irrigated area was 288386 ha. (77.05 percent of TGA) which constitutes 85.68 percent of the sown area in 2011 (Census of India, 2011). The canal network of Hisar district has been shown in Fig. 3.2.

Fig. 3.2: Canal network of Study area



3.5 Transportation Network

The transportation network system in the district is well developed. The all villages of the district are inter-connected by road networks. Besides, the other means of transportation are also satisfactorily been developed.

3.5.1 Road Connectivity: Hisar city is well connected to major cities and towns of adjoining states by National highway – 09 & 52 / State highways. Besides, the district roads provide links with different towns and villages of the district.

3.5.2 Rail Connectivity: Hisar city is well connected by railway routes such as Delhi – Bhatinda – Ferozpur, Ludhiana – Hisar and Sadulpur – Hisar railway routes. The first railway in the district was started in 1873 with the construction of Delhi-Rewari railway

line, later it was extended to Bhatinda in 1883 via Hansi, Hisar, Adampur and Bhattu settlements. Presently, all these railway lines have been converted into broad gauge line and electrifying work of these railway lines is going on.

3.5.3 Airport Connectivity: Since 1965, the district has a functional airport, which is operated under the Department of Civil Aviation, Haryana. However, it operates only as flying club and there exist no commercial connectivity.

3.6 The Economy

3.6.1 Agriculture and Land use

Table 3.3

Area and Production of Major Crops grown in Hisar district (2021)

Crops	Area in Hectare	Production (M.T.)	Productivity (kg/ha)
Wheat	224300	1023000	4560
Cotton	143600	46000	-
Bajra	27100	54000	1990
Oilseeds	442700	1464300	1881
Rice	84400	216000	2553
Gram	14000	15900	1132
Moong	12700	8800	700
Barley	2200	8000	3590

Source: Statistical Abstract Haryana, 2020-21

The district made remarkable progress in crop production under the influence of the Green Revolution. In fact, the dry climatic conditions necessitated the development of an alternative source of water needed for crop production. The development of canal irrigation during 1977 – 78 helped brought large chunk of cultivable land under cultivation, which has boosted agricultural production. A few additional efforts were

made that included the mechanization of agriculture, use of fertilizers and improved seeds, besides increased irrigation facilities.

The agriculture sector further drew boost with the research and extension activities of the Haryana Agricultural University at Hisar. This led to increasing share of the district in the production of cotton, oil-seeds and gram, besides the district being home of quality live – stock.

3.6.2 Industries:

In post-independence period a number of industries were set up in the district. For example, a textile mill was set up in 1955 in the Hisar city, which was followed by the setting of Jindal industry in 1963 along Hisar – Delhi road at the outskirts of the Hisar. Subsequently, a number of medium – scale industries were set up after 1966, which made the district an important industrial hub of the state of Haryana. These included setting up of Jindal Strips Limited at Hisar in 1971, Haryana Concast Limited and Ravindra Tube Ltd. At Satrod both in 1975, Haryana Tube Manufacturing (P) Ltd., Hisar (1975), Janak Steel Tubes (P) Ltd., Hisar (1976), Haryana Oxygen, Satrod (1976), Hansi Cooperative Spinning Mills, Hansi (1977) and Guar Gum Chemical Ltd., Hisar (1977) etc. Besides, several small-scale agro – based and allied industries were also set up (Hisar District Gazetteers, 1987). Some of the small-scale agro based industrial units were located at Hisar, Hansi, Barwala and Uklana towns.

3.6.3 Trade/Markets:

The trade and commerce is yet another important economic activity of the district. The consumable and non – consumable goods are brought in or sold out from/ to Rajasthan and adjoin area of Delhi. Delhi – Sirsa road passed through the towns of Hansi and Hisar connects these areas for the said purpose.

However, local markets play an important role in promoting local trade within the district. These include grain mandis located at Hisar, Hansi, Barwala, Adampur and Uklana, where Wheat, Bajra, Gram, Cotton, Moong, Sarson and Taramira are purchased and sold.

3.6.4 Land use/land cover:

Land use/land cover inventory is of paramount importance in the developmental planning of both rural and urban scenarios. Land use refers to "the various actions and uses of human beings that are performed on the land", while land cover refers to the unchanging surface of land that is "under natural vegetation, water bodies, rock out crops/soil cover" gives matter its natural appearance (Clawson and Stewart, 1965). The pattern of land use/land cover of an area is the result of its physical and socio-economic factors, their use by man over space and time.

3.6.4.1 Land use/land cover of the district during 1988 - 2018

Land use/land cover mapping for 1988 was carried out using Landsat TM images of Sept. /Oct. 1988 (Fig. 3.3). The broad land use classes have been taken form land use/land cover classification system designed for the present study. It has been found that major parts of the district were under agricultural land with 68.13 percent of total land (Table 3.4 and Fig. 3.3 and 3.4).

Table 3.4

Land use/land cover of the district during 1988 - 2018

Landuse/ Land cover classes	Area in ha. In 1988	Area in ha. In 2018	Area in ha. Change 1988 to 2018	Area in percentage 1988	Area in percentage 1988	Area in percentage Change 1988 to 2018
Built-up land	14789.8	28603.4	13813.6	3.55	6.86	3.31
Agriculture land	284111	325095	40984	68.13	77.96	9.83
Vegetation	62819.5	30735.1	-32084.4	15.06	7.37	-7.69
Wastelands	53515.3	31513.2	-22002.1	12.83	7.56	-5.28
Water bodies	1764.4	1053.3	-711.1	0.42	0.25	-0.17
Total	**417000**	**417000**	**0**	**100.00**	**100.00**	**0.00**

Fig. 3.3: Satellite Image of Hisar district (1988)

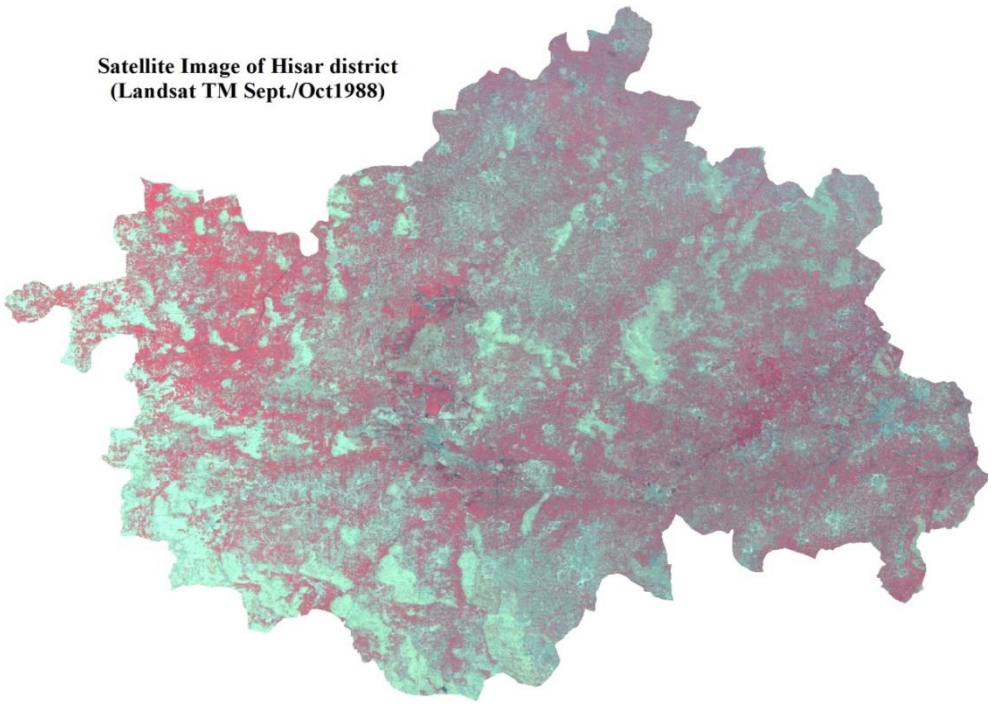
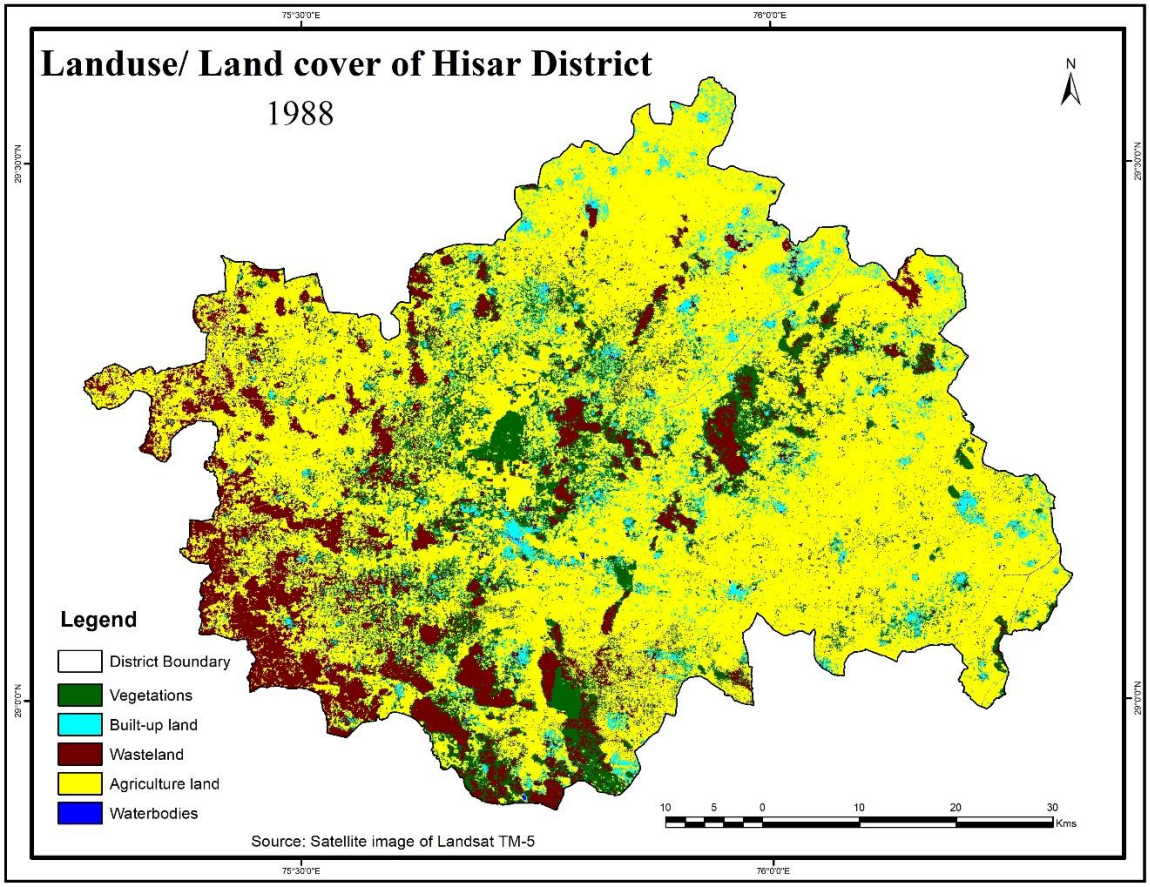


Fig. 3.4: Land use/land cover of Hisar district (1988)



3.6.4.1.1 Built-up Land: Built-up land is an area which falls under human habitation. It comprises of residential, commercial, industrial, transportation land use categories. The built up land covers an area of about 14789.8ha, which is 3.55 percent of total geographical area of the district.

3.6.4.1.2 Agricultural Land: It includes the land under cultivation, fallow land and the agricultural farm land. The area under agriculture land is found to be 284111 ha (68.13 percent) of the district.

3.6.4.1.3 Vegetation: The vegetation includes moderately dense vegetation, scrub land, plantation/orchards and grazing land. It is observed that 15.06 percent of total geographical area, i.e. 62819.5 ha, has been found under vegetation.

3.6.4.1.4 Water Bodies: The water bodies found in the district include natural ponds and lakes and man-made water storage tanks. It is evident from Table 4.1 that the lakes & ponds occupy an area of 1764.4 ha (0.42 percent) of the district.

3.6.4.1.5 Wastelands: An area of 53515.3 ha (12.83 percent) of the district has been found under different kinds of wasteland.

3.6.4.2 Land use/land cover of district during 2018: Land use/land cover map of Hisar district for the year2018 has been prepared using IRS-LISS – III satellite image of Oct.2018 (Fig. 3.5). Area under each land use/land cover category of the 2018 is presented in Table 3.4 and Fig. 3.4.

Fig. 3.5 Satellite Image of Hisar District (2018)

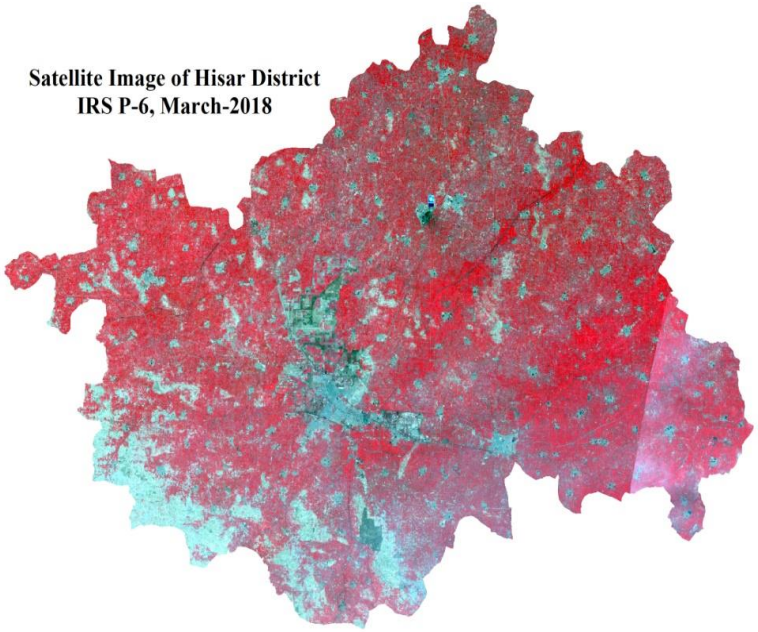
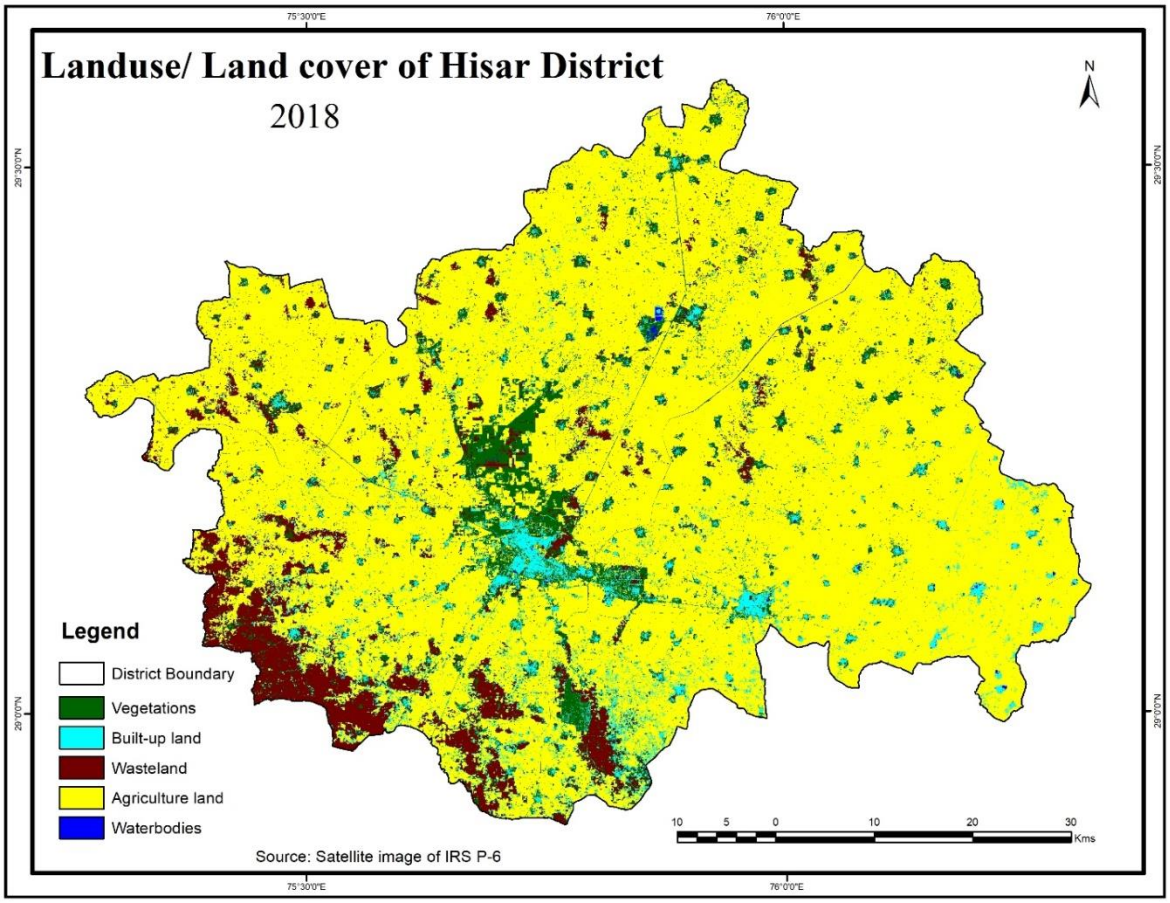


Fig. 3.6: Land use/land cover of Hisar district (2018)



3.6.4.2.1 Built-up land: An analysis of the data extracted from the IRS LISS III satellite image of 2018 reveals that an area of 28603.4 ha (6.86 per cent) lies under built-up land of the district.

3.6.4.2.2 Agricultural Land: The agricultural land is one of the most important land use/ land cover class occupying an area of 325095 ha (77.96 percent) of the district.

3.6.4.2.3 Water bodies: The lakes/ ponds found in the district occupies an area of 1053.3 ha (0.25) of the district in 2018.

3.6.4.2.4 Wastelands: The different forms of wastelands are found to be located over an area of 31513.2 ha (7.56 percent) of the district.

3.6.4.3 Land use /Land cover change from 1988 to 2018:

Land use/land cover change is the outcome of many complex interaction processes and all these processes operate on multiple scales in space and time (Verburg *et al.*, 2003). The main obstacle to land use change in an area is that agricultural practices, cultural landscape, demographic characteristics and socio-economic conditions are not discussed before the land is actually developed, resulting in unsuitable land use changes (Lockeretz 1988; Werner 1993). These inappropriate land use changes have many negative physical and human impacts on an area. Urban areas are also not immune to this inappropriate land use change, resulting in the decline of many natural services when sustainable development is not well planned (Polyakov and Zhang 2008). The given observations testify that land use and land cover change has emerged as a central theme in developing planned strategies for proper management of natural resources in urban and rural areas and monitoring of environmental change.

The land / land cover dynamics was analyzed using the change detection statistics for 1988 – 2018 as shown in Table 3.4. It may note that in certain cases drastic changes in the area has taken place in the district during the given period.

3.6.4.3.1 Changes in built-up land: The built – up land uses such as residential, commercial & industrial, recreational and rural settlements observed phenomenal increase in area. Table 3.4 shows that built – up land uses in all exhibited in increase from 3.55 percent in 1988 to 6.86 percent in 2018, which include an increase of 13813.6 ha (3.31 percent increase).

3.6.4.3.2 Changes in agricultural land: Agricultural land in district Hisar continues to grow steadily, with an increase in area by 40984 ha during 1988 –2018. The phenomenal increase in the area of crop land is attributed to the adaptation of fallow land for cultivation. It, thereby, showed decrease in its area.

3.6.4.3.3 Changes in vegetation: It is evident from Table 3.4 that poor rainfall and increasing trends of deforestation led to the decrease in area under vegetation by 32084.4 hectares during 1988 – 2018.

3.6.4.3.4 Changes in water bodies: A marginal decrease in area of water bodies was observed during 1988 – 2018 in the study area, which was reduced to 711.1 hectares in 2018.

3.6.4.3.5 Changes in wastelands: The area under wastelands is decreased to 22002.1 hectares from1988 to 2018. It may be attributed to the reclamation of such wastelands for productive uses.

An analysis of land use/ land cover change during 1988 – 2018 reveals that built – up land uses like residential, institutional, commercial & industrial, recreational, transportation, other built up, besides rural settlements, and the cropland, and agricultural farm land exhibit positive change. On the other hand, different land cover classes under vegetation, waterlogged area and sandy waste exhibit decrease in areal extent.

Chapter – IV

Socio – Economic and Infrastructural Condition at Village Level

Socio-economic development from a general perspective stands for the improvement in the quality of life. A good quality way of life certainly demands higher income, better education, good health and nutrition, a clear environment, quality in opportunities, more personal freedom etc. The ultimate objective of socio-economic development is to provide opportunities to all people for raising their living standards. Thus development is a process of transition from lower to higher stage of the standard of living (Premi, 2003). The 'Standard of Living' theme is the display of both the quantity and quality of goods and services regularly consumed by the citizens of accounting during a given period. The high degree of inequality implies that the masses in the lower income groups have kind of living standard much below to that indicated by the average figures (Myrdal, 1977).

Social development is taking place in developing countries with increasing community expenditure on the education system and health sectors. In this context, accelerating the all-round development of human beings would require reducing the inequalities in the distribution of social expenditure facilities, leading to investments in a large human capital for attainment of primary education and care of health facilities necessary in this direction (Gupta, et al., 1988). The development of the social sector occupies a special place in a developing economy like India as it is associated with the task of human resource development through education and health.

Shortly after India gained independence, regional disparities remain a central concern for the Indian administration. Under the Five Year Plans beginning in 1951, the issue of reducing regional imbalances in development has been central to every plan document. This issue was raised in the initial two plans of the planning process, while the third plan showed full concern. The economic gap between the states of rich and poor class of the country has widened continuously with the passage of time. In 2001, the development map of India displayed regional inequalities in India more clearly. With the

passage of time, the peripheral space of development clusters was occupied by the developed districts in the four directions of India. This pattern of developed districts was found concentrated in some parts of the states like Punjab, Haryana, Delhi, Chandigarh and Himachal Pradesh and Jammu and Kashmir under the North-Western cluster (Singh R. 2009). Eleven five years plans have been implemented so far; however, the alarming problems of rising poverty and unemployment levels, illiteracy, backward health systems and underdevelopment remain some of the unanswered questions for India. The government is facing huge problems of finding ways to access basic resources on large scale for all round development and to make qualitative improvement in the living facilities of the citizens of the country (Kapil, 2010).

Although, we have been surrounded by infrastructure and the associated services for a very long time, the term itself is not that old. In the words of the American Heritage Dictionary, the term infrastructure dates back to 1927 which collectively stands for transportation routes, bridges, and other similar social uplifting works. Interestingly, the word was far from the English dictionary until the 1950s (Central Statistics Office, 2013). Thereafter, economists popularized the term while describing the literature of development economics. In late 1980s and 1990s, the infrastructure and related development became the buzzword in social science literature and soon got distinction among different types of infrastructure such as socio-economic, hard, soft, physical and institutional in order to emphasise a specific aspects of different attributes related to the infrastructure (Ahmed and Donovan, 1992). In that entire context, all physical and social components of comforts/necessaries fall within the ambit of the term which is characterized as social overhead capital by World Bank. A reviewed focus is being noticed in most of the countries especially in emerging ones like India, China for all round infrastructural development since the beginning of 1980s (Bagchi, 2010). Infrastructure is a wide-ranging concept which covers almost all aspects of human life especially economic one. Infrastructural development is the primary process for the economic upliftment of any area. A proper quality infrastructure doesn't only guarantee the improvement in life-style but also improves productivity and efficiency. Today, it is

no secret that infrastructure is the factor that influences the stream of all-round development including economic development of any country. Despite the wide currency of the term, there is no standard definition of infrastructure both at international and national level. There are also significant differences among social scientists including geographers, economists, administrators, planners, policy makers and government bodies in the conceptualization of the term infrastructure all over the world including India.

World Development Report (1994) state that the countries with sufficient and sustained supply of infrastructure services showcase the pattern of higher productivity growth. To ensure infrastructural services from small household to large business houses is a massive challenge to achieve the dream of economic development. The report also points out the mutual relationship of infrastructure and economy: the more infrastructure capacity leads to better economic output and vice versa. Just 1 percent rise in infrastructure stocks leads to 1 percent rise in gross domestic product (GDP) across the globe. Because of increasing globalization, best infrastructure has become a need to lure foreign investors. The availability and access to basic resources of any community in the world represents a high quality of human life (World Development Report, 1994). Delmon observed that poor infrastructure jeopardises nation's economic growth and international competitiveness (Delmon, 2008). Inadequate infrastructure is also an indicator of decay in the quality of human life, leading to illness and death (Willoughby, 2004). To facilitate economic growth and reduce poverty, the supply, quality and affordability of infrastructural services need to be improved. On the one hand, it's difficult to meet the huge demands; on the other, it's all the more difficult for the investments to match the pace of demands (The World Bank, 2008). While measuring and preparing the global competitiveness report of 139 countries/economies, World Economic Forum accorded importance to infrastructure as second basic pillar after institutions among the 12 determinants and provided the most complete evaluation of its kind. The report lays stress that strong and sustainable infrastructure determines the flourishing of economic activities. It also ensures where the socio-economic activities take place and the industries take shape in particular economy. Sustainably developed

infrastructure plays a key role in bridging the geographical gap between national and regional markets and also acts as a bridge for economic deals with other countries. The quality, regional distribution and concentration of infrastructure networks play a central role in the process of economic growth and reduce income inequalities and regional variation in poverty (Hausmann et al. 2012).

Infrastructures are the centre of socio-economic development. They establish the fundamental base for virtually all economic activities in the modern era. It constitutes a large economic sector and contributes in elevating the quality and standard of human life (Steven, 2006). Different infrastructural sectors can have significant effects, though in different degrees in the reduction of poverty levels and desirable improvements in quality of life. A reliable and adequate quality of infrastructure is an important factor for a country to be a competitor in international market. Increased globalization and world trade has been not only due to the liberalization of trade policy in many countries but also due to the major advances in communication, transport and storage technologies. The managements of purchasing, production and marketing function has been made easier and as a result there is significant cost saving in inventory and working capital (Raghuraman, 1995). A country can develop with strong infrastructure and global trade while continuously coping with controlling population growth and reducing poverty. The quality of life is determined under the direct impact of infrastructural services. Therefore, investment in infrastructure becomes a foundation stone for building a healthy socio-economic life (Quintrell, 2008). Infrastructure is an investment in production sector which positively affects the productivity of other services. The process of infrastructure coordination connects the produced goods to the markets, the labour force to the industry, the local people to the services and the villagers to the urban development centres. In addition, infrastructure reduces costs, expands market services and facilitates trade which consequently supports economic growth and development (Bhattacharya, 2010). Generally, economic growth depends largely on the development of infrastructure of an economy. The public investment in various socio-economic activities leads to overall economic development and benefits the backward regions as well by providing adequate

opportunities. It is therefore imperative that for successful implementation of various development plans the support of infrastructural facilities need to be consolidated. The way infrastructure impacts economic development substantially and greatly that no other forms of capital investment can. Now, developing nations have been investing greatly in infrastructure for some decades which has benefitted households and producers alike as now they had access to various services. The process of development, world over has been characterized by the persistence of marked inter-regional disparities. Due to natural, historical, economic and technological reasons, economic activities get concentrated over certain points over space which emerges as growth poles from which growth impulses to other regions (Singh, 1999). Regional inequality is a global phenomenon; the problem of regional inequalities and imbalances is widespread not only in backward but also developed countries. Various rich countries of the world including the USA are also grappling with the problem of imbalance in regional development. The socialist countries like Russia and China are also not free from the problem of regional inequality.

India became aware about how important infrastructure is very late when it came to the fore that the country had invested much less compared to country's needs particularly in the areas of science and technology, transport facilities etc without which the country cannot achieve economic freedom. At the time of independence, the Indian economy was spatially highly unbalanced and disintegrated due to the distorted pattern of development imposed by the colonial powers to sub-serve its own economic and commercial interests. The situation remained unchanged because of the lack of interest in national integration and socio-economic development. Since when the planning process began in India after independence, the challenge of regional imbalances has been a key area of concern for the Indian political economy. Therefore, every five-year plan of the country focussed to realize the major objective of achieving the balanced development. With the objective of balanced, sustainable and integrated regional development has been realized by making larger flow of resources to the economically underdeveloped states, by locating public sector projects in the backward areas, by controlling the location of private sector industries, capital and transport subsidies to industrial backward areas, by promoting infrastructure and establishing industrial estates etc. In addition, several area

based programs have been adopted for the sustainable development of drought prone, desert and hilly areas, which are geographically handicapped areas. Nevertheless, the problem of regional disparities has contributed to stubbornly persist over time.

4.1 Household

The household, which exists in one form or another, in almost all the societies of the world, is an important unit in the comparative study and analysis of human social system. As Peter Kunstadter (1984: 300) has written, "In most societies with the majority of people spending time in homes, membership is usually determined by marriage and inheritance, which together constitute a unit of housing and economic support". Thus, household is a fundamental indicator in any society which includes social, cultural, economic, and political and socialization objectives. It is important to distinguish between the concepts of household and family as they are often confused with each other. The household, basically, is a unit surrounded by co-residential socio-cultural-economic customs in which kinship relations are not cared for, while the family refers to a group whose membership is based primarily on marital and consanguine ties. In the words of Linton (1936: 152-159), "While the meaning of both home and family is clarified from a cultural point of view, dwelling units are primarily pre-task-oriented and are treated as rater-determining kinship groups, not necessarily to be localized". It is necessary to clarify here that the family is a co-residential cultural-economic unit in the context of most matters of society. The different types of households are generally bound by family rules, demographic factors and of course socio-economic customs. There are many areas where social households can be influenced by factors such as economy and demographics. Processes of industrialization and urbanization, which take place because of economic shift, are also act as key factors to modify the type and size of households in society.

4.1.1 Pattern of size of Household in 1971 & 2011:

It is evident from fig. 4.1 & table 4.1 that the average size of household in the district was 7 persons in 1971. But it declined to 5 persons in 2011. This decline may be attributed to rise in literacy and educational attainments in the households and shift of workers

category from primary to secondary and tertiary services. There has been a special effect of the government policy to control the population like "Hum Do - Hamare Do". It is easier to provide qualitative facilities to the members of a small sized household as compared to a large sized household, due to which the household size declined.

Table 4.1

District Hisar

Distribution of Village by Household Size

Size of Household	(1971)	(2011)
8 &Above	22 (8.59)	0 (0.00)
7	161 (62.89)	1 (0.38)
6	69 (26.95)	43 (16.35)
5	4 (1.56)	218 (82.89)
4 & below	0 (0.00)	1 (0.38)
Average	**7**	**5**

Area of large size of Household (8 to 12 persons): in 1971, about 8.62 percent villages were observed with large size of household. Majod (12), Moda Khera (10) and Singhwa Khas (10) were the topmost in term of size of household. The major concentration of these villages was found in eastern part (Hansi – Narnaund town stretch), in north (south of Uklana town), in southern part (Hansi town – Nalwa village stretch) and central part (along Hisar city) of the district. In 2011, there was not a single village in this category.

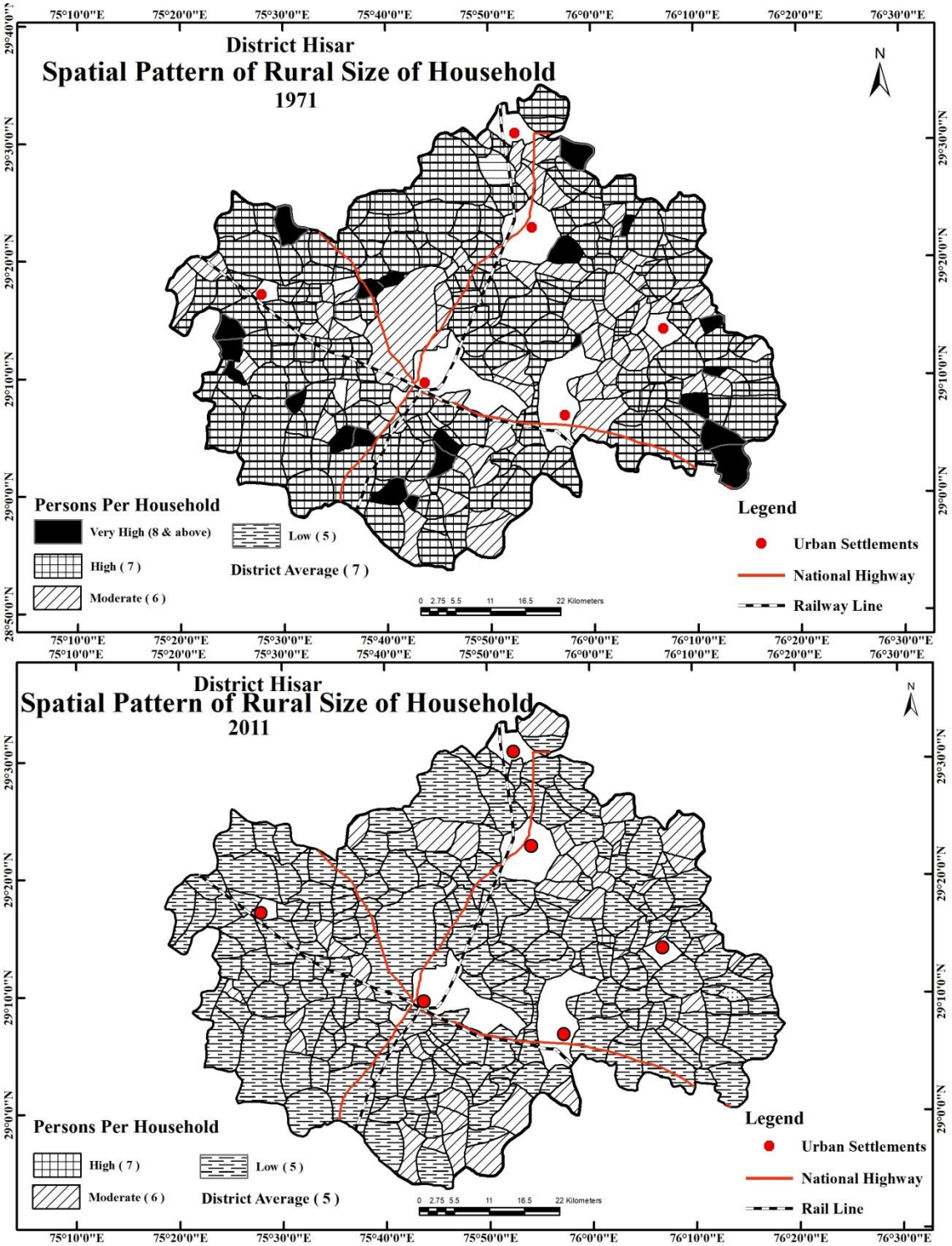

District Hisar
Spatial Pattern of Rural Size of Household
1971
N
Persons Per Household
Very High (8 & above)
High (7)
Moderate (6)
Low (5)
District Average (7)
Legend
Urban Settlements
National Highway
Railway Line
0 2.75 5.5 11 16.5 22 Kilometers
75°10'0"E
75°20'0"E
75°30'0"E
75°40'0"E
75°50'0"E
76°0'0"E
76°10'0"E
76°20'0"E
76°30'0"E
29°40'0"N
29°30'0"N
29°20'0"N
29°10'0"N
29°0'0"N
28°50'0"N
District Hisar
Spatial Pattern of Rural Size of Household
2011
N
Persons Per Household
High (7)
Moderate (6)
Low (5)
District Average (5)
Legend
Urban Settlements
National Highway
Rail Line
0 2.75 5.5 11 16.5 22 Kilometers

Fig. 4.1

Area of 7 persons per Households: A majority of villages i.e., 62.9 percent was observed with 7 persons per household (7 persons per household). Only one village namely Shala Dheri was observed in this category of size of household.

Area of 6 persons per Households: in 1971, 26.95 percent villages in the district were observed with 6 persons per household. The villages of this category is observed in evry part of the district. But in 2011, it declined to 16.35 percent villages out of 263 villages.

Area of 5 persons per Households: in 1971, only 4 villages (1.56 percent) were recorded having 5 persons per household. But in 2011, 82.89 percent villages were included in this category of size of household.

Area of 4 persons per Households: in 2011, only single village namely Khera Rangran was found having 4 persons per household.

4.2 Population Distribution

The United Nations has displayed the population distribution in terms of each individual in a particular place, which is compiled from the Multilingual Demographic Dictionary. The geographical or spatial distribution of a population is studied with reference to the pattern of distribution found in a particular area. The population distribution of an area is delimited by its historical background, natural, demographic and cultural-economic factors. Thompson (1936) observed that taking a closer look at the history of human development, it can be clearly seen that the availability of agricultural land has been an important factor in determining the distribution of population, whereas dry land and mountains the impact has been minimal and has a scattered population pattern. More clearly speaking, it is the size of the population that forms the two major links of human development; determines the nature and pattern, while the distribution of population reflects how humans have used other available natural resources, including land (Singh and Rana, 1977). The influence of natural factors is determined by the lifestyle of the human being of an area (Zachariach and Ambannavar, 1967). According to the increasing level of development of the society, the effectiveness of the physical

factors in distribution decreases and vice versa (Singh, 1985). Thus the distribution pattern of population of an area is governed by geographical factors. Since population distribution is a time-varying process and cause and effect are completely different in time and space (Clarke, 1972). Therefore, the analysis of population distribution is of paramount importance to understand the degree of population concentration of a geographical area or region. Explanation of population distribution with reference to geographical areas makes it feel that small but densely populated areas are found near uninhabited and sparsely populated areas. However, these unstable patterns of population distribution go through altered phases under the influence of several factors.

Notably, giving information about the pattern and distribution of human habitation and habitation is the central subject matter of the study of the geographical distribution of population. The dot method is most commonly used for geographical mapping of population distribution.

4.2.1 Pattern in population Distribution & Concentration (1971 & 2011):

Table 4.2 fig. 4.2 reveals the distribution and concentration pattern of rural population of Hisar District. In 1971, total rural population of Hisar district was 575834 persons. It doubled in 2011 i.e. 1137420 persons. The average distribution and concentration of population was 2291 persons in 1971 which increased to 4325 persons in 2011. Due to reasons like better availability of health services, connectivity to the city by road and rail, proximity to the city and well-organized education infrastructure, the concentration of population has increased at the village level. Educated population is the biggest resource of any place. It was found in the study that access to basic facilities is more in big villages as compared to small villages. The village-wise distribution & concentration of population has been discussed into following categories.

A). **Areas of Very High Population Concentration (above 10000 persons):** in 1971, only one village (Pabra) had the high population concentration. By 2011, 10 villages accounting 3.80 percent of total villages registered this category of population

concentration. Fig. 4.2 reveals that the villages of this category scattered in every parts of the district.

Table 4.2

District Hisar

Distribution of village by Size of Population

Size of Population	No. of Village (%) 1971	No. of Village (%) 2011
Above 10000	1 (0.39)	10 (3.80)
6000 to 10000	4 (1.56)	42 (15.97)
3000 to 6000	56 (21.88)	117 (44.49)
1000 to 3000	158 (61.72)	75 (28.52)
Below 1000	37 (14.45)	19 (7.22)

B). **Areas of High Population Concentration (6000 - 10000 persons):** in 1971, only 4 villages (1.57 percent) recorded in this category. But it was accounted 15.97 percent share of total villages in 2011. It is evident from fig. that majority of villages concentration in north & north-eastern area of the district in 2011.

C). **Areas of Moderate Population Concentration (3000 - 6000 persons):** in 1971, 56 villages (21.96) had moderate population concentration. But, in 2011, about half of villages (44.49 percent) out of total villages recorded in this category. It is evident from fig. that majority of villages located in north & north-eastern region of the district in 1971. In 2011, the villages of this category shifted their location towards north-west, south-west & southern part of the study area.

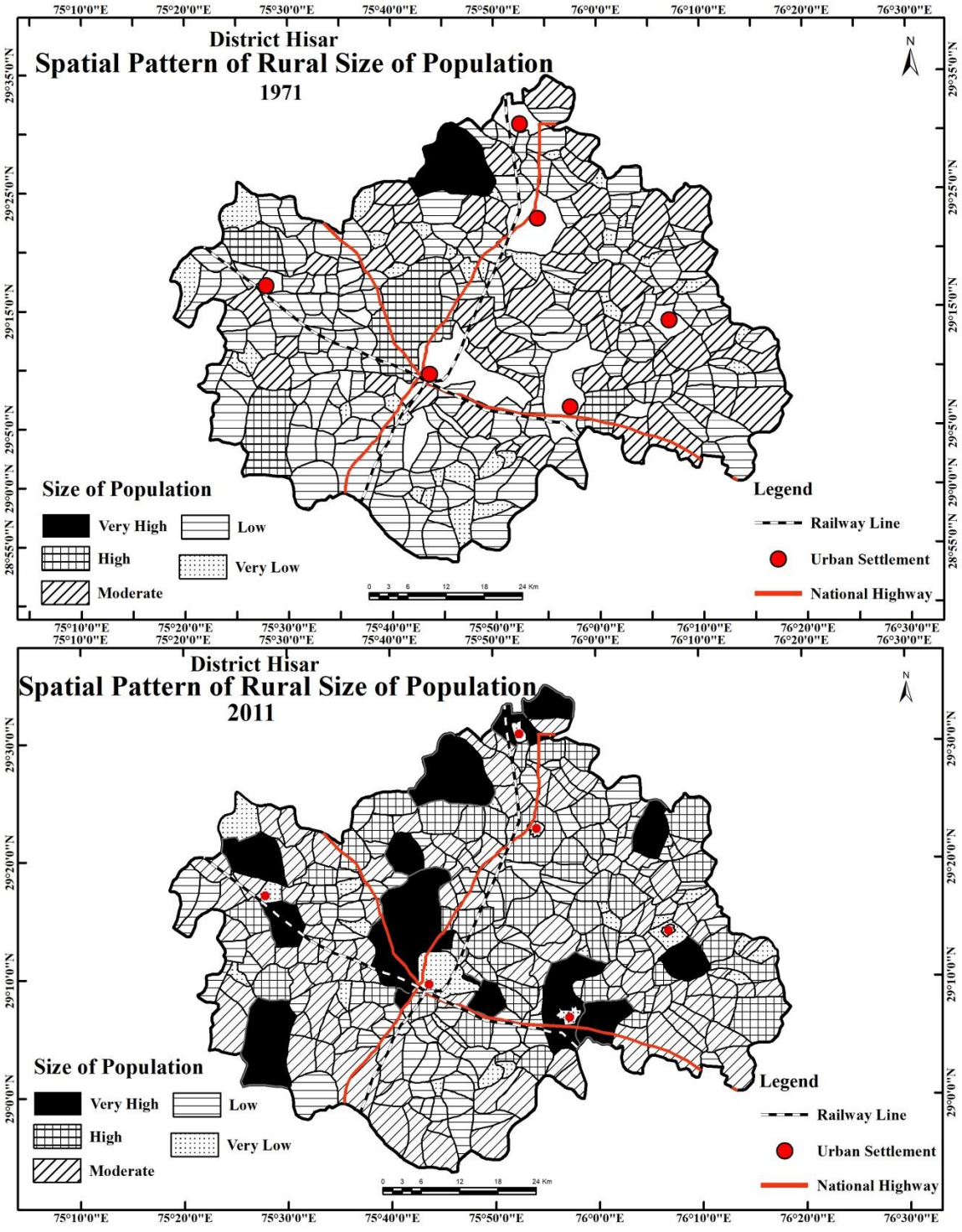

District Hisar
Spatial Pattern of Rural Size of Population
1971
Size of Population
Very High
High
Moderate
Low
Very Low
Legend
Railway Line
Urban Settlement
National Highway
District Hisar
Spatial Pattern of Rural Size of Population
2011
Size of Population
Very High
High
Moderate
Low
Very Low
Legend
Railway Line
Urban Settlement
National Highway

Fig. 4.2

D). **Areas of Low Population Concentration (1000 - 3000 persons):** in 1971, highest share of villages (61.51 percent) recorded with low population concentration. This category has shown declining trend in share of villages in 2011 i.e. 28.52 percent. It is evident from fig. that majority of villages located in north-west & south-western part of the district in 1971.In 2011, the villages of this category located in different pockets of the district i.e. south of Hisar city, between Agroha village and Adampur town etc.

E). **Areas of very low Population Concentration (below 1000 persons):** in 1971, 37 villages accounting 14.51 percent share of total villages were found having very low population concentration. In 2011, the share of villages in this category decreased to 7.22 percent. It is evident from fig. that majority of villages concentrated in north-west& south-western part of the district in 1971. Figure reveals that the villages of this category scattered in every parts of the district

It can be concluded from above discussion that population concentration was observed higher in North, north-east & eastern part of the district as compare to north-west, western, south-west & southern part of the district.

4.2.2 Population Growth

Social scientists including geographers have always been keen in studying population growth. The varying content and methodologies of different disciplines including geography studying population and have made valuable contributions toward the understanding of Spatio-temporal pattern of population (Woods, 1979). The study material of spatial variations of population on earth includes population density, pattern of distribution, natural growth and structural features etc. More specifically, it focuses on the size, distribution and composition of population throughout an area, and notes changes in these aspects over time (Thompson and Lewis, 1965). The changes in size, distribution and composition are influenced by many factors, three of which are of primary importance and are referred to as fertility, mortality and migration (Thomlinson, 1967). Population study examines these changes because they are related to human welfare, and thereby contribute significantly to the formulation of population policies

(Smith and Zopf, 1970). Population analysis provides an insight of the social and economic structure of society. Nonetheless, the knowledge of these factors is essentials for understanding social changes and for formulating and implementing the programs for their upliftment (Thakur and Kumar, 2013). The study of population characteristics plays a vital role in formulating development plans at different administrative levels. The population behavior of any region can be analyzed and mapped with the study of demographic variables (Raj, 2003).

It draws attention to the fact that the world's population did not change from biblical times until about 1650, when it was fairly stable at 0.5 billion. But it reached 1 billion soon by 1800 and since then population started recording spectacular increase mainly due to decline in mortality and the widening gap between the birth rates and death rates and by 1950 it increased to 2.5 billion, of which two third (66 percent) were residing in third world countries. By 1990 this increase reached 5.3 billion and Third World participation increased by three quarters (75 percent). A population of 10 to 12 billion was estimated in 2100, of which 90 percent of the population was expected to be settled in underdeveloped countries (Poleman, 1995). At present more developed region of the world which comprise 17.49 percent of the world population while the less developed region which comprise Africa, Latin America, Asia (except Japan) has 82.50 percent of the total world population (United Nation, 2012) The two most populous countries of the less developed region of the world are China and India. These two countries together clamming about 37 percent of the total population of the world and largely determine the demographic scene of the world. India’s with 17.5 percent of world population share has second most populous country after China (19.5 percent). India covers about 2.42 percent of the world's land area, but within its borders accounts for about 1215 million of the world population (6134 million). Thus, in every 1000 persons in the world, 167 are Indians or in other words every sixth person is an Indian. Based on the pace of population growth of China, it can be predicted that by 2030, India will be the country with the largest human population in the world, in which 17.9 percent of the entire world's population will live (United Nation, 2012). The three indicators (birth rate, death rate and

migration) are the central determinants of the population pattern of a particular place. George (1962) observed that the accelerated population growth in India is mainly the result of natural increase of population during mid of 20th century.

Historical background of Indian demography shows that during the era of the enlightened kings Chandra Gupta and Ashoka i.e. from 300 to 200 B.C., India is said to have enjoyed a prosperous and peaceful times. The average annual growth rate over a long period of 250 years of population was very low. In the period from 1850 to 1881, the rapid growth rate was recorded. The country's 7th census after independence in 2011 is 1947 covering the present boundaries in India. Sharma (2004) observed that India was in the midst of demographic transition throughout the 20th century, where all states in general experienced significant decline in mortality during the last few decades albeit with some regional pattern of inter-state differentials. Rao (1981) has emphasized that special attention should be paid to the individual states and inter-states variations for the purpose of formulating the demographic policies. It is necessary to study the historical, economic, socio-cultural, development pattern and political background of the demography of each state.

4.2.3 Pattern in population Growth Rate (1971 - 2011):

Table 4.3 fig. 4.3 reveals the pattern of rural population growth of Hisar District. During 1971 to 2011, the average growth rate of the study area was 110 percent. Looking at the map, it is clear that the population growth has been more in the villages near the proximity of the city, national highways and railways. As the distance from these factors increased, along with the decrease in access to facilities, the population growth also decreased. The decadal growth of population in the district is 13.5 percent during 2001-2011 and it is 4.5 percent in rural area. The village-wise pattern of population growth has been discussed into following categories;

1). **Areas of High Population Growth rate (above 150 percent):** 20 villages (constituted about 7.81 percent) out of 256 villages experienced high growth rate. Figure

exhibits that a pocket of villages near to Hisar city & along National highway witnessed high population growth.

2). **Areas of moderate Population Growth rate (75 - 150 percent):** 176 villages (constituted about 68.75 percent) out of 256 villages experienced moderate growth rate. Figure shows that the villages of moderate population growth were distributed in all parts of the district.

Table 4.3

District Hisar

Distribution of village by Size of Population Growth

Size of Population Growth	No. of Village (%) 1971 - 2011
High	20 (7.81)
Moderate	176 (68.75)
Low	60 (23.44)
Average	110

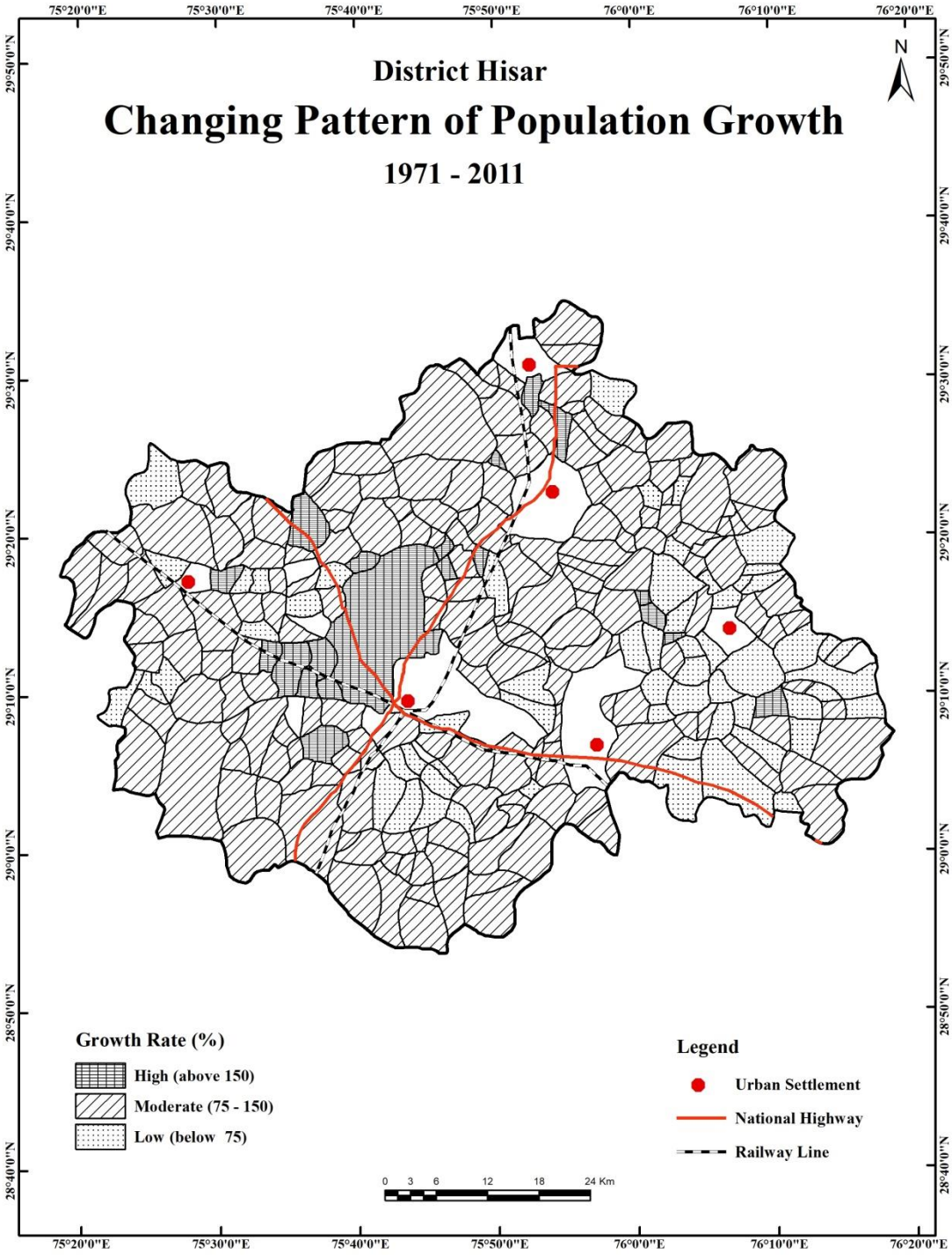

District Hisar
Changing Pattern of Population Growth
1971 - 2011
N
75°20'0"E
75°30'0"E
75°40'0"E
75°50'0"E
76°0'0"E
76°10'0"E
76°20'0"E
29°50'0"N
29°40'0"N
29°30'0"N
29°20'0"N
29°10'0"N
29°0'0"N
28°50'0"N
28°40'0"N
Growth Rate (%)
High (above 150)
Moderate (75 - 150)
Low (below 75)
Legend
Urban Settlement
National Highway
Railway Line
0 3 6 12 18 24 Km

Fig. 4.3

3). **Areas of Low Population Growth rate (below 75 percent):** 60 villages (constituted about 23.44 percent) out of 256 villages experienced low growth rate. Figure exhibits that a pocket of villages in eastern part of the district witnessed high population growth.

4.3 Pattern of Sex Ratio (1971 and 2011):

It is clear on the basis of Census 2011 that Haryana has the lowest level of sex ratio (877 females) in the country. Haryana state is recognized for female feticide in India. During past hundred years, sex ratio of the state varies from 835 to 877, which creates the gender inequality. This low sex ratio of Haryana is debated at state as well as national level. Unfortunately, the sex ratio level of Haryana state in India has been variable when viewed from the historical background. From 1901 to 1971 it (867) remained the same. The 1981 census recorded an increase (870), but after that the level of sex ratio in Haryana declined and reached 861 in 2001. Moreover as per the Census of 2011, if we comparably see district wise sex ratio in Haryana, we will find that the level of sex ratio in 10 districts including Hisar (872) is below the state average (877) level. Therefore, it is imperative to see the present scenario of sex ratio in the rural area of the Hisar district (Table 4.4).

The table shows a slight improvement in the Hisar district's sex ratio from 879 in 1971 to 880 in 2011. It is surprising that the sex ratio in all the districts of Haryana is below the National Average (943) in 2011 Census. For the State as a whole, the sex ratio was 879 in 2011, but Hisar district has recorded sex ratio varying from 851 in 2001 and 872 in 2011. A positive relationship has been found between education and sex ratio. But more importance to boys than girls, dowry system, and low level of education, more gender inequality, illiteracy and lack of awareness of women, concept of male dominated society and social security have been the main obstacles in the decrease in sex ratio. In Jat caste-dominated villages, a significant decrease in sex ratio has been registered. The pattern of sex ratio in 1971 & 2011 can be divided into following categories;

Area of Positive sex ratio (above 1000): The number of villages having excess of females over males had declined from 6 in 1971 to 2 in 2011. In 1971, these six villages

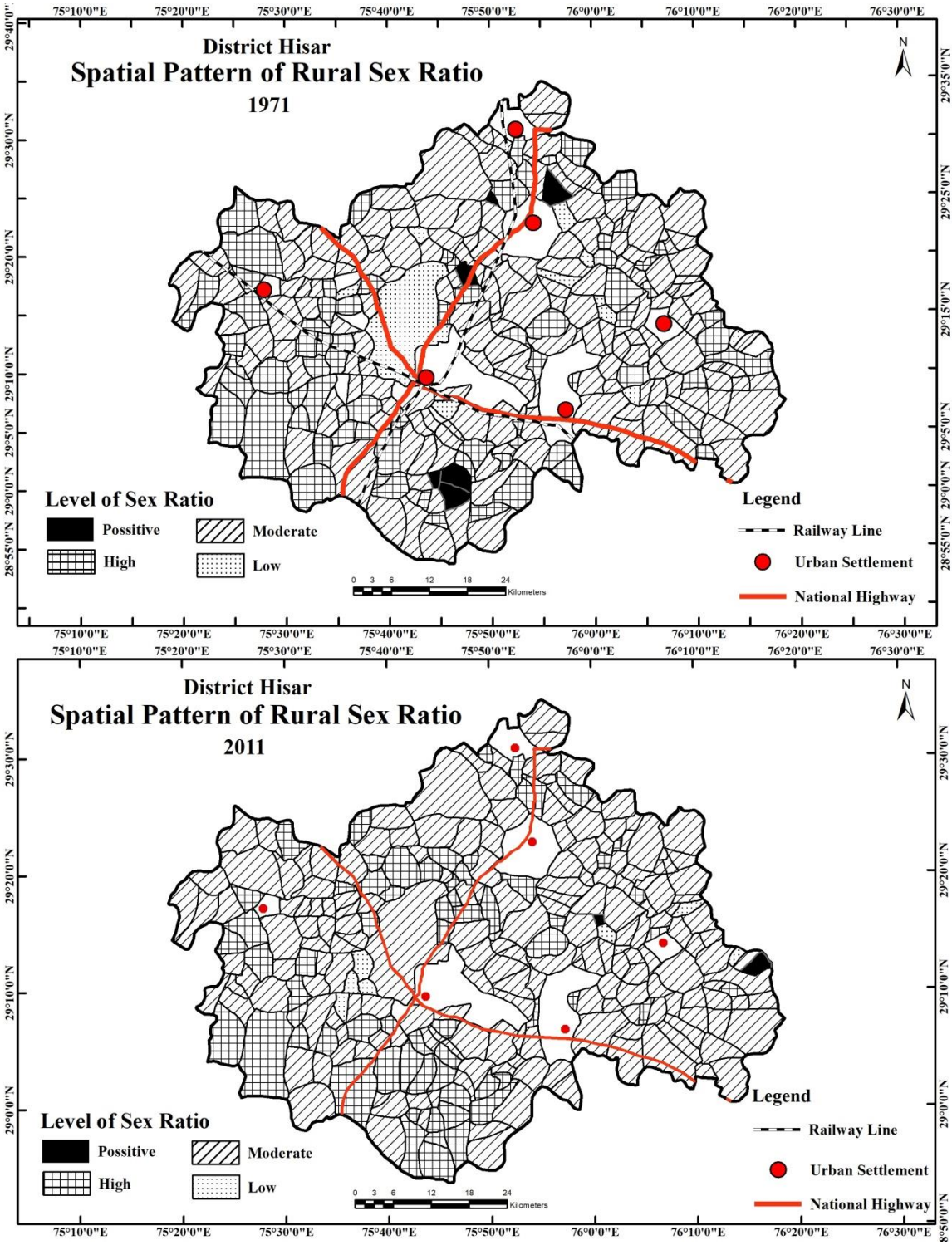

District Hisar
Spatial Pattern of Rural Sex Ratio
1971
N
Level of Sex Ratio
Possitive
Moderate
High
Low
Legend
Railway Line
Urban Settlement
National Highway
0 3 6 12 18 24
Kilometers
75°10'0"E
75°20'0"E
75°30'0"E
75°40'0"E
75°50'0"E
76°0'0"E
76°10'0"E
76°20'0"E
76°30'0"E
29°40'0"N
29°35'0"N
29°30'0"N
29°25'0"N
29°20'0"N
29°15'0"N
29°10'0"N
29°5'0"N
29°0'0"N
28°55'0"N
District Hisar
Spatial Pattern of Rural Sex Ratio
2011
N
Level of Sex Ratio
Possitive
Moderate
High
Low
Legend
Railway Line
Urban Settlement
National Highway
0 3 6 12 18 24
Kilometers
75°10'0"E
75°20'0"E
75°30'0"E
75°40'0"E
75°50'0"E
76°0'0"E
76°10'0"E
76°20'0"E
76°30'0"E
29°30'0"N
29°20'0"N
29°10'0"N
29°0'0"N
28°50'0"N

Fig. 4.4

were Badon Pati (1027), Bharri (1027), Badon Brahman (1026), Kharkhara (1014), Badon Rangran (1005) and Isharheri (1000).

But in 2011, two new villages namely Ghuskani (1025) and Tharwa (1000) were added in this category of sex ratio replacing the six villages of 1971.

Table 4.4

District Hisar

Distribution of village by Sex Ratio

Sex Ratio	1971 Number of Villages (%)	2011 Number of Villages (%)
Above 1000	6 (2.34)	2 (0.76)
900 – 1000	73 (28.52)	67 (25.48)
800 – 900	165 (64.45)	186 (70.72)
Below 800	12 (4.69)	8 (3.04)
Average	**879**	**880**

Area of High sex ratio (900 – 999): The share of villages having high sex ratio also declined from 28.52 percent in 1971 to 25.48 percent in 2011. Figure reveals that the concentration of villages was found in west and south-western area of the district in 1971 and 2011.

Area of moderate sex ratio (800 – 900): more than two-third of villages in both 1971 and 2011 were observed in this category. The share of villages with medium sex ratio was 64.45 percent in 1971 which reached 70.72 percent in 2011. These were found in every direction of the district.

Area of low sex ratio (below 800): The number of villages having sex ratio below 800 declined from 12 in 1971 to 8 in 2011. The lowest sex ratio was observed in village Shala Dheri (514) in 1971 and in village Jamni Khera (720) in 2011.

It can be concluded from figure that as we move from east to western part of the district, the sex ratio had shown increasing trend from 1971 to 2011.

4.4 Literacy:

The competitiveness of a country is estimated by its human talent. Women account for half of the estimated worldwide talent in skills capacity and competencies, education level, workforce and productivity (Hausmann et al., 2012). Literacy is the main indicator of socio-economic and cultural development in a particular place. Literacy is both a means and an end in the path of development (Azim 2005). There is much to praise in India's effort to tackle high female illiteracy. The national average of female literacy has increased steadily from 7.9 per cent in 1951 to 64.64 per cent in 2011. The Gap in literacy attainment between men and women is slowly narrowing from 22.01 percentage point difference in 1981 to 20.6 per cent points in 1991 (Modugall, 2000). As for provision of budget, Economic Survey shows that if considering both the revenue as well as the capital account, the total budget estimates for education for 2010-2011 of the education departments (State as well as the Centre) works out to Rs. 229425.84 cores, which is 10.13 per cent of the total budget estimates (Economic Survey, 2012-13).

The development level of a society and the status of women can be estimated on the basis of gender gap and inequality in literacy. The existing disparity in male-female literacy in an area indicates the status of exploited women. Women's education has a significant impact on the sustainable development of the society (Azim, 2005).

In the modern context, it is by the position of women in society that we judge the progress of a community toward socio-economic development. But a review of female literacy in India reveals appalling apathy toward female education. In 1901, while 9.83 per cent of the male were literate the corresponding proportion for the female was as negligible as 0.69 per cent. In recent decades however, the impediments against female literacy have been gradually disappearing, though much remains to be desired. With female literacy increased faster than that among the males. The male-female differentials have been consistently narrowing down (Gosal, 1979). As per 2011 Census, the male

literacy was 80.89 percent and female literacy was 64.64 percent and registered 10.97 percentage point increase in female literacy as compare to male literacy (5.63 per cent) respectively.

Bhardwaj (1999) concluded that as in many parts of the country literacy in Himachal Pradesh is also marked by a notable disparity in male-female rates. The reasons for this disparity are rooted largely in the socio-economic factors. Until recently, there was a strong prejudice against female employment and out of home female mobility. Female education was considered a mattered of little functional and socio value. Thakur (2009) observed that gender gap in literacy has declined during 1971-2001 although the impact of the process of social transformation has not been equal on the two sexes. The overall and female literacy rate has also increased significantly and resulting in narrowing down in the literacy gap between male and female.

4.4.1 Spatial Pattern of Level in Rural Literacy:

In 1971, the rural crude literacy rate of Hisar district was 17.56 percent. It was significantly increased in 2011 i.e., 59.94 percent. But, the literacy rate in 2011 was 68.90 percent and for males and female 79.71 and 56.64 respectively with significant gender disparity i.e., 23.07 percentage point.

Fig. 4.5 reveals that there are significant spatial variations in literacy level and gender disparity at village level. Proximity to the city and national highways, influence of more than one city, economic prosperity and strong educational infrastructure, etc., have a special contribution in raising the education level in the study area. Gender discrimination is mainly seen in education in caste-dominated villages. Along with this, due to the male-dominated society, more importance to boys than girls, lack of educational infrastructure at village level, lack of awareness among women, early age marriages and security reason for females, distance from the city and social security

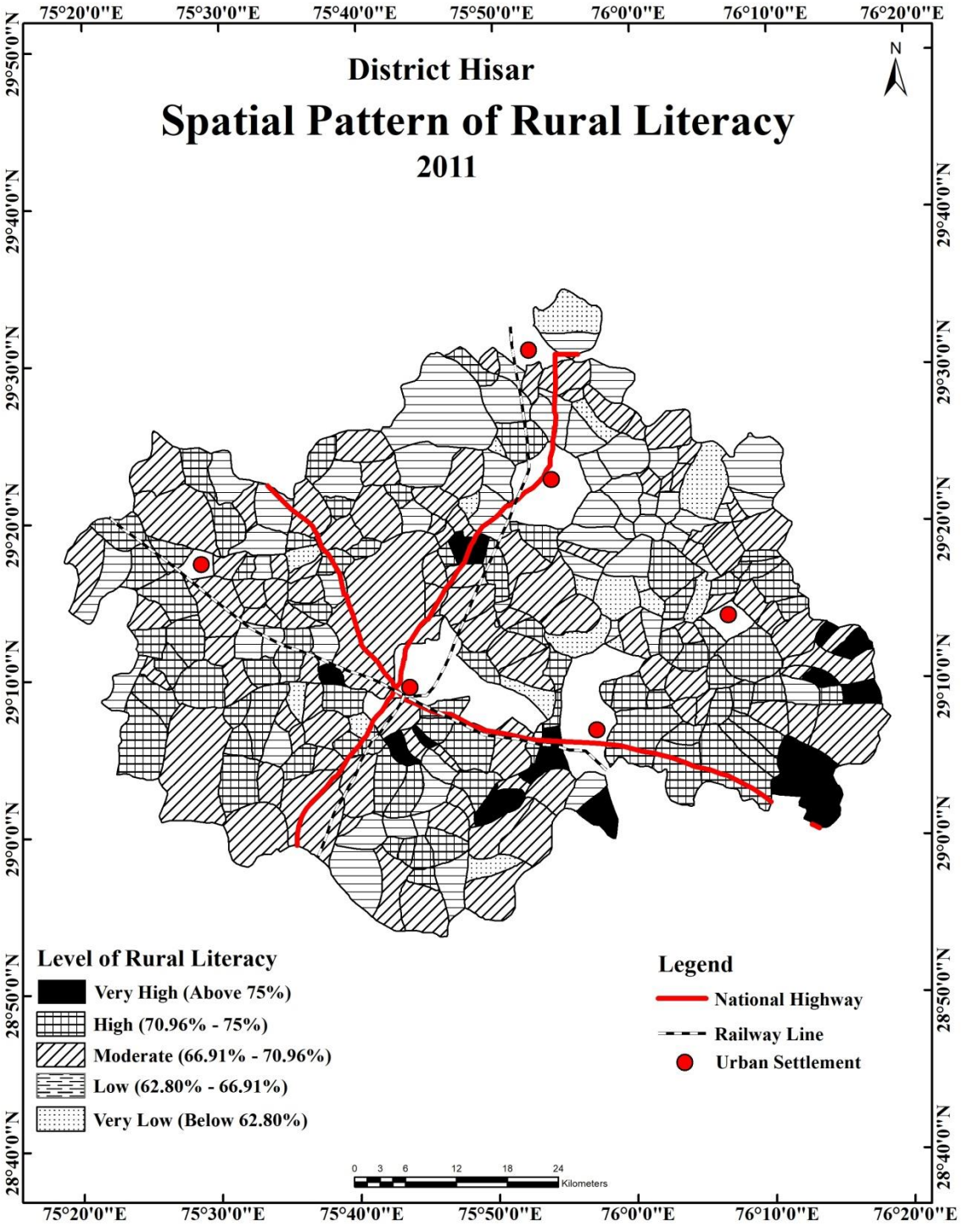

District Hisar
Spatial Pattern of Rural Literacy
2011
N
75°20'0"E
75°30'0"E
75°40'0"E
75°50'0"E
76°0'0"E
76°10'0"E
76°20'0"E
29°50'0"N
29°40'0"N
29°30'0"N
29°20'0"N
29°10'0"N
29°0'0"N
28°50'0"N
28°40'0"N
Level of Rural Literacy
Very High (Above 75%)
High (70.96% - 75%)
Moderate (66.91% - 70.96%)
Low (62.80% - 66.91%)
Very Low (Below 62.80%)
Legend
National Highway
Railway Line
Urban Settlement
0 3 6 12 18 24
Kilometers

Fig. 4.5

factors like gender inequality in education. It can be categorized into following categories;

Very High Level of Literacy (above 75 percent): About 6.47 percent villages out of 263 villages accounted for very high literacy rate. The highest literacy rate (81.94 percent) was recorded in Ghuskani village followed by Gunzar (77.52 percent), Hajampur (77.22 percent), etc. The villages of this category distributed in the eastern part of the district, along south of NH 9 from Hansi to Hisar city & NH 52 from Hisar city to Barwala town and near to Hisar city.

High Level of Literacy (70.96 to 75 percent): About one-fourth villages (26.24 percent) observed in this category of literacy rate. There was found some pockets of high literacy villages including a pocket of eastern part, southern part and south western part of the district. However, these villages were distributed in each and every part of the Hisar district.

Moderate Level of Literacy (66.91 to 70.96 percent): Majority of villages (38.78 percent) had moderate level of literacy rate which was very close to district average literacy rate i.e. 68.89 percent. Majority of villages of this category was found in the western, central, southern & eastern region of the district.

Low Level of Literacy (62.80 to 66.91percent): About one-fifth villages (20.91 percent) had a literacy rate lower than average level of literacy. The villages in this category are mainly concentrated in the northern area of the district.

Very Low Level of Literacy (below 62.80 percent): About 7.60 percent villages recorded below 62.80 percent literacy rate. The village "Tharwa" found at the bottom of literacy ladder i.e. 53.19 percent. Most of the villages were located on farthest location from city or town center, National Highway.

Table – 4.5

District Hisar

Level of Rural Literacy and Gender Disparity

2011

Level of Literacy (%)	Percentage of Villages with No. in Bracket	Population (%)	Level of Disparity	Disparity Index with No. of Villages in Bracket
Very High (75% & Above)	6.47 (17)	3.36	**Very High** (Above 0.27)	0 (0)
			High (0.24 to 0.27)	2.08 (1)
			Moderate (0.21 to 0.24)	5.26 (7)
			Low (0.16 to 0.21)	13.56 (8)
			Very Low (Below 0.16)	11.11 (1)
High (70.96% - 75%)	26.24 (69)	23.35	**Very High** (Above 0.27)	50 (7)
			High (0.24 to 0.27)	33.33 (16)
			Moderate (0.21 to 0.24)	26.32 (35)
			Low (0.16 to 0.21)	16.95 (10)
			Very Low (Below 0.16)	11.11 (1)
Moderate (66.91% - 70.96%)	38.78 (102)	43.00	**Very High** (Above 0.27)	28.57 (4)
			High (0.24 to 0.27)	45.83 (22)
			Moderate (0.21 to 0.24)	39.09 (52)
			Low (0.16 to 0.21)	37.28 (22)
			Very Low (Below 0.16)	22.22 (2)
Low (62.80% - 66.91%)	20.91 (55)	23.79	**Very High** (Above 0.27)	21.43 (3)
			High (0.24 to 0.27)	16.67 (8)
			Moderate (0.21 to 0.24)	23.30 (31)
			Low (0.16 to 0.21)	20.33 (12)
			Very Low (Below 0.16)	11.11 (1)

Very Low (62.80 & Below)	7.60 (20)	6.5	**Very High** (Above 0.27)	0 (0)
			High (0.24 to 0.27)	12.5 (6)
			Moderate (0.21 to 0.24)	3.76 (5)
			Low (0.16 to 0.21)	8.47 (5)
			Very Low (Below 0.16)	44.45 (4)
Total	100 (263)	100		

4.4.2 Spatial Pattern of Gender Disparity in Rural Literacy:

Table also exhibits the village-wise gender disparity in rural literacy of Hisar district in 2011. The average gender disparity index was 0.22 in 2011. It is evident from figure 4.6 that there are wide spatial variations in gender disparity at village level. The south-western & north-eastern part of the district had shown moderate to very high level of gender disparity in literacy. The gender disparity seemed increasing from low to very high as we farthest away from Hisar city to in all directions. On the basis of table 1 and figure 3, gender disparity can be categorized in to following categories;

Very Low Gender Disparity (below 0.16): only 3.42 percent villages were observed in this category of gender disparity. It is evident from table that only two villages out of 86 villages of very high to high level of literacy was found place in the category of very low gender disparity. Interestingly, the village "Ghuskani" had highest literacy rate with lowest gender disparity (0.02) in the Hisar district. The village "Luhari Ragho" recorded in the category of high literacy rate but gender disparity index (0.16) is in this category.

Low Gender Disparity (0.16 – 0.21): about 22.43 percent villages included in this category of gender disparity. Among 32 .71 percent villages of very high and high level of literacy, only 6.46 villages registered with low gender disparity. One – third villages of this category were belong to moderate level of literacy and one – fifth villages with low level of literacy.

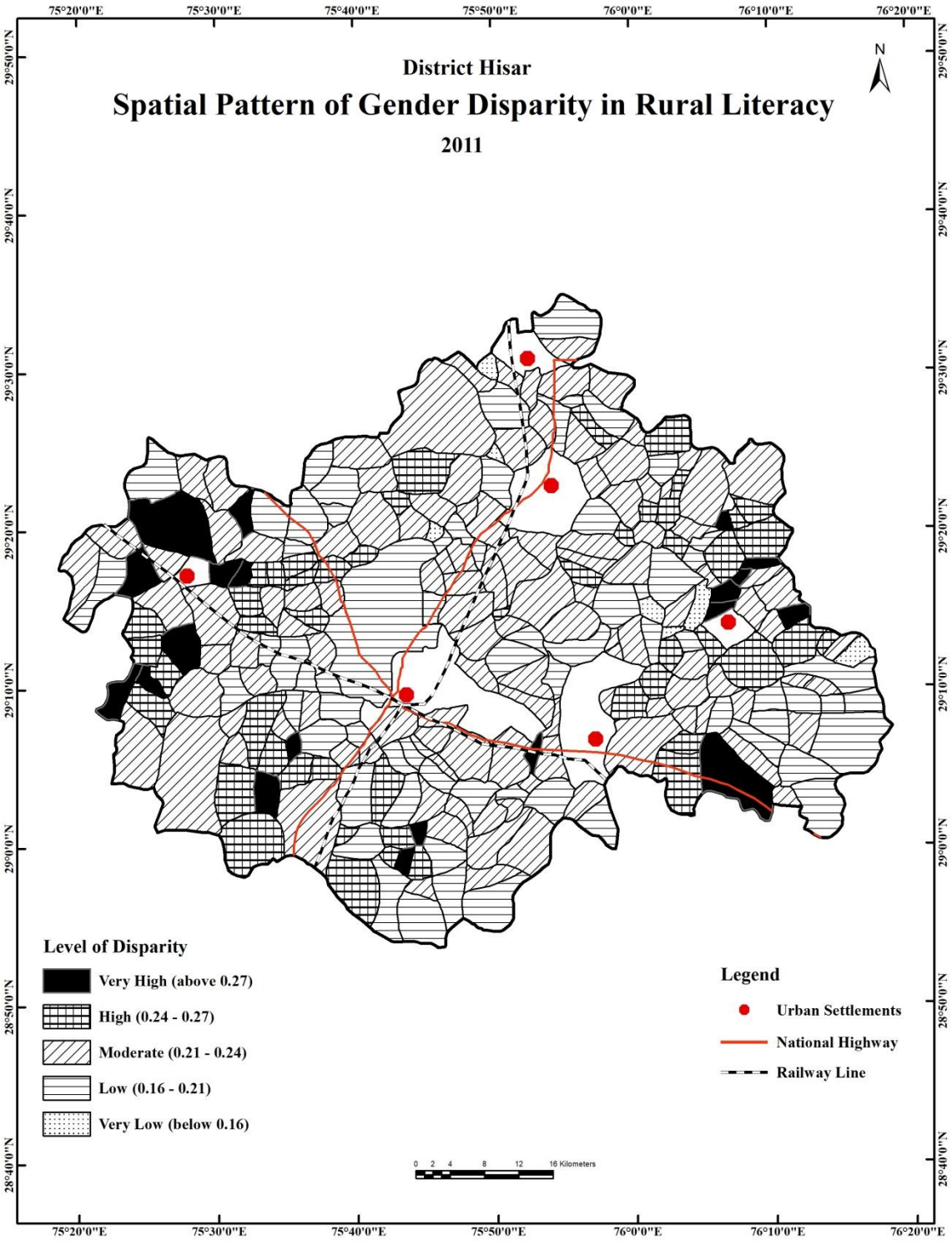

District Hisar
Spatial Pattern of Gender Disparity in Rural Literacy
2011
N
75°20'0"E
75°30'0"E
75°40'0"E
75°50'0"E
76°0'0"E
76°10'0"E
76°20'0"E
29°50'0"N
29°40'0"N
29°30'0"N
29°20'0"N
29°10'0"N
29°0'0"N
28°50'0"N
28°40'0"N
Level of Disparity
Very High (above 0.27)
High (0.24 - 0.27)
Moderate (0.21 - 0.24)
Low (0.16 - 0.21)
Very Low (below 0.16)
Legend
Urban Settlements
National Highway
Railway Line
0 2 4 8 12 16 Kilometers

Fig. 4.6

Moderate Gender Disparity (0.21 – 0.24): More than half of villages (50.57 percent) noticed with moderate level of gender disparity. A majority villages of this category belonged to moderate level of literacy (38.35 percent) followed by 27 percent in high, 23.30 percent in low, 5.26 percent in very high and 3.76 percent in very low level of literacy.

High Gender Disparity (0.24 – 0.27): About 18.25 percent villages inserted in the category of high gender disparity. About 47.91 percent villages having high gender disparity accounted for moderate level of literacy followed by high level of literacy (33.33 percent), low level of literacy (18.75 percent), very low level of literacy (12.50 percent).

Very High Gender Disparity (above 0.27): only 5.32 percent villages showed very high gender disparity in which half of villages belonged to high level of literacy followed by 28.57 percent in moderate level of literacy, 21.43 percent villages in low level of literacy. The village "Mahalsara" recorded highest gender disparity index (3.83) and high level of literacy (71.75 percent).

4.5 Work Participation

The various sources for classification of workers are census data and the Central Statistical Organization. However, "A rigorous and more meaningful definition was adopted in Census 1971. A worker is the participation in economic production from the work done by a person mentally and physically, according to the 1971 census. Incompletely engaged men, women or students of any institution who contribute to the economic work of the household should not be accepted in the context of a worker (Datt and Sundaram, 1986).

4.5.1 Work participation rate (1971 and 2011):

Table reveals that 28.04 percent of the district's population was at work at the time of 1971 census. The participation rate among male and female was 48.56 and 4.53 percent respectively. In 2011, it increased to 31.64 percent at district level. The male and female

work participation rate was observed 45.39 and 15.95 percent respectively with significant gender disparity. The work participant rate for females showed about 11.42 increases. Opportunities in government jobs and business activities (small scale i.e. poultry farming, dairy farming etc.) are the major causes for the increase in other workers category. The low work participation among females may be attributed to low sex ratio, biased attitude towards women in outside home workplace and female house activities are not included in paid category. Due to improvement in irrigation system, employment opportunities in agriculture business, political reasons and increase in literacy are the main reasons for increase in work rate especially in the villages of Block Adampur. At the same time, the proximity of the city and roadways in the district and the government's efforts for small scale industry seem to have a clear effect in improving the work rate.

The Work Participation Rate (WPR) of the district is 39.7 percent; the rural Work Participation Rate is 42.6 percent as per Census 2011. However, there are significant spatial variation in work participation rate in 1971 and 2011as discussed in following categories;

Area of High work participation rate (above 35 percent): in 1971, only 21 villages (8.20 percent) were recorded in this category while in 2011, it increased to 79 villages. Ghuskani village observed with highest work participation rate i.e. 62.96 percent.

Table 4.6

District Hisar

Distribution of village by Work Participation

Work Participation Rate	No. of Villages (%) 1971	No. of Villages (%) 2011
Above 35	21 (8.20)	79 (30.04)
25 – 35	191 (74.61)	154 (58.56)
Below 25	44 (17.19)	30 (11.40)
Total	256	263

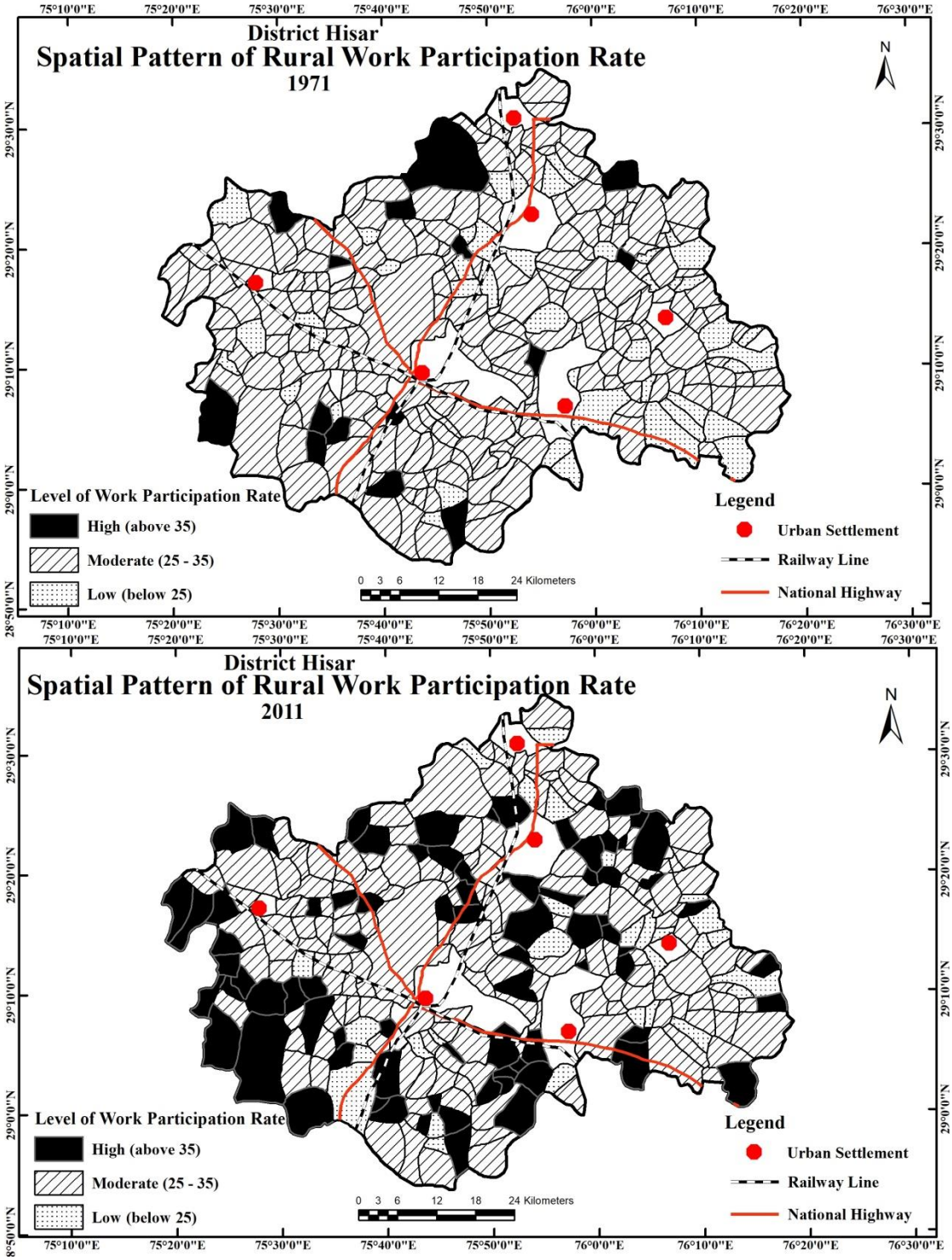

District Hisar
Spatial Pattern of Rural Work Participation Rate
1971
N
Level of Work Participation Rate
High (above 35)
Moderate (25 - 35)
Low (below 25)
0 3 6 12 18 24 Kilometers
Legend
Urban Settlement
Railway Line
National Highway
District Hisar
Spatial Pattern of Rural Work Participation Rate
2011
N
Level of Work Participation Rate
High (above 35)
Moderate (25 - 35)
Low (below 25)
0 3 6 12 18 24 Kilometers
Legend
Urban Settlement
Railway Line
National Highway

Fig. 4.7

Area of moderate work participation rate (25 - 35 percent): about three-fourth (74.61 percent) villages were observed moderate work participation rate. In 2011, 154 villages were observed in the Moderate category.

Area of low work participation rate (below 25 percent): in 1971, 44 villages were observed in low work participation rate. In 2011, it decreased to 30 villages in this category. In 2011, the lowest work participation rate recorded in village Gianpura (2.26).

It is evident from above discussion that the share of villages in work participation rate had increased from low to high work participation rate. The fig. reveals that as we move from east to western part of the district, the work participation rate had shown increasing trend from 1971 to 2011.

4.5.2 Composition of worker (1971 and 2011):

Table and figure reveal that in 1971, 65.79 percent worker was recorded as cultivators followed by agricultural labour (17.22 percent) and others (8.46 percent). In 2011, cultivators declined to 54.18 percent while agricultural and others workers increased to 20.78 and 25.04 percent respectively. it is evident that district's composition of worker had undergone a significant change from 1971 to 2011. The most significant feature of composition labor was that in 96.09 percent of the villages in the district, there was an increase in the proportion of other workers rather than the total number of workers.

4.6 Agricultural Infrastructure:

Agriculture occupies a central place in India's economy, with three areas under it: i) promoting inclusive development, ii) enhancing rural incomes and iii) sustaining food security. In this direction, attention has been paid to increase crop production on the basis of available techniques, as well as the potential for this improvement is also immense. Because under the traditional methods of agriculture, the production on a large area of India is less than the production obtained from technology. In the 21st century, agriculture contributes to fundamental investment in sustainable development and ending

the vicious cycle of poverty in a developing country like India. The contribution of agriculture is in the field of economic activities, providing livelihood and promoting environmental services (World Development Report, 2008). The facilities like irrigation and public water, transport use, storage management, processing activities, power generation, education, agricultural research, grading, credit and finance etc. constitute the major components of agriculture infrastructural facilities. The presence of these infrastructure facilities will definitely help promote agricultural development and therefore account for regional productivity differentials (Warton, 1967).

4.6.1 Spatial Pattern of Land use (1971 and 2011):

Table 4.7 and Figures show the changing patterns of land use over the mid-term 1971 and 2011, explaining the changes in various mechanisms during this time period. Higher the ratio of net sown area to the total geographical area of a place, higher will be the agricultural production. It is evident that the proportion of net sown area for the district was 88.88 percent in 1971 and 90.27 percent in 2011 of the total geographical area (374283 ha). It had slightly increased i.e., 1.40 percent during the periods between 1971 and 2011. The land use under forest and cultivable waste was also showed a few increases i.e., 0.30 and 0.32 percent respectively. The land use category under area not available for cultivation was markedly decline by 2.02 percent during 1971 and 2011.

Table 4.7

District Hisar

Changing Land Use Pattern

Land Use	1971 (%)	2011 (%)	Change in Land use (%)
Forest	0.02	0.32	0.30
Area not available for agri.	10.12	8.10	- 2.02
Cultivable waste	0.98	1.30	0.32
Net-Sown-A	88.88	90.27	1.39

These results indicate that the district / region have exhibited the agricultural stagnation in terms of spatial expansion. Figure also reveals that some villages of southern and northern part of the district had shown higher proportion of net sown area while overwhelmingly villages were approached towards average net sown area (90.27 percent) during the periods.

4.7 Net Sown Area:

The land use pattern is an important indicator in showing the developmental level of agriculture. The NSA indicates the relative condition of the spatial spread of the cropland which is basically limited by the ecological factors (Bhagabati, 1993).

Agriculture activities have been central in deciding the livelihood of the villagers in Hisar district. NSA is a major indicator to show the developmental level of agriculture in the district. NSA shows the net sown area in a particular area in a year. Improvement in irrigation system, technological changes in agricultural system, technology and mechanization, government policy like KCC, crop insurance and credit facilities, population pressure and increasing demand of cash crops in cities etc. factors influenced the pattern of net sown area. Net area sown in the district is 90.11 percent of the total area. That is why; NSA at village level has been discussed in detail as under;

Area of High Proportion of net sown area (above 95 percent): The number of villages having high proportion of net area sown area had increased from 10 in 1971 to 13 in 2011. During the periods, this category had shown an increase in net sown area almost double (8861 ha in 1971 and 17026 ha in 2011). Kharar village in the district was the leading village in this category in 1971. But in 2011, this position was replaced by village Pabra.

Area of moderate Proportion of net sown area (86 to95 percent): about nine-tenth of villages in both 1971 and 2011 were observed in this category. The number of villages having moderate proportion of net sown area decreased from 233 villages in 1971 to 231

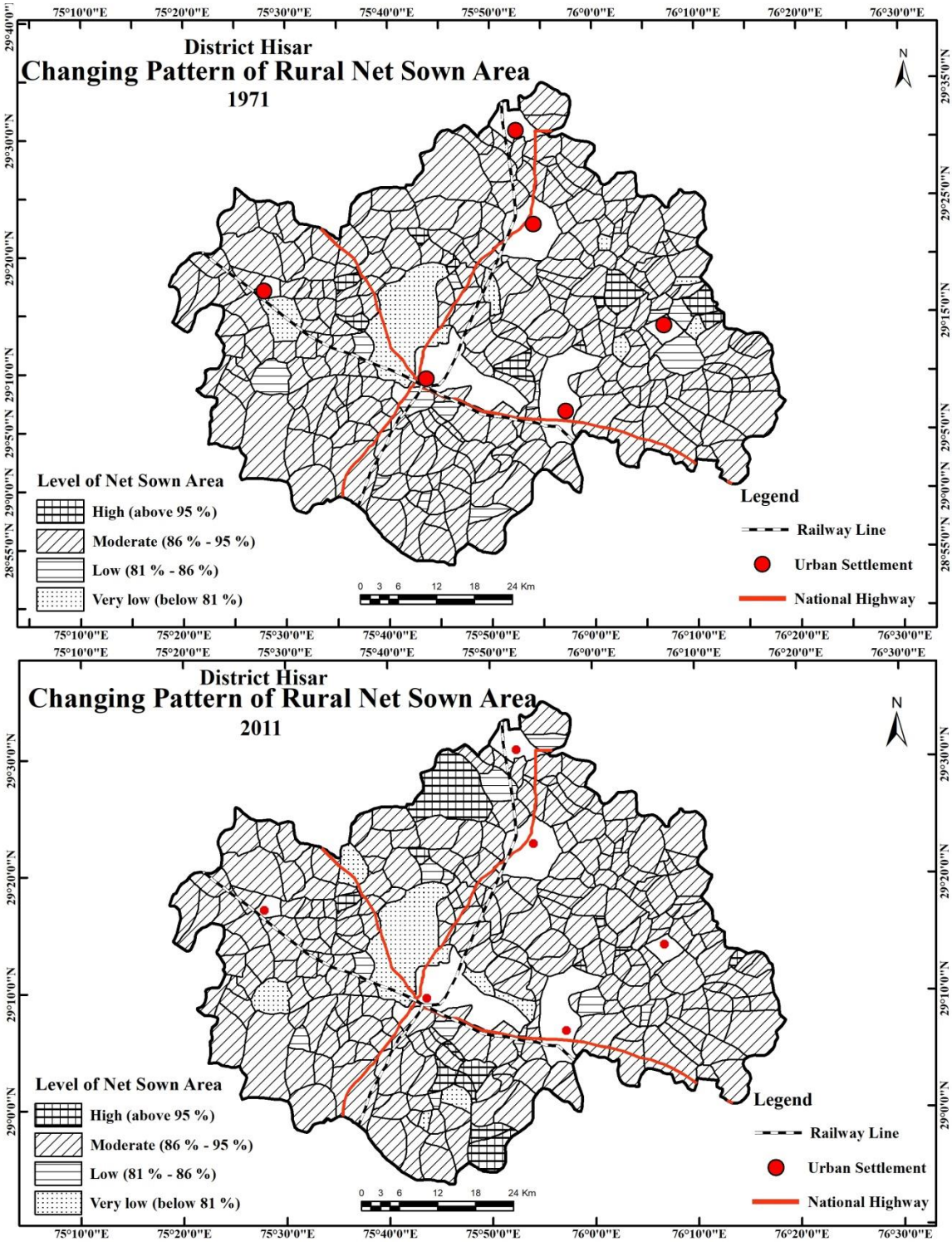

District Hisar
Changing Pattern of Rural Net Sown Area
1971
N
Level of Net Sown Area
High (above 95 %)
Moderate (86 % - 95 %)
Low (81 % - 86 %)
Very low (below 81 %)
0 3 6 12 18 24 Km
Legend
Railway Line
Urban Settlement
National Highway
District Hisar
Changing Pattern of Rural Net Sown Area
2011
N
Level of Net Sown Area
High (above 95 %)
Moderate (86 % - 95 %)
Low (81 % - 86 %)
Very low (below 81 %)
0 3 6 12 18 24 Km
Legend
Railway Line
Urban Settlement
National Highway

Fig. 4.9

Table 4.8 District Hisar Distribution of village by Proportion of Net Sown Area		
Net Sown Area	**No. of Villages (%) 2011**	**No. of Villages (%) 1971**
Very High	0	0
High	26 (9.89)	10 (3.80)
Moderate	231 (87.83)	233 (88.59)
Low	12 (4.56)	13 (4.94)
Very Low	7 (2.66)	7 (2.66)
Total	263	263

Villages in 2011.During the periods, this category had shown a decrease in net sown area about 6073 ha. These were found in every part of the district.

Area of low Proportion of net sown area (81 to 85 percent): The number of villages having proportion of net sown area from 13 in 1971 to 12 in 2011. During the periods, this category had shown a decrease in net sown area about 6082 ha.

Area of Very low Proportion of net sown area (below 81 percent): The number of villages having Proportion of net sown area had remained equal from 7 in 1971 to 7 in 2011. During the periods, this category had shown an increase in net sown area i.e. 7805 ha. The lowest proportion of net sown area was registered in the village Badon Rangran i.e. 40.94 percent of respective geographical area.

4.8 Spatial Pattern of Proportion of Irrigation area (1971 and 2011):

The maximum share of the rural population is dependent on agriculture. Increasing agricultural production by strengthening the irrigation system has always been the central theme of the government. The area under irrigation is a central indicator in determining the level of infrastructure development in rural areas. Various sources of irrigation in

agricultural activities are canals, ponds, tube wells and wells. Table and fig. show that the proportion of net irrigated area to net shown area increased by 31.35 percent from 54.33 percent in 1971 to 85.68 percent in 2011. During the periods, the irrigation map of the district had changed drastically. The pattern of irrigation area has changed due to the construction of new canals, construction of paved drains in the fields, government subsidy on mechanized tube well, electric tube well and fountain irrigation etc. But irrigation development has decreased in villages far away from Sutlej and Yamuna rivers. It is evident from fig. that in 1971, the villages of eastern part of the district showed very high proportion of irrigated area, but it diffused in every part of the district except west & southern margin in 2011. Out of this 77.2 percent was irrigated through canals and remaining 22.8 lakh hectares was irrigated through tube-wells and pumping sets in the district.

Table 4.9

District Hisar

Distribution of village by Irrigated Area

Level of irrigation	No. of Villages (%) 2011	No. of Villages (%) 1971
Very High (above 80)	200 (76.05)	63 (23.95)
High (60 to 80)	45 (17.11)	65 (24.71)
Moderate (40 to 60)	11 (4.18)	55 (20.91)
Low (20 to 40)	5 (1.90)	43 (16.35)
Very Low (below 20)	2 (0.76)	37 (14.07)
Total	263	263
Average	85.68	54.33

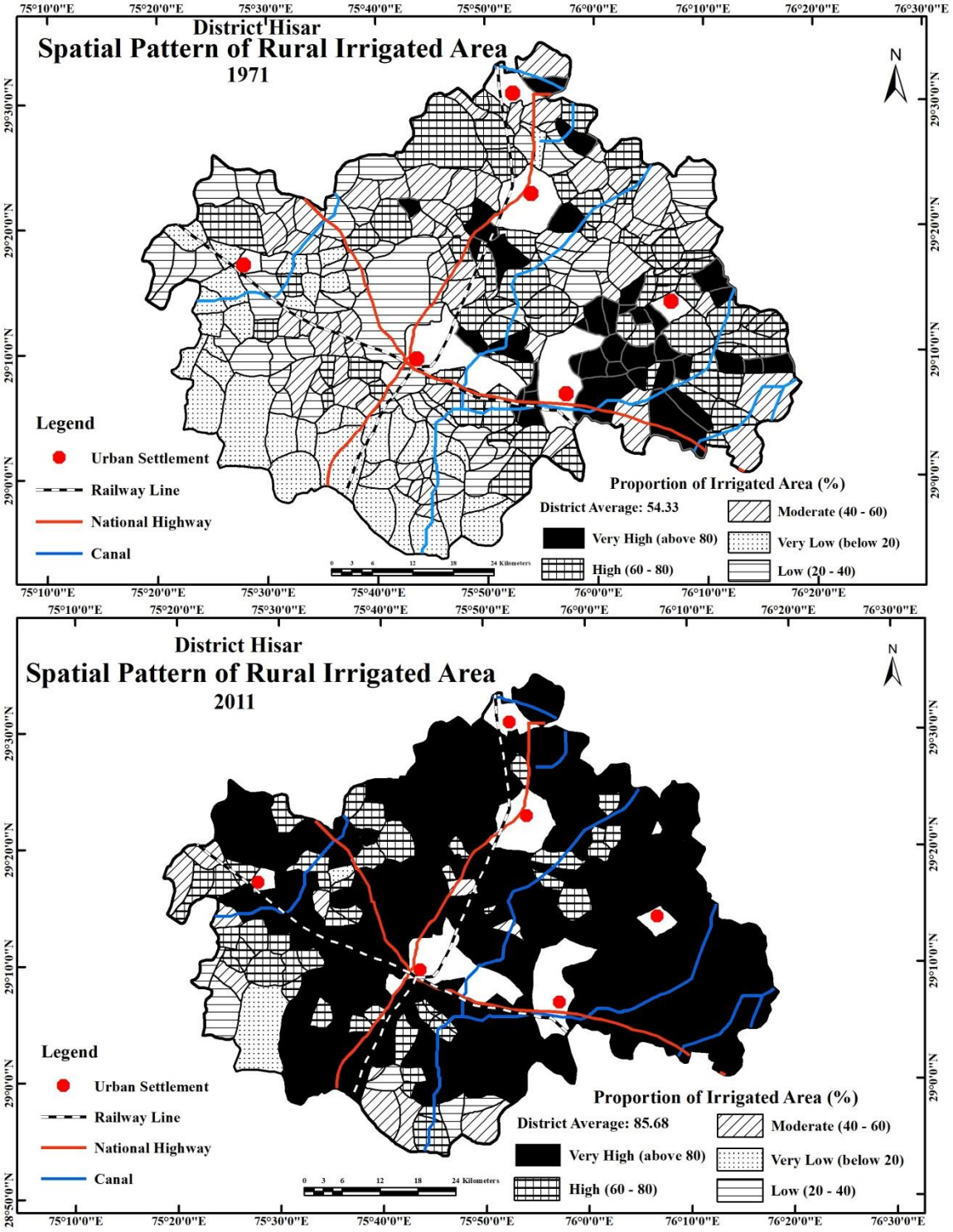

District Hisar
Spatial Pattern of Rural Irrigated Area
1971
N
Legend
Urban Settlement
Railway Line
National Highway
Canal
Proportion of Irrigated Area (%)
District Average: 54.33
Very High (above 80)
High (60 - 80)
Moderate (40 - 60)
Very Low (below 20)
Low (20 - 40)
0 3 6 12 18 24 Kilometers
75°10'0"E
75°20'0"E
75°30'0"E
75°40'0"E
75°50'0"E
76°0'0"E
76°10'0"E
76°20'0"E
76°30'0"E
29°30'0"N
29°20'0"N
29°10'0"N
29°0'0"N
District Hisar
Spatial Pattern of Rural Irrigated Area
2011
N
Legend
Urban Settlement
Railway Line
National Highway
Canal
Proportion of Irrigated Area (%)
District Average: 85.68
Very High (above 80)
High (60 - 80)
Moderate (40 - 60)
Very Low (below 20)
Low (20 - 40)
0 3 6 12 18 24 Kilometers
75°10'0"E
75°20'0"E
75°30'0"E
75°40'0"E
75°50'0"E
76°0'0"E
76°10'0"E
76°20'0"E
76°30'0"E
29°30'0"N
29°20'0"N
29°10'0"N
29°0'0"N
28°50'0"N

Fig 4.10

Area of very high proportion of net irrigated area (above 80 percent): in 1971, about one-fourth (23.95) villages of the district were recorded in this category. It increased up to 76.05 percent (200 villages out of 263) in 2011. In 2011, 40 villages had achieved hundred percent irrigated areas.

Area of high proportion of net irrigated area (60 to80 percent): in 1971, about one-fourth (24.71 percent) villages of the district were observed. In 2011, the number of villages (17.11 percent) decreased in this category.

Area of moderate proportion of net irrigated area (40 to60 percent): this category registered one-fifth villages (20.91 percent) in 1971 but it decreased up to 4.18 percent villages (11 villages).

Area of low proportion of net irrigated area (20 to40 percent): the number of villages declined from 43 in 1971 to 5 in 2011.

Area of very low proportion of net irrigated area (below 20 percent): the number of villages declined from 37 in 1971 to 2 in 2011.

4.9 Educational Institutions/Infrastructure

Among the social infrastructure, education plays an important role in shaping the cultural level of a region. Its distribution and availability over a territory act as a catalyst for regional development (Ghosh and Debasree, 2006: 302). Development of education has been now well recognized as both ends and means of economic growth as higher educated persons are more likely to get qualitative employment opportunities, higher means of earning, longer and healthier standard of living and clean and more likely to achieve sustainable environment.

Education is an important key in opening the doors of human life. The right to education for all is enshrined under the fundamental rights in the constitution. It is generally accepted that primary education is very important for the child and the foundation of higher education is laid on the basis of primary education. Therefore, education is the long-term investment in human life and it determines the overall size and

quality of the knowledge pool in a country which is essential for the productivity and competitiveness of the economy as a whole (Kaur, 2012:124). In aggregate terms, India has made progress in alleviating poverty, promoting literacy, improving health and hygienic conditions. The whole process becomes slow in our country, owing to lack of quality in education particularly in basic education which is the foundation of entire education. Improving the quality is not just a growth of literacy rate, mobilization of society through campaigns service and charities. (Tyagi and Siddiqui, 2012: 85). India is grappling with various educational challenges and primarily to bridge the existing gap in access to education within the social fabric of the affluent and poor caste groups (World Bank, 1998: 25 and 26). All these issues could be addressed by providing qualified, adequate educational infrastructure equally available to all sections of the society.

4.9.1 Spatial Pattern of Educational Institutes (1971 and 2011):

Table and figure evident that is in 1971, the availability of educational facilities at any level in the rural Hisar district was in 91.26 percent villages out of 256 villages. It increased to 96.58 percent villages in 2011. In 1971, about 57.03 percent villages had the availability of educational facilities at primary level followed by middle level (16.73 percent), Sr. secondary school (14.83) & college level (2.66). But in 2011, Sr. secondary school education level was upgraded in 39.92 percent villages (105 villages) followed by matric level (32.70 percent), middle level (12.55 percent), & college level (5.32 percent). Only 16 villages (6.08 percent) reported with primary level of education in the district. 96.64 percent villages are served by educational amenity in the district. Compulsory education for every child of 6-15 years, increasing demand for higher and technical education has led to the improvement of educational infrastructure at the village level. Mid Day Meal and Sarva Shiksha Abhiyan have a special contribution in increasing the student enrolment in the school? There was only 9 village's having no availability of educational institutes at primary level or any level in the district. These villages namely Inchha Kharkhari, Kutia Kheri, Risalu Khera, Nathwana, Tharwa, Shala Dheri, Kajal, Kheri Barkesh, Ghuskani were depended on very nearby villages for educational attainment.

Table 4.10

District Hisar

Distribution of villages by Educational infrastructure

Level of Educational infrastructure	1971	2011
Primary	150 (57.03)	16 (6.08)
Middle	44 (16.73)	33 (12.55)
Matric	0	86 (32.70)
Sr. Secondary	39 (14.83)	105 (39.92)
College	7 (2.66)	14 (5.32)
Nil	16 (6.25)	9 (3.42)
Total	256	263
Average	240 (91.26)	254 (96.58)

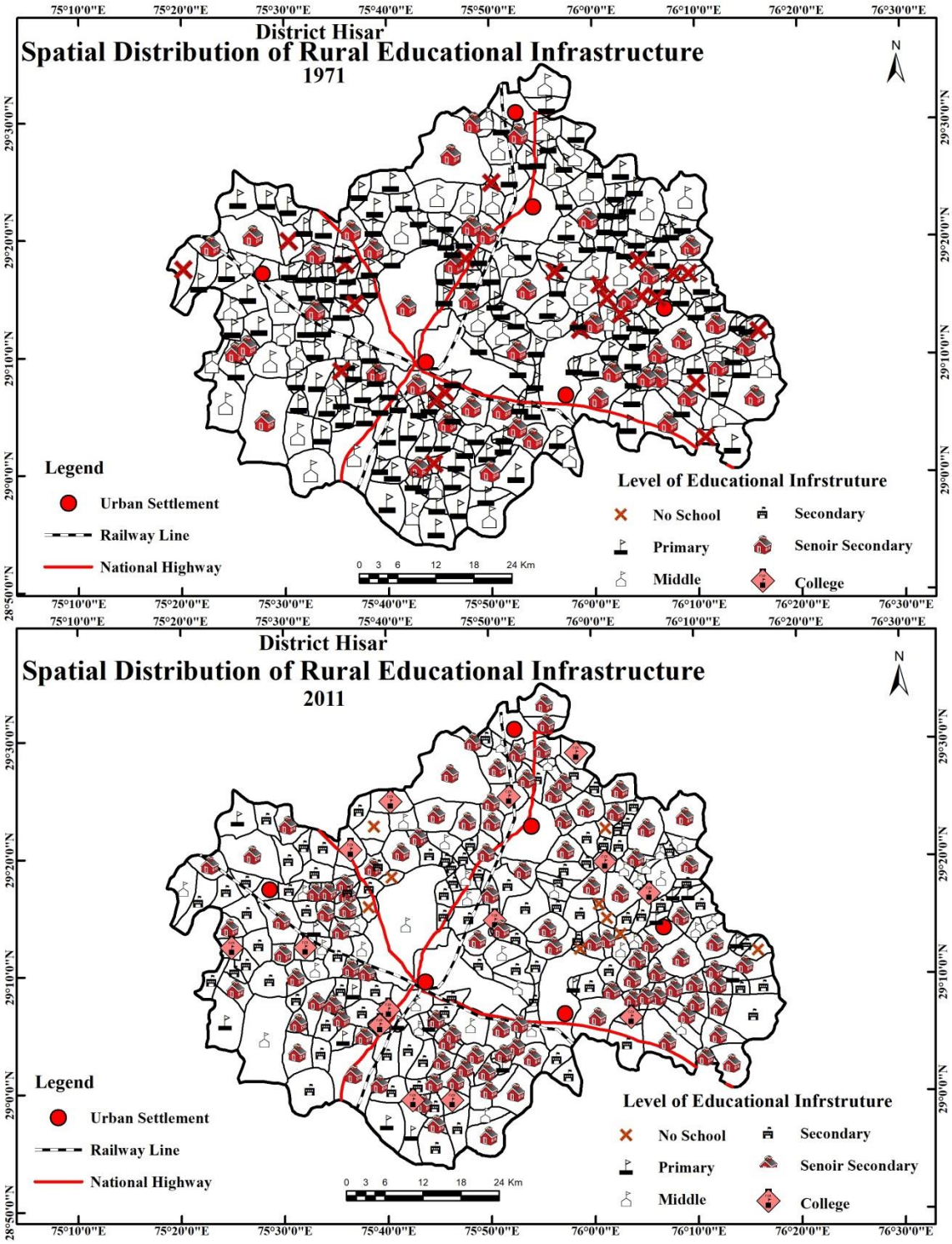

District Hisar
Spatial Distribution of Rural Educational Infrastructure
1971
N
Legend
Urban Settlement
Railway Line
National Highway
0 3 6 12 18 24 Km
Level of Educational Infrstruture
No School
Primary
Middle
Secondary
Senoir Secondary
College
District Hisar
Spatial Distribution of Rural Educational Infrastructure
2011
N
Legend
Urban Settlement
Railway Line
National Highway
0 3 6 12 18 24 Km
Level of Educational Infrstruture
No School
Primary
Middle
Secondary
Senoir Secondary
College

Fig 4.11

4.10 Health Infrastructure:

The quality of life is determined through the availability and use of primary services such as education, health care and related facilities. In terms of population, India ranks second in the world after China. We all know that a very large part of the population of our country is sick and not physically and mentally healthy. Due to the ability of the people of India to do low level work, it is felt that it is not a country of overpopulation but a country of less population (Mishra et al, 1991). Along with health and sanitation, the problems of social welfare and justice mainly include low level of production and income, non-availability of health services, high poverty level, vicious cycle of diseases etc. Health is, therefore, solely related to the concept of human resources development.

Developing primary health centers is the most effective way to provide health facilities to a large population of poor people of rural and urban sections. Health services include activities related to medical care and education and research, which are geared towards protecting and promoting the health of society (World Health Organisation, 1991 quoted from Mandal, 2010). Looking at the level of health facilities, it is clear that in India its results are not encouraging. The per capita income has grown steadily during the year and a high level platform of skill potential, scientific prowess, technological development and managerial manpower has been created. Simultaneously, the bulk of the investment has been earmarked for infrastructure upliftment and creation of industrial development. But despite such facilities and massive investment, a large section of the population is deprived of basic facilities like healthy food and water, shelter and health (Kumar and Mukherjee, 1993:769). As specified by the Constitution of India, providing health facilities is a collective responsibility by the state, central and local administration, although it is mainly under the state government. In the context of health services, the central government has fixed one-fourth of the public expenditure while state and local governments have fixed three-fourths, although there are big differences between states or regions (Sankar and Kathuria, 2004:1427). The general health improvement is associated with increase in worker's productivity and thus contributes to economic

growth. Similarly, better health infrastructure plays a major role in upward mobility and elimination of social inequalities (Health for All, 1981 quoted from Mishra et al., 1991: 40; Pawar and Ingale, 2006: 494). The general government expenditure on health was 1.36 percent of the gross domestic product in 2012-13. The expenditure on health was 4.8 percent of the total expenditure and about one-fifth (19.2 percent) as per cent of social service expenditure (Central Statistical Organisation, 2013:64).

4.10.1 Spatial Pattern of Health Facilities (1971 and 2011):

Table 4.11
District Hisar
Distribution of villages by Health infrastructure

Level of Health infrastructure	No. of Villages (%) 1971	No. of Villages (%) 2011
Dispensary	11	14
Private Medical Practitioner	82	NA
Sub PHC	15	146
PHC		26
CHC		5
Hospital		-

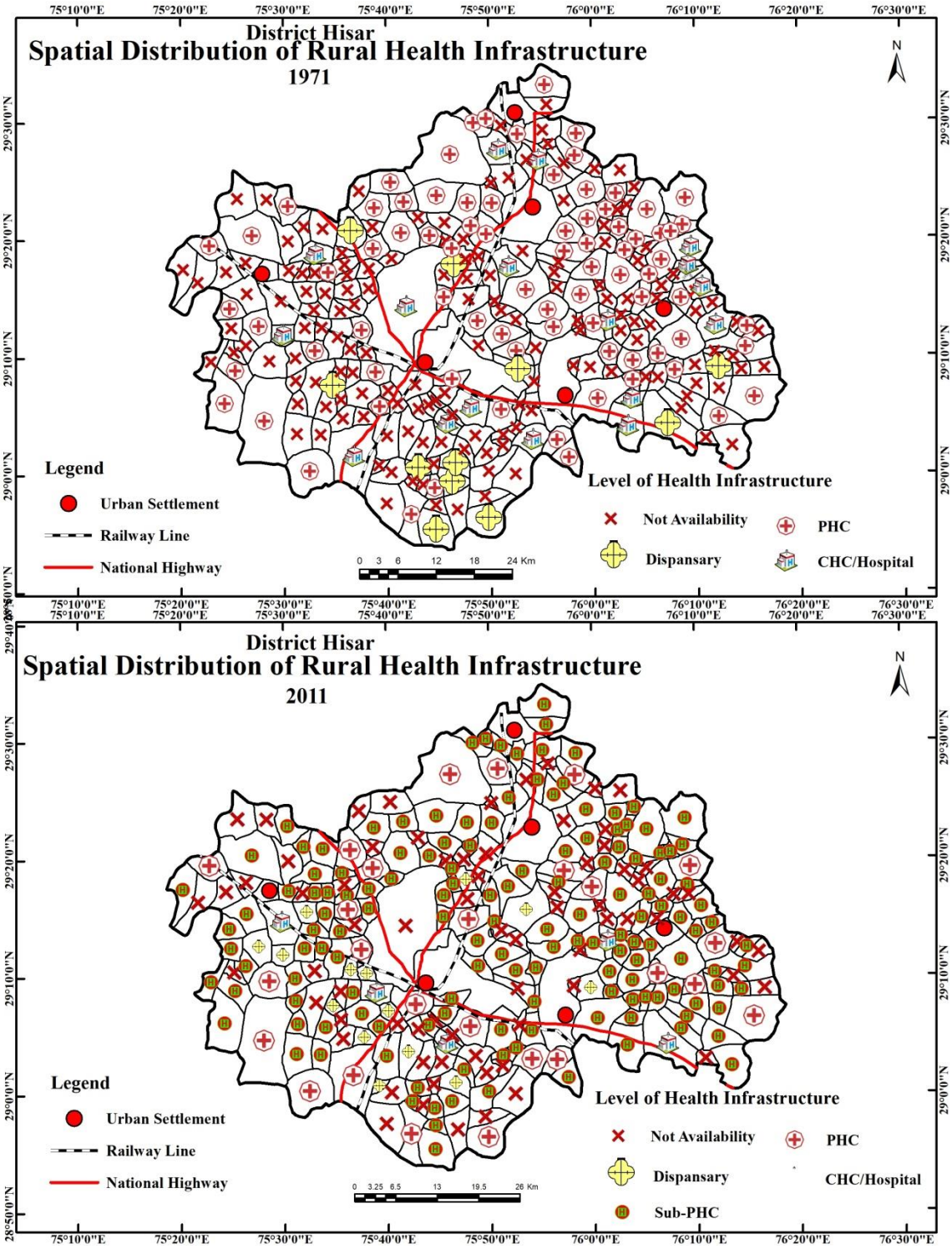

District Hisar
Spatial Distribution of Rural Health Infrastructure
1971
N
Legend
Urban Settlement
Railway Line
National Highway
Level of Health Infrastructure
Not Availability
PHC
Dispansary
CHC/Hospital
0 3 6 12 18 24 Km
District Hisar
Spatial Distribution of Rural Health Infrastructure
2011
N
Legend
Urban Settlement
Railway Line
National Highway
Level of Health Infrastructure
Not Availability
PHC
Dispansary
CHC/Hospital
Sub-PHC
0 3.25 6.5 13 19.5 26 Km

Fig 4.12

Table and figure shows that in 1971 as per recorded data, 15 villages were facilitated with Hospitals (PHC / Sub PHC) followed by Dispensary in 11 villages & private medical petitioner in 82 villages. In 2011, 146 villages (55.13 percent of the total) were reported with Sub PHC (one Sub PHC on every two villages) followed by PHC in 26 villages, Dispensary in 14 villages & CHC in 5 villages.

4.11 Spatial Pattern of Common Service Centre, ATMs & Banking facilities (2011):

Table and figure reveal the pattern of Common Service Centre, ATMs & Banking facilities in 2011 of rural Hisar district. 9.51 percent village (25 villages) out of 263 villages registered the facility of Common Service Centre (it provides the facilities like online banking and document services). Commercial and co-operative banks, there were 2,004 co-operative societies in the district registered with the Registrar of Co-operative Societies, Haryana under the Rural Development and Co-operation Programme.

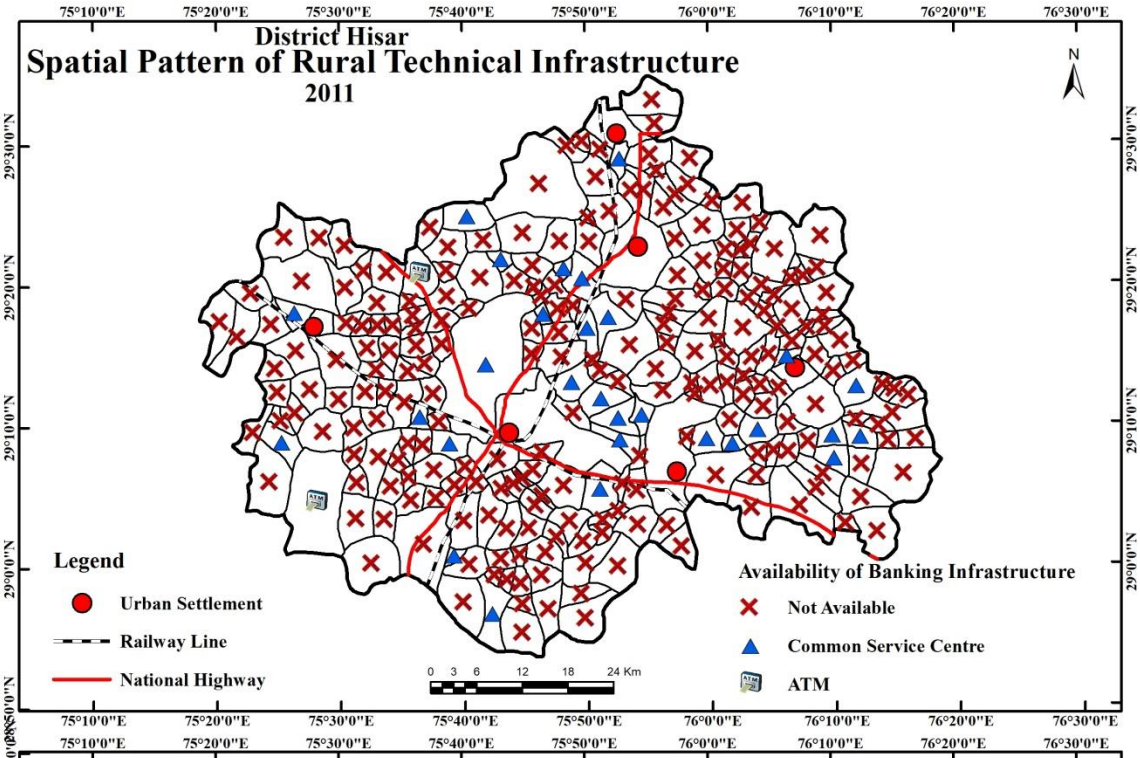
Table 4.12

District Hisar

Distribution of villages by Technical & Banking Infrastructure

Level of Technical & Banking Infrastructure	2011
CSC	25 (9.51)
ATM	6 (2.28)
Bank	206 (78.33)

Interesting to note that 78.33 percent villages (206 villages) had the availability of banking facility. But only six villages were reported with ATM facility.


District Hisar
Spatial Pattern of Rural Technical Infrastructure
2011
N
Legend
Urban Settlement
Railway Line
National Highway
Availability of Banking Infrastructure
Not Available
Common Service Centre
ATM
0 3 6 12 18 24 Km
75°10'0"E
75°20'0"E
75°30'0"E
75°40'0"E
75°50'0"E
76°0'0"E
76°10'0"E
76°20'0"E
76°30'0"E
29°30'0"N
29°20'0"N
29°10'0"N
29°0'0"N

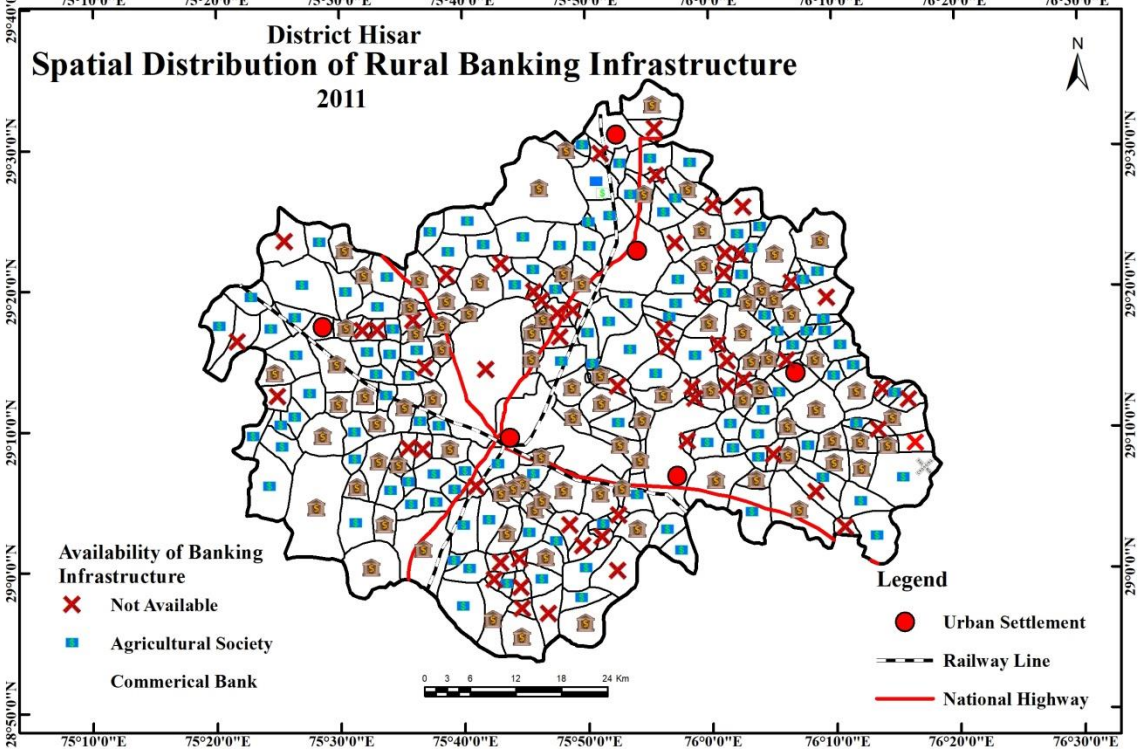

District Hisar
Spatial Distribution of Rural Banking Infrastructure
2011
N
Availability of Banking Infrastructure
Not Available
Agricultural Society
Commerical Bank
Legend
Urban Settlement
Railway Line
National Highway
0 3 6 12 18 24 Km
75°10'0"E
75°20'0"E
75°30'0"E
75°40'0"E
75°50'0"E
76°0'0"E
76°10'0"E
76°20'0"E
76°30'0"E
29°30'0"N
29°20'0"N
29°10'0"N
29°0'0"N
28°50'0"N

Fig 4.13

Chapter - V

Quality of Life in Rural Area

Over two billion people slightly more than one in three inhabitants of the planet live in rural Asia. According to the Census report of 2011, India's 68.84 percent of the population resides in villages. It is a serious challenge to meet large clusters of population in their entire life cycle in the present scenario. Because a perfect life can be lived only after fulfilling various needs (David E. Bloom et al: 2001).

Quality of Life studies approach the question from a variety of perspectives and disciplines. At the centre of this growing interest, is to look at the determining factors in the definition of "quality of life" as well as to propose mechanisms that contribute to the desired improvement in its process (Lever, 2000:188).The term quality of life finds appearance in various disciplines but there is little agreement on the definition of the concept. It is used interchangeably with other concepts like wellbeing, subjective quality of life, satisfaction, happiness etc. (Cummins, 2000; Diener, 1997; Bramston, 2002). Quality of life is used as generic term for family of overlapping concepts that includes wellbeing, life satisfaction and happiness. Many authors hold the view that quality of life is rooted in a multidimensional concept, represented by multiple continuities in ideologies such as life satisfaction and positive-negative effects (Diener, 1993; McGillivray, 2007). Quality of life is too broad to define as it is combination of many factors like place, time, technology, environment, culture etc. As people react differently to the same condition and they evaluate circumstances based on their unique experience, values and expectations. The element of diversity with respect to culture and value system makes the standardization of definition difficult. Quality of life simply means different things to different people with an idea of satisfaction or wellbeing to each individual or group at any place (Dissart and Deller, 2000:155).

To attempt a specific definition of social wellbeing or quality of life requires some assumption as to the level of societal level. In a pluralistic society with conflicting sub-group aspirations there will be differences on many matters relating to who should get what and where and individuals will differ with respect to the composition of what is

good life. There are various methods available to identify the major societal concerns one of them is to seek the 'expert opinion' a body of American literature on contemporary social problems and development of social indicators identify seven major criteria of social well-being namely; income level, wealth and employment opportunity, the living environment, health condition, education status, social order and disorganization, social belongingness, recreation and leisure. However, there is apparent contradiction about the aspects included for evaluation but by no means all expert and ordinary citizen would agree that it capture the essence of quality of life (Smith, 1977:270). This chapter deals with size of family, family type, sex ratio, dependency ratio, literacy, educational attainment, work participation rate and occupational structure, income, landholding, household assets, housing and sanitation conditions, women status, health status, banking services etc.

5.1 Distribution of Household by size of Population:

A society's development is impacted both favorably and unfavorably by the size of a household. Several studies have shown that large sized families have a higher prevalence of poor socio-economic condition. This is because fundamental requirements increase with an increase in number of family members. Therefore, with an increase in family size, chances of pressure on working population to overcome it also increase. Overall, this may lead the society towards backwardness. Therefore, it is crucial to analyze how households are distributed according to family size and their spatial pattern.

Table 5.1 exhibits the household percentage distribution by family size in the Hisar district. Except the Doltpur (Uklana block), in all other villages of the Hisar district, each household has, on average, five members in its family. Statistically, rural households of Hisar district have 37.53 percent households with five members in their family followed by 27.90 percent having six persons, 21.73 percent having seven persons and 8.15 percent having more than eight persons within their households whereas only five percent have less than four persons.

Table 5.1

District Hisar

Distribution of Household by size of Population

Jan-Apr, 2021

Block	Village	Persons per household	8 & above persons	7 persons	6 persons	5 persons	4 & below persons
Hisar-II	**(Arya Nagar)**	5	17.78	17.78	20.00	42.22	2.22
Barwala	**(Behbalpur)**	5	4.44	13.33	28.89	42.22	11.11
Hansi-I	**(Dhana Kalan)**	5	0	20.00	33.33	37.78	8.89
Uklana	**(Doltpur)**	6	15.56	28.89	28.89	26.66	0
Hisar-I	**(Gunzar)**	5	6.67	15.56	40.00	35.56	2.22
Agroha	**(Khasa Mahajan)**	5	6.67	26.66	33.33	31.11	2.22
Narnaund	**(Koth Khurd)**	5	4.44	22.22	24.44	44.44	4.44
Adampur	**(Kutia Kheri)**	5	11.11	26.66	24.44	37.78	0
Hansi-II	**(Thurana)**	5	6.67	24.44	17.78	40.00	11.11
	Average		8.15	21.73	27.90	37.53	4.69

Furthermore, 17.78 percent households in Arya Nagar (Hisar-II block) have more than eight persons in their family followed by Doltpur (Uklana block) 15.56 percent, Kutia Kheri (Adampur block) 11.11 percent, Gunzar (Hisar-I block), Thurana (Hansi-II

block) and Khasa Mahajan (Agroha block) 6.67 percent and, Behbalpur (Barwala block) and Koth Khurd (Narnaund block) 4.44 percent. There is not even a single household having more than eight persons in Dhana Kalan (Hansi-I block). Moreover, more than half of the total households (57.78 percent) have six or more than six persons in their family in the rural area of the district. However, 11.11 percent households Behbalpur (Barwala block) and Thurana (Hansi-II block) have 4 or less than four persons in their family followed by 8.89 percent Dhana Kalan (Hansi-I block), 4.44 percent Koth Khurd (Narnaund block) and 2.22 percent Arya Nagar (Hisar-II block), Gunzar (Hisar-I block) and Khasa Mahajan (Agroha block). Table shows that households residing in the village Dolatpur (Uklana block) and Kutia Kheri (Adampur block) have five or more than five members in their family. Finally, table indicates that maximum families are large in size.

5.2 Types of Family:

Socio- economic status is a measure of a family's or household`s economic and social position. Socio-economic development of a society relies on some major social indicators. Such indicators are comprised of one or more variables namely type of family, number of family members, caste, education, occupation, income and life expectancy etc. The type of family is one of the most widely used indicators among all of these. Since ancient times, the phrase "family type" has been used to characterize and assess the well-being of a family in terms of social status. Several studies reported that as compared to nuclear families, in joint families' literacy level, knowledge about health and nutrition are poor which direct or indirect affect the socio-economic development of a society. It is generally believed that children in joint families receive less nutritive care as compared to children in nuclear families having better chances to grow due to small size of the family. On the other hand, children in joint families, in absence of parents get guidance and care by their grandparents and they are also benefited by their wisdom and experience.

Moreover, table 5.2 demonstrates the distribution of household**s** by family type. It is revealed from table that more than two-third households (71.11 percent) belong to joint

family whereas remaining less than one-third households (28.89 per cent) belong to nuclear family in rural area of the district.

Table 5.2
District Hisar
Distribution of Household by Types of Family
Jan-Apr, 2021

Block	(Village)	Nuclear	Joint/Extended
Hisar-II	**Arya Nagar**	31.11	68.89
Barwala	**Behbalpur**	28.89	71.11
Hansi-I	**Dhana Kalan**	51.11	48.89
Uklana	**Doltpur**	4.44	95.56
Hisar-I	**Gunzar**	22.22	77.78
Agroha	**Khasa Mahajan**	33.33	66.67
Narnaund	**Koth Khurd**	42.22	57.78
Adampur	**Kutia Kheri**	20.00	80.00
Hansi-II	**Thurana**	26.67	73.33
	Total Average	28.89	71.11

Similar results have been noticed in all the villages of the district except village Dhana Kalan (Hansi-I block). Because the ratio of the joint and nuclear households in village Dhana Kalan (Hansi-I block) is 51.11 percent. Remarkably, distribution of Joint (95.56 percent) and nuclear (4.44 percent) family type is highly variable in Doltpur (Uklana block). Table demonstrates that half of the total households belong to nuclear family in Doltpur (Uklana block) 51.11 percent followed by Koth Khurd (Narnaund block) 42 percent, Khasa Mahajan (Agroha block 33.33 percent, Arya Nagar (Hisar-II block) 31.11 percent, Behbalpur (Barwala block) 28.89 percent, Thurana (Hansi-II block) 26.67 percent, Gunzar (Hisar-I block) 22.22 percent, Kutia Kheri (Adampur block) 20 percent

and Doltpur (Uklana block) 4.44 percent. In totality, the number of joint families is more than nuclear families in the rural part of Hisar district. Moreover, these results prove the prevalence of rural culture in the study area.

5.3 Age and sex composition:

Age and gender structure are central themes in the discussion of the concept of population. Sex is a biological characteristic of human which divides it into male and female class. On the other hand, age determines the extent of the working capacity of a person. The population is divided into the following three groups on the basis of age structure:

5.3.1 Young population

Young population includes children below 15 years of age. Economies with high fertility rates have a larger proportion of the younger population and vice versa. The youth population is counted in the category of economically unproductive and it is also dependent because services like food, clothing, medicine and education etc. have to be provided to this population. So, less proportion of this age group in an economy indicates the fewer burdens on the resources.

5.3.2 Adult population

Adult population comprises consists of people falling in the age group of 15 to 59 years. The adult age group is biologically the most reproductive, economically the most productive and demographically the most mobile. Prominently, the more developed economies have remarkably high proportion of adults in their population in comparison to the less developed realm.

5.3.3 Old population

Old population can be ascribed as all the people who have attained the age of 60 or more. Old population is an economic burden upon the adult population. The proportion

of this population varies regionally. Significantly, it is low in less developed economies and vice-versa.

Table 5.3

District Hisar

Distribution of Population by Age & Sex

Jan-Apr, 2021

Block	Village	Below 15			15 - 59			60 & above		
		T	M	F	T	M	F	T	M	F
Hisar-II	**Arya Nagar**	20	17.58	22.94	69.17	68.70	68.81	11.25	13.74	8.26
Barwala	**Behbalpur**	19.42	17.59	21.43	74.27	76.85	71.43	6.31	5.56	7.14
Hansi-I	**Dhana Kalan**	16.16	13.59	18.95	75.25	76.69	73.68	8.59	9.70	7.37
Uklana	**Doltpur**	26.67	26.95	26.32	64.70	65.25	64.04	8.63	7.80	9.65
Hisar-I	**Gunzar**	24.78	21.91	27.27	64.60	66.67	62.81	10.62	11.43	9.92
Agroha	**Khasa Mahajan**	24.68	21.95	27.68	65.96	72.36	58.93	9.36	5.69	13.39
Narnaund	**Koth Khurd**	21.69	18.30	25.26	68.87	71.80	65.26	9.43	9.40	9.47
Adampur	**Kutia Kheri**	10.79	13.87	6.73	70.12	69.34	71.15	19.09	16.79	22.12
Hansi-II	**Thurana**	22.48	20.83	24.49	64.68	66.67	62.24	12.84	12.5	13.27
	District Hisar	**20.83**	**19.36**	**22.52**	**68.39**	**70.23**	**66.28**	**10.78**	**10.42**	**11.20**

Moreover, these three age groups of males and females, and the geographical variation in their distribution are worthy of serious concern in the study of social and economic condition of any area.

The table 5.3 shows the population by age and sex in the rural area of the Hisar district. Analysis of the primary data shows the highest proportion of adults with 68.39 percent population followed by young (20.83 percent) and old (10.78 percent) population. Except the adult population, it has been observed that proportion of young and old females is more in comparison to the males in the district. More proportions of females in old age group can be explained by mortality rates. Higher mortality rates of males in all ages justify that the females tend to outnumber the males in this age group. The proportion of children below 15 years is highest in Doltpur (26.67 percent) village while it is lowest in Kutia Kheri (10.79 percent) village. Furthermore, only two villages (Doltpur and Kutia Kheri) have the low number of female children than male children**.** Proportion of the population falling in 15-59 age group is highest in Dhana Kalan with 75.25 percent followed by Behbalpur, Kutia Kheri and Arya Nagar village. Moreover, more than 60 percent population falls in adult age group in all villages. Great contribution of this age group leads the society towards a bright future as it is economically productive age group rather than two other age groups. On the other hand, old age population can be ascribed as an economic burden upon the adult age group. Life expectancy has direct impact on the number of old people. Except Kutia Kheri (19.09 percent) village, all the villages have less than 15 percent proportion of old population. This is a clear indication of low life expectancy in the district in comparison to the developed regions.

5.4 Sex Ratio:

The sex ratio is the proportion of males to females in the population. The sex ratio reveals how women are treated in society. Additionally, the sex ratio is a significant demographic and cultural index which determines the degree of gender balance in a society at a certain moment. When the females are in very low number as compared to males, a huge imbalance will be established among males and females. It creates gender imbalance

in the society which in itself is a significant social parameter to evaluate the extent of present equality between men and women in a society. Variations in sex ratio fundamentally reveal the underlying socio-economic and cultural patterns of a society. Prominently, sex ratio is the most important and visual indicator of gender imbalance, which is really a big problem in front of India. The problem prevails with higher intensity especially in the northern India; out of this, Haryana has the unfortunate peculiarity of having the poorest male-to-female ratio out of all the Indian states.

Table 5.4

District Hisar

Distribution of Villages by Sex Ratio

Jan-Apr, 2021

Block	**Village**	Sex Ratio
Hisar-II	**Arya Nagar**	875
Barwala	**Behbalpur**	881
Hansi-I	**Dhana Kalan**	922
Uklana	**Doltpur**	787
Hisar-I	**Gunzar**	1054
Agroha	**Khasa Mahajan**	893
Narnaund	**Koth Khurd**	843
Adampur	**Kutia Kheri**	766
Hansi-II	**Thurana**	802
	District Average	**864**

Table 5.4 reveals that the village Kutia Kheri (Adampur Block) recorded the lowest sex ratio of 766 whereas Doltpur (Uklana block) 787, Thurana (Hansi-II block) 802, Koth Khurd (Narnaund block) 843, Arya Nagar (Hisar-II block) 875, Behbalpur (Barwala block) 881 and Khasa Mahajan **(**Agroha block) 893 These figures demonstrate the dearth of females in the Hisar district's rural areas. Furthermore, out of the total villages, two villages (Dhana Kalan and Gunzar) have recorded gender ratio above 900. Remarkably, village Gunzar (Hisar-I block) recorded the maximum sex ratio with 1054 females per thousand males. Interestingly, all these findings demonstrate optimistic signs of a balance sex ratio which on track to increase in the Hisar district and as well as in the Haryana state. This upward movement in sex ratio is the result of Govt. schemes, initiatives and strict actions. The 'Beti Bachao Beti Padhao' campaign has been highly successful for the state. This campaign was launched by Haryana Govt. at Panipat on January 22, 2015. Moreover, the Haryana government took strict actions to stop female feticide in all the districts of the state. Prominently, the sex ratio at birth in Haryana was 871 in December 2014, which increased to 922 in December 2020. It may also be mentioned here that other Govt. initiatives like Ladli Yojana, Apki Beti Hamari Beti Yojana Beti have also played a significant role in the upliftment of the sex ratio in Haryana.

5.5 Dependency Ratio:

As discussed earlier, a distinction has been made between total population and manpower (working population). Total population indicates the entire populace residing in any area. Contrary to this, manpower consists of only those persons who can participate in economic activities to produce goods and services for the total population. Generally, a major proportion of population depends on the working population which largely affects the socio and economic status of a society. Therefore, it is necessary to find out the ratio between dependent (children plus old people) and independent (Adults) persons. In other words, dependency ratio is generally computed as: dividing dependent population by independent population and multiplying by hundred. Moreover, we can say that dependency ratio is largely governed by the population's age composition.

Table 5.5 District Hisar Level of Dependency Ratio Jan-Apr, 2021		
Block	**Village**	**Ratio**
Hisar-II	**Arya Nagar**	45.45
Barwala	**Behbalpur**	34.87
Hansi-I	**Dhana Kalan**	32.89
Uklana	**Doltpur**	55.56
Hisar-I	**Gunzar**	54.05
Agroha	**Khasa Mahajan**	52.98
Narnaund	**Koth Khurd**	46.21
Adampur	**Kutia Kheri**	42.35
Hansi-II	**Thurana**	54.61
	District Hisar	**46.22**

The table 5.5 shows that dependency ratio of Hisar district in 2021 stood at 46.22 percent in rural area of the district. The dependency ratio varies from lowest (32.89 percent) in village Dhana Kalan (Hansi-I block) to a highest (55.56 percent) in Doltpur (Uklana block) of the Hisar district. Furthermore, low dependency ratio has been observed in the rural area of the district. Prevalence of this situation in Hisar district may be possible due to the fact that the ageing process in case of less developed countries is adding to the share of their working population.

5.6 Literacy & Gender Disparity:

Education is thought as one of the most crucial factors of any society's prosperity, specifically of rural areas. Additionally, it is a significant component of human growth. It reveals the socio-cultural state of any population in any geographical region; and the

change in literacy rate displays the socio-cultural and economic transition of the society. Exploring human potential which might effectively and efficiently contribute to a nation's development is made possible by education. Education endeavor to make a person perfect. Education is valued in every society since it is cure-all for all evils. Literacy, like other basic resources, has become a great necessity to survive today. It is not limited only to our own development, but has also become a part of country's progress which leads to improvement in economic and social conditions. It has deep connection with modernization, industrialization, communication, commerce and civilization, etc. Even today, of the 127 countries in the world, there are 101 such countries where there is no full literacy and India is also one of them.

Table 5.6

District Hisar

Level of Literacy Rate & Gender Disparity

Jan-Apr, 2021

Block	Village	Total	Male	Female	Gender Disparity
Hisar-II	**Arya Nagar**	77.42	87.29	65.66	0.0474
Barwala	**Behbalpur**	78.65	87.63	67.90	0.0405
Hansi-I	**Dhana Kalan**	80.53	87.26	72.73	0.0265
Uklana	**Doltpur**	78.14	84.75	70.10	0.0304
Hisar-I	**Gunzar**	87.62	93.00	82.35	0.0116
Agroha	**Khasa Mahajan**	74.38	85.19	62.11	0.0577
Narnaund	**Koth Khurd**	74.87	79.82	68.89	0.0262
Adampur	**Kutia Kheri**	74.45	88.98	56.00	0.0881
Hansi-II	**Thurana**	79.21	90.99	64.84	0.0538
	Average	**78.36**	**87.21**	**67.84**	**0.0425**

Consequently, the goal of current study is to assess literacy rate in Hisar district. The table demonstrate the gender disparity and the male and female literacy rate in the rural

areas of the district during 2021. In 2021, overall 78.36 percent rural people were literate whereas literacy rate for males and females was traced 87.21 and 67.84 percent respectively with a gender disparity of 0.0425. In Hisar, overall rural literacy rate has increased approximately by 10 percent from 68.74 percent to 78.36 percent. Similarly, male and female literacy rate has increased by 7.81 percent and 11.2 percent respectively.The highest total literacy rate, i.e. 87.62 percent is found in village Gunzar (Hisar-I block) of Hisar district during 2021. Out of total literate population of village Gunzar, male literacy rate and female literacy rate are 93.00 percent and 82.35 respectively. It is followed by Dhana Kalan (Hansi-I block) in which total literacy rate of 80.53 percent is found with 87.26 and 72.23 percent literacy rate of male and female respectively. Moreover, overall less than 75 percent literacy rate is noticed in Khasa Mahajan (Agroha block), Koth Khurd (Narnaund) and Kutia Kheri (Adampur block). The highest male (93.00 percent) and female (82.35 percent) literacy rate is found in Gunzar (Hisar-I block). The greatest gender disparity (0.0881) in literacy rate is observed in Kutia Kheri (Adampur block). In Kutia Kheri, existence of maximum gender disparity in literacy rate is due to lowest female (56.00 percent) literacy rate. On the other hand, lowest gender disparity (0.0116) in literacy rate is noticed in Gunzar (Hisar-I block) as highest female (82.35 percent) literacy rate has been detected in the block.

5.7 Educational Attainments:

Socio-economic and cultural development of a society is significantly influenced by education. Education offers employment possibilities and aids in removing social obstacles. It increases required capacity and skill of people for various businesses and jobs. Education has significant place in improving the condition of people leading them from the state of deprivation to prosperity. Education provides a skilful hand and cognitive behavior in human beings which can bring balance in distribution of income and removing poverty. (Mandelbaum, D.G.1975)

Table 5.7
District Hisar
Proportion of Educational Attainment
Jan-Apr, 2021

Block (Village)	Primary				Middle				Matric			
	M	F	T	DI	M	F	T	DI	M	F	T	DI
Hisar-II (Arya Nagar)	8.74	23.08	14.29	-0.3879	16.51	21.54	18.45	-0.1034	18.45	18.46	18.45	-0.0002
Barwala (Behbalpur)	15.29	30.91	21.43	-0.2673	20.06	20.0	24.29	0.0012	16.47	10.91	14.29	0.1659
Hansi-I (Dhana Kalan)	8.99	17.19	12.42	-0.2625	24.72	28.13	26.14	-0.0476	16.85	9.38	13.73	0.237
Uklana (Doltpur)	17.0	32.35	23.21	-0.2414	31.0	22.06	27.38	0.1254	26.00	17.65	22.62	0.1479
Hisar-I (Gunzar)	13.99	25.00	19.21	-0.2256	20.43	21.43	20.90	-0.0183	24.73	16.67	20.90	0.1518
Agroha (Khasa Mahajan)	16.30	33.9	21.19	-0.2742	21.74	22.03	21.85	-0.005	22.83	10.17	17.88	0.3212
Narnaund (Koth Khurd)	24.14	29.03	26.18	-0.0679	14.94	22.58	18.12	-0.1611	19.54	16.13	18.12	0.0752
Adampur (Kutia Kheri)	12.39	19.64	14.79	-0.183	10.62	5.36	8.88	0.2851	18.58	19.64	18.94	-0.0216
Hansi-II (Thurana)	19.80	15.25	16.25	0.1026	19.80	28.81	23.13	-0.1406	14.85	20.34	16.88	-0.1236
Total Average	15.06	25.18	19.00	-0.1988	20.51	21.50	20.95	-0.0181	19.82	15.56	18.19	0.0949

Block (Village)	12th & Equivalent				Graduation & Equivalent				Post-Graduation & Equivalent			
	M	F	T	DI	M	F	T	DI	M	F	T	DI
Hisar-II (Arya Nagar)	32.04	13.85	25.00	0.3196	19.42	15.39	17.86	0.0914	4.85	7.69	5.95	-0.1938
Barwala (Behbalpur)	15.29	25.46	19.29	-0.1969	17.65	10.91	15.00	0.1932	8.24	1.82	5.71	0.6416
Hansi-I (Dhana Kalan)	26.97	12.5	20.92	0.2991	17.98	28.13	22.22	-0.1695	4.49	4.69	4.58	-0.0185
Uklana (Doltpur)	10.00	19.11	13.69	-0.2599	13.00	5.88	10.12	0.3283	3.00	2.94	2.98	0.0086
Hisar-I (Gunzar)	27.96	22.62	25.42	0.0788	7.53	10.71	9.04	-0.1458	5.38	3.57	4.52	0.004
Agroha (Khasa Mahajan)	25.00	22.03	23.84	0.0476	14.13	10.17	12.58	0.1337	0	1.7	0.66	--
Narnaund (Koth Khurd)	27.59	20.97	24.83	0.1028	13.79	16.82	12.75	-0.0791	0	0	0	--
Adampur (Kutia Kheri)	26.55	25.00	26.04	0 .0223	23.01	21.43	22.49	0.027	8.85	8.93	8.88	-0.0037
Hansi-II (Thurana)	20.79	22.03	21.25	-0.0221	20.79	13.56	18.13	0.1684	3.96	0	25.00	--
Total Average	23.64	20.28	22.30	0.0584	16.57	13.99	15.54	0.0674	4.40	3.5	4.04	0.0974

In the present study, the attainment of education has been investigated by categorizing populations in six categories, i.e. up to primary, up to middle, up to matriculation, up to intermediate, up to graduate and up to post graduate (Table 5.7). More than half of the total population has completed its study up to matric level. Among literate persons, 18.19 percent have completed their high school education, and additionally 22.30 percent intermediate, 15.54 percent graduate and only 4.04 percent post-graduate. Moreover, the largest proportion (fourth-fifth) of the total population is literate up to intermediate level (80.44 percent) rather than higher levels of education. Females (25.18 percent) education attainment up to primary level is higher than males (15.06 percent) in the present study area. On the other hand, the analysis clearly expresses that the proportion of female's attainment of higher education (up to matric to post graduation) is lower than males in the studied area. This may be an indication of the gender biasness and backwardness of society showing that more opportunities for higher education are being provided to males than females. Furthermore, proportions of males attaining education up to graduate level are higher than females in all the other villages except Dhana Kalan and Gunzar. Interestingly, none of the residents of village Koth Khurd in the block Narnaund could obtain post-graduate degree. Hence, it may be claimed that rural households with plenty of resources tend to have high levels of education. Finally, it can be conclude that levels of education attainment directly or indirectly affected by caste, economic class and gender.

5.8 Work Participation:

The table 5.8 reveals that the average work participation rate of the sampled villages is 31.59 percent in 2021. While 53.93 percent of the sampled males are recorded as worker, the corresponding figure for the females' population is only 3.41 percent. While ones every two males out of every two male in study area in working. In case of female one out of every twenty nine females is working.

Table 5.8

District Hisar

Distribution of Population by Work Participation Rate

Jan-Apr, 2021

Block	Village	M	F	T
Hisar-II	**Arya Nagar**	52.34	2.68	29.17
Barwala	**Behbalpur**	58.72	4.17	33.17
Hansi-I	**Dhana Kalan**	59.22	7.37	34.34
Uklana	**Doltpur**	53.90	1.80	30.95
Hisar-I	**Gunzar**	57.67	1.71	28.95
Agroha	**Khasa Mahajan**	50.82	5.51	29.44
Narnaund	**Koth Khurd**	55.65	4.12	32.08
Adampur	**Kutia Kheri**	57.66	1.91	33.47
Hansi-II	**Thurana**	58.68	2.06	33.49
Average		**55.93**	**3.41**	**31.59**

Poor participation of females in workforce in India is largely due to patriarchal nature of country, long standing prejudices against women's mobility and education, their relative low social status and the lack of job available to them. The village Dhana Kalan is observed with highest work participant rate (34.34 percent) as well as males (59.22 percent) and females (7.37 percent). While the village Gunzar is recorded with lowest work participant rate (28.95 percent) as well as lowest female work participant rate (1.71 percent). The village Khasa Mahajan has sown below work participant rate than the sampled average (31.59 percent). This village has found lowest male work participant rate in contrast highest higher work participant rate for females.

5.8.1 Occupation Structure:

Table 5.9

District Hisar

Distribution of Population by Occupation Structure

Jan-Apr, 2021

Block	Village	Primary			Secondary			Territory		
		M	F	T	M	F	T	M	F	T
Hisar-II	**Arya Nagar**	43.28	0	41.43	4.48	0	5.71	52.24	100	54.28
Barwala	**Behbalpur**	67.19	25.00	64.71	4.69	0	4.41	28.13	75	30.88
Hansi-I	**Dhana Kalan**	62.30	71.43	63.24	4.92	0	4.41	32.79	28.57	32.35
Uklana	**Doltpur**	75.00	0	73.08	7.89	0	7.69	17.11	100	19.23
Hisar-I	**Gunzar**	50.00	0	48.49	25.00	0	24.24	25.00	100	27.27
Agroha	**Khasa Mahajan**	67.74	50.00	66.18	4.84	33.33	7.35	27.42	16.67	26.47
Narnaund	**Koth Khurd**	82.81	25.00	79.41	3.13	25.00	4.41	10.06	50.00	16.18
Adampur	**Kutia Kheri**	72.15	0	70.37	2.53	0	2.47	25.32	100	27.16
Hansi-II	**Thurana**	61.97	0	60.27	8.45	0	8.22	29.58	100	31.51
Average		**64.97**	**31.25**	**63.28**	**7.24**	**9.38**	**7.34**	**27.80**	**59.38**	**29.38**

It is observed that a major share of occupation structure in the district is of primary activities (63.28 percent) including agriculture and allied activities followed territory (29.38 percent) and secondary (7.34 percent) activities. Interestingly, primary activity is dominated by male workers while territory and secondary activities are dominated by female workers. The villages Koth Khurd, Dolatpur, Kutia Kheri, Khasa Mahajan, and Behbalpur are observed with higher share of primary activities than the average of sampled villages. The village Arya Nagar has registered highest share (54.28 percent) of territory activities. This village is located to very near of the urban centre. The village Gunzar is noticed with 24.24 percent secondary workers.

5.8.2 Category wise Distribution of Workers in Public Sector and Beneficiary of Reservation:

Table 5.10

District Hisar

Distribution of Govt. Worker & Reservation

Jan-Apr, 2021

Block	Village	Govt. Worker			Reservation		
		Gen.	BC	SC	Gen	BC	SC
Hisar-II	**Arya Nagar**	11.11	13.33	2.22	0	50.00	8.33
Barwala	**Behbalpur**	0	2.22	4.44	0	0	66.67
Hansi-I	**Dhana Kalan**	6.67	8.89	0	14.29	57.14	0
Uklana	**Doltpur**	8.89	2.22	2.22	0	16.67	16.67
Hisar-I	**Gunzar**	0	17.78	2.22	0	87.5	2.22
Agroha	**Khasa Mahajan**	6.67	2.22	0	0	25.00	0
Narnaund	**Koth Khurd**	6.67	2.22	4.44	0	16.67	33.33
Adampur	**Kutia Kheri**	15.56	0	0	0	0	0
Hansi-II	**Thurana**	24.44	0	4.44	0	0	15.39
Total		**8.89**	**5.43**	**2.22**	**2.78**	**90.91**	**100.00**

Table reveals that about 10.47 percent of total work force is engaged in public sector in the study area. The highest share of public sector workers are observed in general category (13.14 percent) followed by backward (9.17 percent) and schedule category (7.14 percent). However, all the public sector workers of schedule category are employed through reservation policy followed by backward category (90.91 percent) and general category (2.78 percent).

5.9 Distribution of Households per Capita Annual Income:

Table 5.11
District Hisar
Distribution of Households by size of (per capita) annual income
Jan-Apr, 2021

Block	Village	Annual Income	Rs. 1 – 1.5 lakh	Rs. 50000 - 100000	Rs. 25000 - 50000	Below Rs. 25000
Hisar-II	**Arya Nagar**	50492	11.11	17.78	31.11	40.00
Barwala	**Behbalpur**	22234	2.22	4.44	31.11	62.22
Hansi-I	**Dhana Kalan**	26321	4.44	6.67	26.67	62.22
Uklana	**Doltpur**	21153	0	8.89	13.33	77.78
Hisar-I	**Gunzar**	32482	8.89	8.89	22.22	60.00
Agroha	**Khasa Mahajan**	24080	2.22	8.89	15.56	73.33
Narnaund	**Koth Khurd**	26326	8.89	6.67	13.33	71.11
Adampur	**Kutia Kheri**	72814	6.66	22.22	24.44	46.67
Hansi-II	**Thurana**	56271	22.22	15.56	17.78	44.44
Average		37343	7.41	11.11	21.73	59.75

As per sample survey 2021, annual per capita income in the rural area is Rs. 37343.00. The households of village Kutia Kheri is observed with leading per capita annual income

i.e. Rs. 72814.00 followed by Thurana (Rs. 56271.00) & Arya Nagar (Rs. 50492.00). Six villages namely Gunzar (Rs. 32482.00), Koth Khurd (Rs. 26326.00), Dhana Kalan (Rs. 26321.00), Khasa Mahajan (Rs. 24080.00) and Behbalpur (Rs. 22234.00) have shown low earnings than average per capita annual earnings. The lowest per capita annual income (Rs. 21153.00) is found among the households of Doltpur village. The table exhibits that 21.73 percent households of the study area is accounted in the range of Rs. 25000.00 to 50000.00 per capita annual earnings which is around the average per capita annual income of the study area. Notably, about sixty percent households of the study area registered with below Rs. 25000.00 per capita annual income. About 11.11 percent households is found in the range of 50000.00 to 100000.00 per capita annual income. Only 7.41 percent households are registered in the range of highest per capita annual income i.e. more than Rs. 100000.00.

5.10 Distribution of Households by Size of Electricity Supply and Expenditure on Electricity:

Consumption of electricity is a significant aspect of modern life. Globally, the use of electricity has been rising continuously in recent years following population's requirements and economic growth. The use of electricity contributes to humans' well-being and prosperity (through a large variety of applications such as lighting, indoor climate control, cooking, use of various appliances and much more). Moreover, in all the countries, it allows the use of electrical and electronic equipments to ensure their proper functioning. In India, electricity consumption has grown very rapidly since the early 1950s and has been constrained mainly by the ability of the growing state grids to meet rising demands for peak capacity and energy needed for modernization and growth of the industrial and agriculture sectors. Therefore, in the present study, an endeavor has been made to assess the electricity expenditure in the rural area of Hisar district.

Table 5.12

District Hisar

Distribution of Households by size of Electricity Supply and Expenditure on Electricity

Jan-Apr, 2021

Block	Village	Per Day Electricity supply (Hours)	Per Capita monthly Expenditure on Electricity (Rs.)	Distribution of Households by per capita monthly electricity expenditure					
				Below Rs.100	Rs. 100-200	Rs. 200-300	Rs. 300-400	Rs. 400-500	Above Rs. 500
Hisar-II	**Arya Nagar**	24	219	6.66	42.22	26.67	15.56	2.22	6.66
Barwala	**Behbalpur**	15	132	40.00	35.56	8.89	11.11	2.22	2.22
Hansi-I	**Dhana Kalan**	14	113	31.11	51.11	15.56	2.22	0	0

Uklana	**Doltpur**	20	113	48.89	31.11	13.33	6.66	0	0
Hisar-I	**Gunzar**	14	191	15.56	28.89	31.11	15.56	4.44	4.44
Agroha	**Khasa Mahajan**	20	148	22.22	51.11	20.00	4.44	0	2.22
Narnaund	**Koth Khurd**	15	102	44.44	42.22	11.11	0	2.22	0
Adampur	**Kutia Kheri**	18	187	8.89	46.67	31.11	11.11	2.22	0
Hansi-II	**Thurana**	14	106	35.56	51.11	6.66	4.44	0	2.22
	Average			**28.15**	**42.22**	**18.27**	**7.90**	**1.48**	**1.98**

Moreover, the percentage distribution of household by per capita monthly expenditure on electricity in rural area of Hisar district is shown in Table. Table demonstrates that 70 percent households pay less than 200 rupees for the consumption of electricity within their houses. On the other hand, a very small proportion (near about 3 percent) of total households pays more than 400 rupees per capita for the consumption of electricity in rural area of Hisar district. Similarly, the scenario of per capita expenditure on electricity is found in block wise analysis. Furthermore, more than 50 percent households pay 100 to 200 rupees per capita for energy consumption in Hansi-I, Agroha and Hansi-II block. Moreover, a major proportion of households (Uklana (49 percent), Narnaund (44 percent), Barwala (40 percent) and Hansi-II (36 percent)) pay less than 100 rupees per capita for electricity. Remarkably, proportion of households regarding expenditure on electricity is found decreasing with an increase in per capita amount of all the blocks. The present study clearly defines and confirms the prosperity level of population in rural area of the district, as expenditure on electricity is a significant indicator to assess the prosperity of the population.

5.11 Distribution of Households by Size of Land Holding:

Table reveals that about 43.95 percent households in the study area are observed without agricultural land. The table clearly shows that as the size of land holding is increasing; the share of households is decreasing. A majority of households (27.65 percent) have small size of land holding (0.1 to 2 ha.). 14.07 percent households have the moderate (2 to 6 ha.) size of land holding. Only 6.17 percent households is registered in large size (6 to 10 ha.) of land holding. A significant proportion (8.15 percent) of households is also observed in very large size of land holding. The majority of households from high to large size of land holding belong to village Kutia Kheri.

Table 5.13

District Hisar

Distribution of Household by size of Land Holding

Jan-Apr, 2021

Block	Village	Above 10 ha.	6 – 10 ha.	2 – 6 ha.	0.1 – 2 ha.	Land Less
Hisar-II	**Arya Nagar**	6.67	4.44	4.44	20.00	64.44
Barwala	**Behbalpur**	2.22	2.22	6.67	26.67	62.22
Hansi-I	**Dhana Kalan**	6.67	0	13.33	24.44	53.33
Uklana	**Doltpur**	4.44	13.33	4.44	6.67	71.11
Hisar-I	**Gunzar**	2.22	8.89	31.11	42.22	15.56
Agroha	**Khasa Mahajan**	0	4.44	6.67	40.00	48.89
Narnaund	**Koth Khurd**	8.89	2.22	15.56	33.33	42.22
Adampur	**Kutia Kheri**	28.89	15.56	26.67	13.33	15.56
Hansi-II	**Thurana**	13.33	4.44	17.78	42.22	22.22
Average		8.15	6.17	14.07	27.65	43.95

5.12 Distribution of Households by Availability of Assets:

The home facilities available at the households' level reflect a qualitative lifestyle. The quality of lifestyle is decided on the basis of domestic facilities. The domestic facilities available as economic assets reflect the status of the economic-cultural lifestyle. There appears to be a regional variation in the availability of these infrastructure facilities in a developing country like India (Jabir et al 2011).

Table 5.14

District Hisar

Distribution of Household by Availability of Assets

Jan-Apr, 2021

Block (Village)	Two Wheeler	Four Wheeler	Refrigerator	Television	Washing Machine	Pressure Cooker	Cooler	Mobile/Phone	Computer/Laptop	Electric fan	AC
Hisar-II (Arya Nagar)	77.78	33.33	86.67	86.67	75.56	80.00	71.11	97.78	26.67	97.78	8.89
Barwala (Behbalpur)	51.11	11.11	51.11	64.44	57.78	75.56	66.67	97.78	4.44	93.33	2.22
Hansi-I (Dhana Kalan)	66.67	17.78	66.67	73.33	68.89	93.33	62.22	91.11	4.44	100.00	0
Uklana (Doltpur)	53.33	15.56	51.11	55.56	28.89	82.22	35.56	100.00	6.67	93.33	13.33
Hisar-I (Gunzar)	60.00	22.22	75.56	68.89	68.89	93.33	73.33	97.78	11.11	93.33	0
Agroha (Khasa Mahajan)	62.22	11.11	51.11	57.78	53.33	62.22	62.22	97.78	6.67	88.89	0
Narnaund (Koth Khurd)	51.11	11.11	51.11	62.22	44.44	48.89	37.78	95.56	8.89	75.56	2.22
Adampur (Kutia Kheri)	84.44	48.89	88.89	71.11	80.00	64.44	82.22	100.00	33.33	97.78	11.11
Hansi-II (Thurana)	55.56	22.22	68.89	77.78	55.56	71.11	46.67	100.00	11.11	95.56	4.44
Average	62.47	21.48	65.68	68.64	59.26	74.57	59.75	97.53	12.59	92.84	4.69

Table shows that more than sixty percent households (62.47 percent) have their own two wheelers to do their routine work followed by four wheelers (21.48 percent) in the study area. Kutia Kheri is the leading village in the ownership of two and four wheelers. The availability facility of refrigerator and presser cooker is 65.68 percent and 74.57 percent households in their kitchen. 59.26 percent households have the facility of washing machine to wash their clothes. A significant proportion of households having fan (92.84) and cooler (59.75) are found in the rural area to meet out the requirement in the summer season. While the households are having air condensers is very low. Furthermore, the facility of television (68.64 percent), mobile (97.53 percent) and computer (12.59 percent) is also significantly observed in the study area.

5.13 Banking Service & Newspaper:

Bank is an administrative unit of exchange of people's capital, whose scope of work has increased significantly in the last few decades. With the widespread impact of growing technology, the spread of banking facilities to rural areas is clearly visible. Banking services are a constant restriction for the economic empowerment of every person including the weaker section of the society by increasing their affordable financial access. Inclusive financial system is essential for rapid growth of Indian economy so that poor and small entrepreneurs get equal opportunities of access to financial services. Access to banking services in sectors such as agriculture, health, education, veterinary medicine, transport, deposit capital investment is important for rural households (Nilesh L & Baban N 2014). In social change, communication has been a strong driver of regional development. In the continuous process of development, communication has been an effective way to reduce the exploitative practices spread in the rural environment and to empower every section of the people from socio-political-economic point of view. In the democratic system, communication has established its dominance as a driving force in accelerating rural development through various mass media (Gupta U 2021).

The table shows that households of villages Doltpur, Gunjar and Thurana have availed hundred percent banking services followed by villages Arya Nagar (97.78 percent), Dhana Kalan (97.78 percent), Khasa Mahajan (97.78 percent) and Kutia Kheri (97.78 percent).

Table 5.15

District Hisar

Distribution of Households having services

Jan-Apr, 2021

Block	Village	Banking	News Paper
Hisar-II	**Arya Nagar**	97.78	28.89
Barwala	**Behbalpur**	93.33	6.67
Hansi-I	**Dhana Kalan**	97.78	2.22
Uklana	**Doltpur**	100.00	8.89
Hisar-I	**Gunzar**	100.00	8.89
Agroha	**Khasa Mahajan**	97.78	4.44
Narnaund	**Koth Khurd**	93.33	2.22
Adampur	**Kutia Kheri**	97.78	8.89
Hansi-II	**Thurana**	100.00	6.67
Average		97.53	8.64

Village Arya Nagar is at the top in getting newspaper facility at households' level. In the present figures, there is a big difference in the availability of newspaper facility at the households' level of selected sample. Less newspaper facility has been obtained in the households of village Dhana Kalan (2.22 percent) and Koth Khurd (2.22 percent).

5.14 Types of House:

The physical infrastructure of the house is one of the attributes that serves as an instrument for measuring the standard of living of households. So, in this respect, to

understand various aspects of the living conditions of households and after going through literature review, houses have been divided into three categories (Pucca, Semi-pucca and Kutcha) based on the used material to construct them**.** Therefore, the kind of dwellings in the current study may be determined based on the identification of permanence and durability of material as follows:

Pucca house is one at least whose roofs and walls are made of burnt bricks, cement concrete, jack board, and stone. These are made with hard-wearing materials to last for long periods. The building material provides complete protection from lethal disasters like floods, earthquake and storms. The proprietors of pucca house are rich and prosperous.

Semi-pucca house is neither completely pucca nor kutcha. These kinds of semi-pucca house structure has walls made of pucca materials like stones, oven burnt bricks, etc. and the roofs will be made of kutcha materials like mud, grass, etc. and vice-versa. Semi-pucca houses are usually built by those households who are financially and economically struggling.

Kutcha house is one having walls and roofs made of mud, bamboo, grass, leaves, unburnt bricks, reeds, or thatch. A kutcha house is a temporary dwelling place often used by the underprivileged sections of the society. Kutcha houses are found mostly in rural areas. The strength of a kutcha house is not very good. The proprietors of these houses usually belong to the economically and socially disadvantaged sectors.

The table 5.16 demonstrates the block wise sharing of total households by the type of their houses (Pucca, Semi-pucca and Kutcha) in rural area of the Hisar district. 83.21 percent households reside in pucca houses whereas remaining less than one-fifth households (15.06 percent) live in semi-pucca houses in rural area of the district. Remarkably, only 1.73 percent households live in kutcha houses in the studied area. It is revealed from the table that availability of pucca houses in the district varies from 68.89 percent in Behbalpur (Barwala block) to 97.78 percent in Arya Nagar (Hisar-II block).

Table 5.16 District Hisar Types of House Jan-Apr, 2021				
Block	**Village**	**Pucca**	**Semi-Pucca**	**Katcha**
Hisar-II	**Arya Nagar**	97.78	2.22	0
Barwala	**Behbalpur**	68.89	26.67	4.44
Hansi-I	**Dhana Kalan**	88.89	8.89	2.22
Uklana	**Doltpur**	84.44	15.56	0
Hisar-I	**Gunzar**	84.44	13.33	2.22
Agroha	**Khasa Mahajan**	71.11	28.89	0
Narnaund	**Koth Khurd**	75.56	17.78	6.66
Adampur	**Kutia Kheri**	84.44	15.56	0
Hansi-II	**Thurana**	93.33	6.66	0
Average		**83.21**	**15.06**	**1.73**

Similarly, availability of semi-pucca houses in the district varies from 2.22 percent in Arya Nagar (Hisar-II block) to 28.89 percent in Khasa Mahajan (Agroha block). In the district, most of the semi-pucca houses have walls made of pucca materials like stones, oven burnt bricks, etc. and the roofs made of kutcha materials like mud, grass, etc. Moreover, non existence of kutcha houses in the villages (Araya Nagar, Doltpur, Khasa Mahajan, Kutia Kheri and Thurana) indicates towards the good living conditions of households in the studied area. As non-permanent houses are generally built by those households who come from weaker section whereas most of the pucca house owners are well-to-do and have means to live comfortably. Furthermore, a good proportion of the total households residing in pucca houses can be exempted from extreme hazardous weather conditions in rural areas of the district.

5.15 Drinking Water:

Water is the driver of nature. It is source of life on surface of the earth. Water is used by human beings for many purposes such as drinking, cooking, washing, bathing, sanitation etc. Every human on earth needs access to clean water for their health and wellness. In other words contaminated or the untreated water have negative effects on human health which leads the society towards low socio and economic status. In many countries, a major share of the population is suffering from serious health issues due to the shortage of water or the large extent of contamination (Leeuwen, 2000; Caylak, 2012). Moreover, water is a valuable resource.

Table 5.17

District Hisar

Drinking Water

Jan-Apr, 2021

Block	**Village**	Tap Water	Hand Pump & others
Hisar-II	**Arya Nagar**	100.00	0
Barwala	**Behbalpur**	97.78	2.22
Hansi-I	**Dhana Kalan**	100.00	22.22
Uklana	**Doltpur**	100.00	6.67
Hisar-I	**Gunzar**	100.00	0
Agroha	**Khasa Mahajan**	97.78	2.22
Narnaund	**Koth Khurd**	100.00	17.78
Adampur	**Kutia Kheri**	100.00	0
Hansi-II	**Thurana**	100.00	0
Average		**99.51**	**5.68**

Main sources of drinking water in rural area of Hisar district have been characterized as tap supply, hand pumps and other sources (tube wells) and tankers or campers). Table

demonstrates that 99.51 percent households in the rural part of the district consume water from tap supply whereas only 5.68 percent households consume water from hand pumps and other means (sources) as main sources of drinking water. In the same way, coming to the next point, it is observed that in the four villages (Arya Nagar, Gunzar, Kutia Kheri and Thurana) of the district, tap water is the only and main source of water for drinking. Remarkably, if we examine village wise status**,** very low number of households draws water from hand pumps and other means for the purpose of drinking. The table exhibits that availability of drinking water from hand pumps and other means in the district has a variation from 2.22 percent in Behbalpur (Barwala block) and Khasa Mahajan (Agroha block) to 17.78 percent in Koth Khurd (Narnaund block) and 22.22 percent in Dhana Kalan (Hansi-I block). Moreover, the present study suggests that almost all the families have availability to potable water for the purpose of drinking over the rural part of the district.

5.16 Fuel Used:

Type of household energy is one of the most significant indicators which are directly concerned with well being of people. The deprived population groups are the survivors of the indoor air pollution which is generated from the solid fuel combustion. These fuels get mixed up in the air and have adverse effect on health and environment. Women and children are more susceptible to the negative effects of using biomass fuels as they consistently devote a significant amount of their time and energy to cooking and gathering firewood. In developing countries, households belonging to different income groups use various means of energy for cooking. The census data has a wide classification of cooking fuel. Census has categorized them into nine types i.e. firewood, crop residue, cow dung cake, coal lignite, charcoal kerosene, LPG/PNG, electricity, biogas and any other. For the purpose of clear explanation, these fuels have been grouped into clean fuels and unclean fuels. Unclean fuels include firewood, crop residue and cow dung cake. On the other hand, clean fuel comprises LPG/CNG, electricity and biogas.

Table 5.18 District Hisar **Fuel Used** Jan-Apr, 2021			
Block	**Village**	**Fire wood Cow dung cake**	**LPG**
Hisar-II	**Arya Nagar**	84.44	100.00
Barwala	**Behbalpur**	93.33	93.33
Hansi-I	**Dhana Kalan**	95.56	97.78
Uklana	**Doltpur**	97.78	100.00
Hisar-I	**Gunzar**	95.56	97.78
Agroha	**Khasa Mahajan**	95.56	97.78
Narnaund	**Koth Khurd**	100.00	88.89
Adampur	**Kutia Kheri**	100.00	100.00
Hansi-II	**Thurana**	93.33	100.00
Average		**95.06**	**97.28**

The analysis of the table indicates that 95.06 percent rural households of Hisar district use unclean fuel for cooking while 97.28 percent consume clean fuel for the purpose of cooking. It is evident from the table that almost each household has access to unclean and cleans cooking fuel in the studied area. Most of the households consume clean fuel for the purpose of cooking residing in the Arya Nagar, Dhana Kalan, Kutia Kheri and Thurana whereas, households from Koth Khurd and Kutia Kheri use unclean fuel as major fuel for cooking.

5.17 Types of Kitchen:

Availability of separate kitchen within houses is a significant indicator of socio-economic development. According to the definition ascribed by the Census of India 2011, it **is** clearly stated that if meals are cooked by the households in a kitchen available to them as

a separate room, it will be termed as household having a kitchen facility. If the household cooks meal in an unenclosed space and a separate room is not available, it will be termed as household not having kitchen facility. In that situation, households prepare their meals either in dwelling room or in an open space. However, availability of separate kitchen is influenced by socio-economic, geographic and demographic factors in any particular region. But, in rural area of India, majority of the population belongs to weaker section. Somehow, they manage living area within their limited area of land, so very high incidence of poverty is noted in these areas. Generally, kitchen facility is not prominently availed by these households.

Table 5.19

District Hisar

Type of Kitchen

Jan-Apr, 2021

Block	Village	Separate	Within living room	Open space
Hisar-II	**Arya Nagar**	60.00	40.00	0
Barwala	**Behbalpur**	55.56	37.78	6.67
Hansi-I	**Dhana Kalan**	37.78	60.00	2.22
Uklana	**Doltpur**	60.00	40.00	0
Hisar-I	**Gunzar**	53.33	44.44	2.22
Agroha	**Khasa Mahajan**	37.78	55.56	6.67
Narnaund	**Koth Khurd**	60.00	37.78	2.22
Adampur	**Kutia Kheri**	86.67	13.33	0
Hansi-II	**Thurana**	46.67	53.33	0
Average		**55.31**	**42.47**	**2.22**

The table 5.19 presents the village wise kitchen facility in the district. The rural area of the Hisar district has 55.31 percent households having separate kitchen facility whereas 44.69 percent households do not have separate kitchen facility. Moreover, in case of type of kitchen facility, 55.31 percent households have separate kitchen facility, 42.47 percent use some part of their living room for the purpose of cooking their meal, while only 2.22 percent households prepare their food in an open area. The table demonstrates that in rural areas, availability of separate kitchen is highest in Kutia Kheri (Adampur block) with 86.67 percent and lowest in Dhana Kalan (Hansi-I block) & Khasa Mahajan (Agroha block) with 37.78 percent such households. However, kitchen facility as a part of living room has a variation from 13.33 percent in Kutia Kheri (Adampur block) to 60 percent in Dhana Kalan (Hansi-I block). Interestingly, households residing in the village Dhana Kalan (Hansi-I block) 2.22 percent, Gunzar (Hisar-I block) 2.22 percent, Koth Khurd (Narnaund block 2.22 percent, Behbalpur (Barwala block) 6.67 percent and Khasa Mahajan (Agroha block) 6.67 percent cook their meals in an open space.

5.18 Types of Toilet facility:

In order to enhance human's health and lifespan, cleanliness and a clean environment are essential. Sanitation is a fundamental requirement, much like water and food. Moreover, sanitation is also defined as the capacity to sustain clean environment and the availability of equipment for the proper disposal of human excreta. Additionally, the enhancement of hygiene and sanitation is crucial for the advancement of societies. In the developing countries of the world, problem of sanitation has come out with an aggravating problem (Hazarika, 2015) and India is not an exception to it. Likewise, sanitation in rural areas is crucial to preserving the public's health and as well as an individual's privacy and sense of dignity. Therefore, in the given study area, the investigation of the sanitary facilities is a significant component of housing arrangements because it has direct impact on the health of family members of the household's and as well as on the neighborhood in which they live.

Table 5.20

District Hisar

Type of Toilet

Jan-Apr, 2021

Block	Village	Toilet		Flush	
		Yes	No	Yes	No
Hisar-II	**Arya Nagar**	100.00	0	57.78	42.22
Barwala	**Behbalpur**	100.00	0	13.33	86.67
Hansi-I	**Dhana Kalan**	100.00	0	28.89	71.11
Uklana	**Doltpur**	100.00	0	17.78	82.22
Hisar-I	**Gunzar**	100.00	0	33.33	66.67
Agroha	**Khasa Mahajan**	100.00	0	13.33	86.67
Narnaund	**Koth Khurd**	100.00	0	6.67	93.33
Adampur	**Kutia Kheri**	100.00	0	53.33	46.67
Hansi-II	**Thurana**	100.00	0	24.44	75.56
Average		**405**	**0**	**27.65**	**72.35**

Table 5.20 highlights the availability of toilet facility to households within their premises. Through the critical analysis of the collected data, we came to know the fact that all the households have toilet facility within their premises in the rural area of the Hisar district. Table demonstrates that in rural areas of the district, 27.65 percent households have facility of flush type toilet whereas 72.35 percent have facility of toilets without flush. Arya Nagar (Hisar-II block) 57.78 percent and Kutia Kheri (Adampur block) 53.33

percent villages show the highest number of the facility of flush type toilet in the district. Remarkably, Koth Khurd (Narnaund block) 6.67 percent village has the lowest availability of flush type toilet within their houses. It is also noticeable from the table that households residing in the Village Koth Khurd (Narnaund block) 93.33 percent, Behbalpur (Barwala block 86.67 percent, Khasa Mahajan (Agroha block) 86.67 percent and Doltpur (Uklana block) 82.22 percent have highest number of without flush toilets within their houses in the rural area of the district.

5.19 Distribution of households by availing number of dwelling rooms:

In terms of the number of dwelling rooms available to each household, one of the most crucial aspects of housing quality. The number of dwelling units and their size influence the level of congestion experienced by the people who live there in a particular household. Moreover, such physical aspects of the dwelling describe the living standard of people of various socio-economic statuses. Prominently, dwelling unit or private space for living is a noteworthy indicator of socio-economic enhancement.

In totality, rural households of Hisar district have 28.39 percent households with five and more rooms in their houses followed by 24.20 percent have two rooms, 21.48 percent have four rooms, 20.99 percent have three rooms to live in whereas, only 4.94 percent have one room facility for the purpose of living. Households with one room are found to be highest in number in the village Behbalpur (Barwala block) with 22.22 percent followed by 8.89 percent in Koth Khurd (Narnaund block) and Thurana (Hansi-II block) and lowest in Dhana Kalan (Hansi-I block) and Doltpur (Uklana block) with 2.22 percent. In rural areas of the district, households having one room in their houses are highest in Behbalpur (Barwala block) and Doltpur (Uklana block) with 40 percent followed by Koth Khurd (Narnaund block) with 35.56 percent and villages (Arya Nagar, Dhana Kalan, Gunzar, Khasa Mahajan and Thurana) with near about 20 percent and lowest in Kutia Kheri (Adampur block) with 2.22 percent.

Table 5.21 District Hisar Rooms per house/Number of Room Jan-Apr, 2021							
Block	**Village**	**Rooms per house**	1 room	2 room	3 room	4 room	5 & above room
Hisar-II	**Arya Nagar**	5	0	17.78	15.56	28.89	37.78
Barwala	**Behbalpur**	3	22.22	40.00	17.78	13.33	6.67
Hansi-I	**Dhana Kalan**	4	2.22	20.00	33.33	24.44	20.00
Uklana	**Doltpur**	4	2.22	40.00	20.00	15.56	22.22
Hisar-I	**Gunzar**	4	0	22.22	24.44	31.11	22.22
Agroha	**Khasa Mahajan**	4	0	20.00	20.00	33.33	26.67
Narnaund	**Koth Khurd**	3	8.89	35.56	33.33	13.33	8.89
Adampur	**Kutia Kheri**	6	0	2.22	6.67	20.00	71.11
Hansi-II	**Thurana**	4	8.89	20.00	17.78	13.33	40.00
Average			**4.94**	**24.20**	**20.99**	**21.48**	**28.39**

Households availing three rooms in their houses are highest in Dhana Kalan (Hansi-I block) and Koth Khurd (Narnaund blocks) with 33.33 percent followed by Gunzar (Hisar-I block) with 24.44 percent, Arya Nagar (Hisar-II block) with 15.56 percent and lowest in Kutia Kheri (Adampur block) having only 6.67 percent such households. Availability of four and above more than four rooms is highest in the Kutia Kheri (Adampur block) with 91.11 percent, followed by 66.67 percent in Arya Nagar (Hisar-II block) and 60 percent in Khasa Mahajan (Agroha block) and lowest in Koth Khurd (Narnaund block) with 22.22 percent and Behbalpur (Barwala block) with 20 percent. It is also noticeable from the table that households residing in the villages Arya Nagar,

Gunzar, Khasa Mahajan and Kutia Kheri have minimum two or more than two rooms within their houses in the district. Furthermore, near about 50 percent households have four or more than four rooms in rural area of the district.

5.20 Level of Cleanliness:

Since ancient times, the sense of cleanliness has been crucial to humanity as accessible water was utilized for washing textiles and bathing. Cleanliness means that there is effective management of the house. This effective management is compulsory for better performance of households. Good cleanliness imparts a good impression on all the members of the family and hence promotes enthusiasm and spirit to do something fruitful. However, cleaning practices are determined by societal beliefs, the availability of natural resources, the advancement of fabrics and technological progress. Moreover, individual and family cleanliness is a protective mechanism for future planning. Thus, the level of cleanliness of houses is essential to determining the socio and economic state of a society. In the present study, level of cleanliness is assessed in terms of good, bad and satisfactory. Hence, cleanliness is generally observed, not measured.

Table 5.22 shows the block wise distribution of total households by the level of houses cleanliness in the rural area of the Hisar district during 2021. Among the total rural households, 47.90 percent households achieved good level of cleanliness whereas 46.67 percent of households stand with satisfactory level of cleanliness and 5.43 percent households live in houses with bad cleanliness. The range of good cleanliness houses in the village wise distribution of households varies from 26.67 percent in Khasa Mahajan (Agroha block) to 68.899 percent in Arya Nagar (Hisar-II block). More than fifty percent households in the five villages (Arya Nagar, Dhana Kalan, Gunzar, Kutia Kheri and Thurana) having good cleanliness houses support the fact of good housing condition in rural areas of the district.

Table 5.22 District Hisar Type of Cleanliness Level Jan-Apr, 2021				
Block	**Village**	Good	Bad	Satisfactory
Hisar-II	**Arya Nagar**	68.89	0	31.11
Barwala	**Behbalpur**	40.00	13.33	46.67
Hansi-I	**Dhana Kalan**	51.11	4.44	44.44
Uklana	**Doltpur**	31.11	4.44	64.44
Hisar-I	**Gunzar**	62.22	4.44	33.33
Agroha	**Khasa Mahajan**	26.67	8.89	64.44
Narnaund	**Koth Khurd**	31.11	6.67	62.22
Adampur	**Kutia Kheri**	64.44	6.67	28.89
Hansi-II	**Thurana**	55.56	0	44.44
Average		**47.90**	**5.43**	**46.67**

Table also demonstrates the rural households by bad level of cleanliness in the district where scores switches from 0 (zero) percent in the villages Arya Nagar (Hisar-II block) and Thurana (Hansi-II block) to 13.33 percent in Behbalpur (Barwala block). In the same way, the range of households by satisfactory level of cleanliness fluctuates from 28.89 percent in Kutia Kheri (Adampur block) to 64.44 percent in Doltpur (Uklana block) and Khasa Mahajan (Agroha block). Finally, the results of the present study reveal that there is better management of the houses and social prosperity of the households in the rural area of the district. Furthermore, this good condition of houses may lead households towards high socio and economic levels in future.

5.21 Women Status:

Women with regional variation backgrounds cover fifty percent share the population a country. Contrary to this, present time presents a picture of the condition of rural women like exploited and helpless in every area of the society. Even in the modern era, rural women are buried under traditional practices. Due to many social restrictions and evils, they do not recognize their potential. Women can be connected with economic activities by motivating them towards their potential. By providing proper opportunities to women, skillful capacity of self-reliance is formed and then it will emerge as an important resource in the developmental process of the country. There is a need to ensure the women participation in decision making, participation in dairy-agriculture and other economic business and education. Women should have access to every resource of individual-economic development so that they can be identified as equitable, capable and sustainable agents in the pattern of community development (Allahdadi F 2011).

5.21.1 Decision Making:

Table reveals that the villages Gunzar, Koth Khurd, Kutia Kheri and Thurana had participation of households female in decision making is hundred percent. This share of percentage is also show the empowered status of women in respective villages. In four out of nine villages, the contribution of households' women in decision making is more than 95 percent. In the decision making i.e. family planning, education, health, marriage, services, vote and other community work of households' women, the village Dhana Kalan (91.11 percent) is at the lowest position in the study area.

5.21.2 Work Outside:

Table shows 11.11 percent households were accounted in the higher share of females in outside work from home. The village Dolatpur (22.22 percent) at the top in this term

Table 5.23

District Hisar

Distribution of Households by participation of Women

Jan-Apr, 2021

Block	Village	Decision Making		Work Outside		Elected in Panchayat		Kept under Veil	
		Yes	No	Yes	No	Yes	No	No	Yes
Hisar-II	Arya Nagar	95.56	4.44	6.67	93.33	0	100.00	28.89	71.11
Barwala	Behbalpur	97.78	2.22	17.78	82.22	0	100.00	11.11	88.89
Hansi-I	Dhana Kalan	91.11	8.89	15.56	84.44	0	100.00	22.22	77.78
Uklana	Doltpur	95.56	4.44	22.22	77.78	4.44	95.56	11.11	88.89
Hisar-I	Gunzar	100.00	0	2.22	97.78	4.44	95.56	11.11	88.89
Agroha	Khasa Mahajan	95.56	4.44	8.89	91.11	2.22	97.78	11.11	88.89
Narnaund	Koth Khurd	100.00	0	17.78	82.22	2.22	97.78	4.44	95.56
Adampur	Kutia Kheri	100.00	0	4.44	95.55	4.44	95.56	4.44	95.56
Hansi-II	Thurana	100.00	0	8.89	91.11	0	100.00	8.89	91.11
Average		97.28	2.72	11.61	88.40	1.98	98.02	12.59	87.41

followed by village Behbalpur (17.78 percent), Dhana Kalan (15.56 percent) and Koth Khurd (17.78 percent) in district Hisar. More than half of total household (55.56 percent)

in study area, fewer than ten percent households female are familiar with outside work. At present study, the status of women in work outside of the village Gunzar (2.22 percent) observed with low level.

5.21.3 Elected in Panchayat:

Table highlights the condition of households' female in the term of elected in Panchayat. In four out of total nine villages, none of households' women are accounted with elected in Panchayat. Village Dolatpur (4.44 percent), Gunzar (4.44 percent), Kutia Kheri (4.44 percent), Khasa Mahajan (2.22 percent) and Koth Khurd (2.22 percent) households' women registered having elected in Panchayat.

5.21.4 Kept Not under Veil:

The highest share of households' women in kept not under veil of village Arya Nagar (28.98 percent) of Block Hisar-II have been observed in survey data. More than one-fifth households women of village Gunzar (22.22 percent) are accounted in kept not under veil followed by the village Behbalpur (11.11 percent), Dolatpur (11.11 percent), Gunzar (11.11 percent) and Khasa Mahajan (11.11 percent). Three villages (Thurana – 8.89 percent, Koth Khurd – 4.44 percent & Kutia Kheri 4.44 percent) out of nine villages in the study area, below ten percent households female registered with kept not under veil.

5.22 Health:

Health is a significant element among the measures of human development. Despite impressive economic progress in India over the period of time, the rate of enhancement in the health services has been extremely slow. The disparity in the availability of health facilities from city to rural is clearly visible. This massive form of inequality in access to health services extends from colonial India to the social fabric of independent India including gender differences (Baru et al 2010). The main constraints like high cost, lack of health infrastructure and quality services, non-availability of doctors on the number of patients, lack of transport facilities for households in rural areas have made health services unimportant (Kumar A 2008).

Table 5.24 District Hisar Health Jan-Apr, 2021			
Block	**Village**	**Any family members fallen ill last one year**	
		Yes	No
Hisar-II	**Arya Nagar**	13.33	86.67
Barwala	**Behbalpur**	26.67	73.33
Hansi-I	**Dhana Kalan**	20.00	80.00
Uklana	**Doltpur**	28.89	71.11
Hisar-I	**Gunzar**	20.00	80.00
Agroha	**Khasa Mahajan**	11.11	88.89
Narnaund	**Koth Khurd**	6.67	93.33
Adampur	**Kutia Kheri**	42.22	57.78
Hansi-II	**Thurana**	13.33	86.67
Average		20.25	79.75

The table clearly highlights the status of health condition at household's level in study area. In village Koth Khurd 93.33 percent households registered with any family members not fallen ill in last one year followed by villages Khasa Mahajan (88.89 percent), Arya Nagar (86.67 percent), Thurana (86.67 percent), Dhana Kalan (80.00 percent), Gunzar (80.00 percent), Behbalpur (73.33 percent) and Dolatpur (71.11 percent). Only 57.78 percent households' member did not get sick in the last 1 year, showing the pathetic health condition of the village Kutia Kheri.

This chapter is devoted to study village wise distribution of availability of housing condition and infrastructure. Most of the indicators concerned from demographic, social and economic conditions are also discussed in this chapter. Analysis of distribution of households by family size indicates that maximum families are large in size. More than half of the total households (59 percent) have six or more than six persons in their family in the rural area of the district. Prominently, more than 70 percent joint families (Table 5.2) justify the existence of such large families in the area. Interestingly, the number of joint families is more than nuclear families in the rural part of Hisar district. Moreover, these results prove the prevalence of rural culture in the study area. Moreover, gender ratio is an indicator of the position of women in the society. Furthermore, out of the total villages, two villages (Dhana Kalan and Gunzar) have recorded gender ratio above 900 in the history. Interestingly, all these findings indicate affirmative signs of a balance sex ratio which started to improve in the Hisar district and as well as in the Haryana state. This upward movement in sex ratio is the result of Govt. schemes, initiatives and strict actions. In case of dependency ratio, low ratio has been observed in the rural area of the district. In 2021, more variations have been noticed in man and woman literacy rate and also gender disparity in the rural area of the district. In totality, 78.36 percent rural people are literate whereas literacy rate for men and women is detected 87.21 and 67.84 percent respectively with a gender disparity of 0.0425. Generally it is believed that education has an important place in improving the condition of people leading them from the state of deprivation to prosperity. Analysis of data reveals that the largest proportion (fourth-fifth) of the total population is literate up to intermediate level (80 percent) rather than higher levels of education in the district. Moreover, proportion of female's attainment of higher education (up to matric to post graduation) is lower than males in the studied area. This may be an indication of the gender biasness and backwardness of society showing that more opportunities for higher education are being provided to males than females. Type of houses (Pucca, Semi-pucca and Kutcha) is the main measurement of quality of life. Prominently, more than 80 percent households reside in pucca houses whereas only 2 percent households live in kutcha houses in rural area of the district. Non existence of

kutcha houses in the villages (Arya Nagar, Doltpur, Khasa Mahajan, Kutia Kheri and Thurana) indicates towards the good living conditions of households in the studied area. Tap water supply is the main source of drinking water in rural area of Hisar district as 97 percent households consume water from tap supply. Furthermore, in the four villages (Arya Nagar, Gunzar, Kutia Kheri and Dhana Kalan) of the district, tap water is the only and main source of drinking water. Briefly, the present study suggests that almost all the households have availability to potable water for the purpose of drinking. Fuel used type has also been discussed in the present study. Households residing in the villages of Arya Nagar, Dhana Kalan, Kutia Kheri and Thurana consume clean fuel whereas, households from Koth Khurd and Kutia Kheri use unclean fuel as major fuel for cooking. Toilet facility has been analyzed by its location and types. Households have toilet facility within their premises in the rural area of the Hisar district. Households residing in the villages of Koth Khurd (93.33 percent), Behbalpur (86.67 percent), Khasa Mahajan (86.67 percent) and Doltpur (82.22 percent) have highest number of without flush toilets. In case of kitchen facility, 55.31 percent households having separate kitchen facility whereas 44.69 percent households do not have separate kitchen facility. Availability of separate kitchen is highest in Kutia Kheri with 86.67 percent and lowest in Dhana Kalan with 37.78 percent. Analysis of households by dwelling number of rooms indicate that near about 50 percent households have four or more than four rooms in rural area of the district. Availability of four and above more than four rooms are highest in the village Kutia Kheri with 91 percent, followed by 61 percent in Arya Nagar and 60 percent in Khasa Mahajan and lowest in Koth Khurd with 22 percent and Behbalpur with 20 percent. More than fifty percent households in the five villages (Arya Nagar, Dhana Kalan, Gunzar, Kutia Kheri and Thurana) having good cleanliness houses support the fact of good housing condition in the rural area of the district. If we talk about average work participation rate we find it 31.59 percent in the district. There are variations in male and female work participation rate as 53.93 percent males are recorded as worker, whereas the corresponding figure for the females' population is only 3.41 percent. Dhana Kalan is observed with highest work participant rate (34.34 percent) while the village Gunzar is

found with lowest work participant rate (28.95 percent) in the district. Study of occupation structure demonstrates that 63.28 percent households are engaged in primary activities followed by territory (29.38 percent) and secondary (7.34 percent) activities. Due to location very near of the urban center, the village Arya Nagar has recorded highest share (54.28 percent) of territory activities. Examination of households by size of land holding shows that about 44 percent are observed without agricultural land. Moreover, 62.47 percent rural households have their own two wheelers and 21.48 percent have four wheelers. Kutia Kheri is the leading village in the ownership of two and four wheelers. Availing of banking services is more appreciable in the present study area.

Chapter – VI

Awareness & Beneficiary of Major Government Welfare Scheme in Rural Area

The objective of "social justice" has been a central point in the development process after independence. Remarkable efforts have been made by the administration to achieve this objective by benefiting from various government schemes implemented for the needy population. With these plans, the changing ideology in the use of technology, production process and management in the economic activities of the society is clearly visible. Under the welfare policies of the Constitution, the Government of India is committed to providing economic-administrative-political-social justice to the families on the basis of economic planning. Welfare schemes have been implemented to provide equality and security to the poor and deprived sections of the society. Various multi-welfare schemes are implemented to provide access to resources, availability of opportunities, equality and social security to the people of rural area. Through these welfare schemes, the administration tries to eliminate various problems and evils spread in the society with the help of individuals and groups to reduce or redress them. With the rapidly increasing population of India, various problems have taken a huge form. The Government of India is oriented towards providing better living arrangements and better socio-economic security to every person so that people can be connected with the ideology of "life for years" instead of "years for life". The main objective of the administration is that every person should be benefited from these schemes, so that they can join the development process and adjust themselves with the growing society (Sidhu et al 2020).

6.1 Pradhan Mantri Jan-Dhan Yojana:

PMJDY was launched in 2014 with the objective of making banking accessible to every household at the national level. As a national mission, this scheme has been designed with the objective of increasing the access of people to bank services such as deposits and savings, credit, insurance and pension etc. National Rural Livelihoods Mission for rural

areas is active to connect every individual or family with banking accounts and other facilities. The department of telegram has been consulted to ensure access to banking facilities in difficult areas.

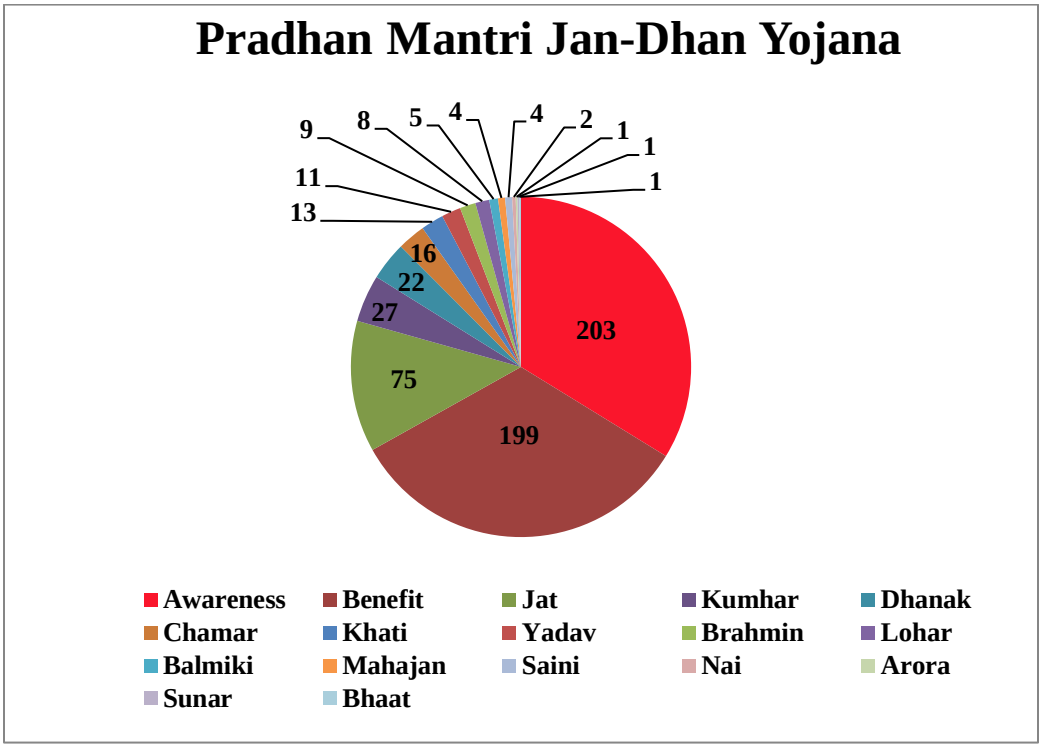


Fig. 6.1

It is evident from the table that this scheme is very popular among the respondents. About half of the respondents (50.12 percent) are aware about this scheme. A little below about half of the respondents (49.14 percent) have opened up their Jan-Dhan account and accordingly benefited. Brahmin, Baniya, Jat, Arora, Yadav, Saini, Kumhar, Khati, Sunar, Nai, Lohar, Bhaat, Chamar, Dhanak, Balmiki has taken maximum advantage of this scheme.

6.2 Old Age Samman Allowance:

It is a welfare scheme of the central government to provide minimum living facilities. This national assistance program for persons above 60 years of age was implemented in

1995. This program is oriented towards the objective of providing welfare subsistence to the elderly population group by providing them monthly financial assistance.

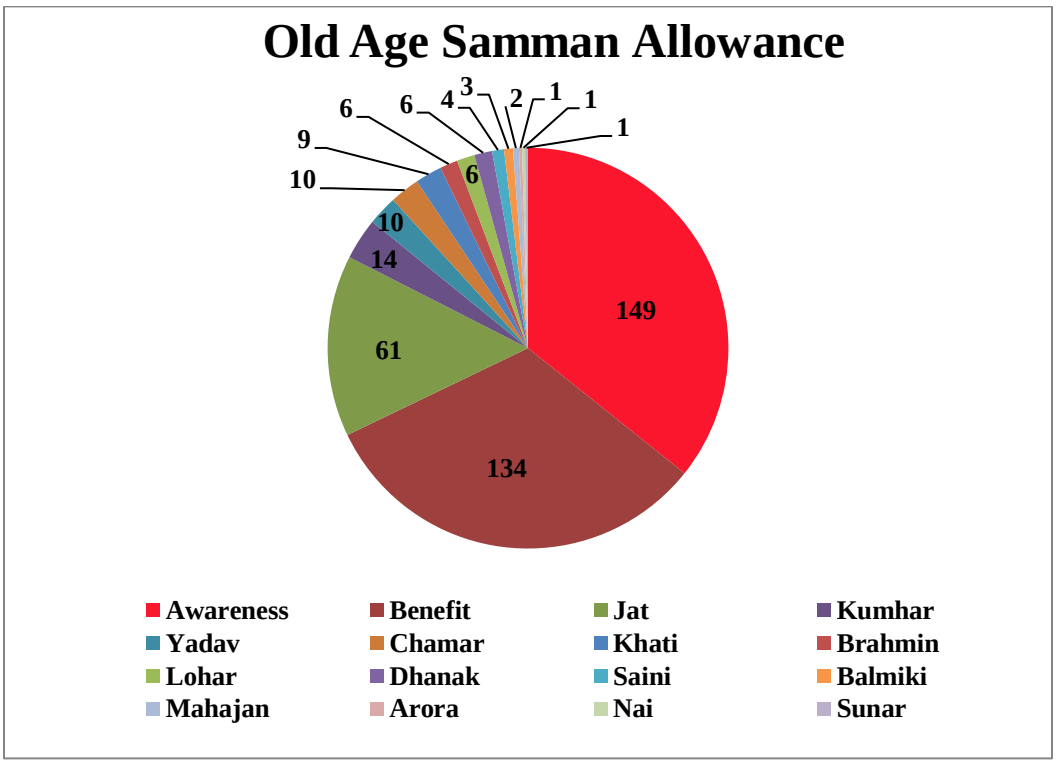


Fig. 6.2

About one-third respondents (36.79 percent) are familiar with Atal Pension Yojana. Also 33.09 percent respondents have responded that their family member/members have been receiving the benefit of this scheme. Brahmin, Baniya, Jat, Arora, Yadav, Saini, Kumhar, Khati, Sunar, Nai, Lohar, Chamar, Dhanak, Balmiki has taken benefit of this scheme.

6.3 Kisan Credit Card:

This scheme was started in 1998-99 to provide agricultural credit to the farmers. This scheme was started for the social upliftment and economic advancement of the farmers engaged in this business on the basis of agricultural credit. The availability of subsidies in this scheme at short time and low loan rate also made it easy to reach the illiterate farmers. The term "farmer's gamble" has been used in the Indian agricultural system; KCC's credit system has proved effective in reducing this risk and strengthening the

agricultural system. Reasons such as the size of the farm and family, education status, interest rate and less flexibility in installment payments have kept some farmers out of this scheme. But this plan also covers accident insurance up to Rs. 50,000 on accidental death or total disability of the credit holder and Rs. 25,000 on temporary risk.

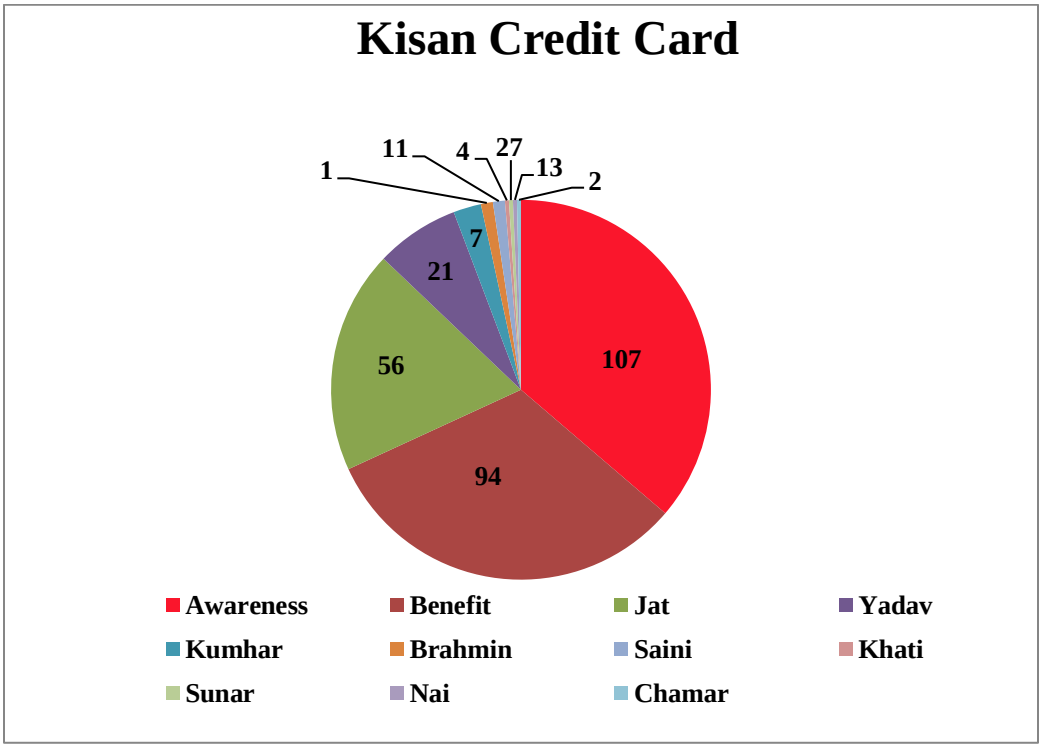


Fig. 6.3

About one-fourth of the respondents (26.42) are familiar with Kisan Credit Card. About a similar respondents (23.21 percent) have utilized the facilities of Kisan Credit Card. Majority of respondents are belong to Jat caste followed by Yadav, Kumhar, Brahmin, Saini, Khati, Sunar, Nai and Chamar castes.

6.4 Minimum Support Price:

"Minimum Support Price" agriculture policy has been implemented to provide minimum price and food security to the farmers. According to the dependence of the country's more than half population on agriculture, the central government is leading in the financial grant, irrigation and technology, minimum support price, storage and management etc.

The minimum price is determined on the basis of the requirements of the country, availability of resources, wage rate of farmers, minimum cost of living, etc. However, the state government also provides additional bonus from MSP to strengthen the agriculture system and provide direct benefits to the farmers.

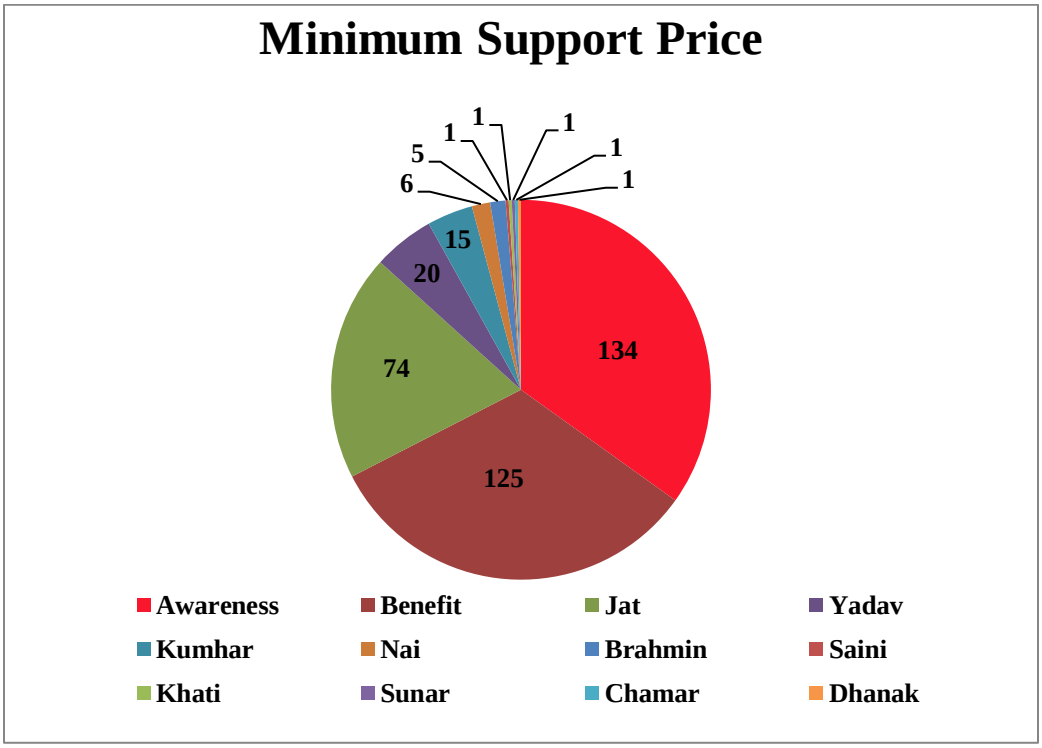


Fig. 6.4

The survey reveals that one-third of respondents (33.09) are awarded with MSP. 30.86 percent respondents have taken the advantage of MSP while selling their agricultural products (wheat, rice & cotton crops). Jat caste (General Caste) has taken maximum advantage of this scheme while Yadav, Kumhar, Nai, Brahmin, Saini, Khati, Sunar, Chamar and Dhanak are the other caste to get benefit.

6.5 Pradhan Mantri Kaushal Vikas Yojana:

This scheme has been operated with the aim of making the youth self-employed by quality training. In this scheme based on the skill standards of the Central Government, the objective is to motivate the youth towards self-employment, give rewards and quality

based training and channelize their potential. In view of the increasing population and unemployment rate of the nation, youth have to be ensured in the all round development of the country by enabling them to do industry and other business activities through skill development scheme.

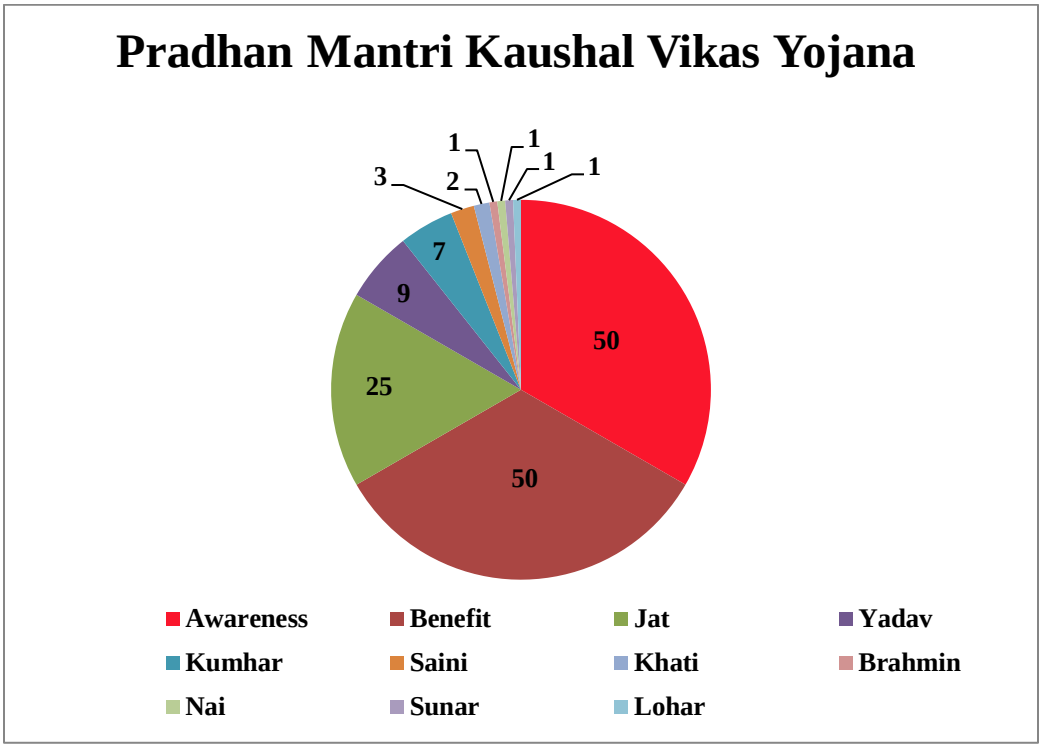


Fig. 6.5

50 respondents (12.35 percent) have availed the benefit of this scheme, which has increased the opportunities for economic growth on the basis of self-employment. The Brahmin & Jat (General caste), Kumhar, Saini, Kati, Nai, Sugar & Lohar (Backward caste) have benefited from this scheme.

6.6 Ujjwala Yojana:

Due to the negative impact of conventional unclean fuels and the health status of women, the Ujjwala scheme was implemented by the central government in 2016. Women in rural areas have low access to clean fuel, which exposes their health status (Verma S. K. 2020). The availability of clean fuel is negligible to a large group of the population i.e.

families living below the poverty line, due to which this class is limited to the use of conventional fuels. "Ujjwala Yojana" is a national initiative to improve the economic-physical condition of this large group of society (Ahmad et al 2018). A mega plan has been prepared to take this scheme to every household, which has made it easier for rural households to access pure fuels.

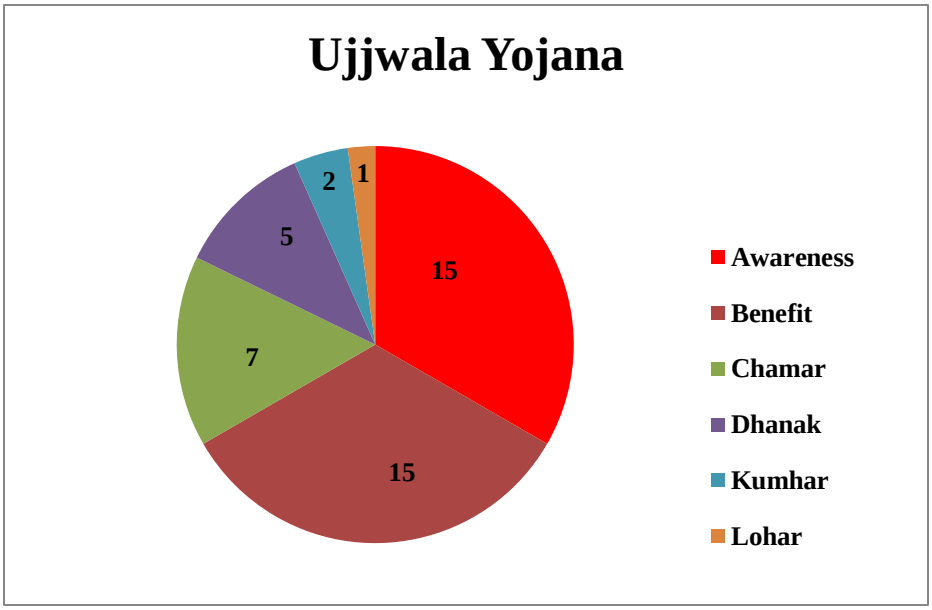


Fig. 6.6

Table reveals that 15 respondents (3.70 percent) are familiar regarding Ujjwala Scheme while only 15 respondents (3.70 percent) have taken the advantage of this scheme belonging to Chamar & Dhanak caste (Schedule caste), Kumhar & Lohar caste (Backward Caste).

6.7 Indira Gandhi National Widow Pension Scheme:

IGNWPS operated under the Ministry of Rural Development has been implemented in 2009. Giving pension benefits to widows to provide social security and clean environment is the hallmark of the welfare structure of the state. This scheme is a government effort of social security to remove the evil practices and restrictions spread in the society towards widows and to keep their subsistence above the minimum level.

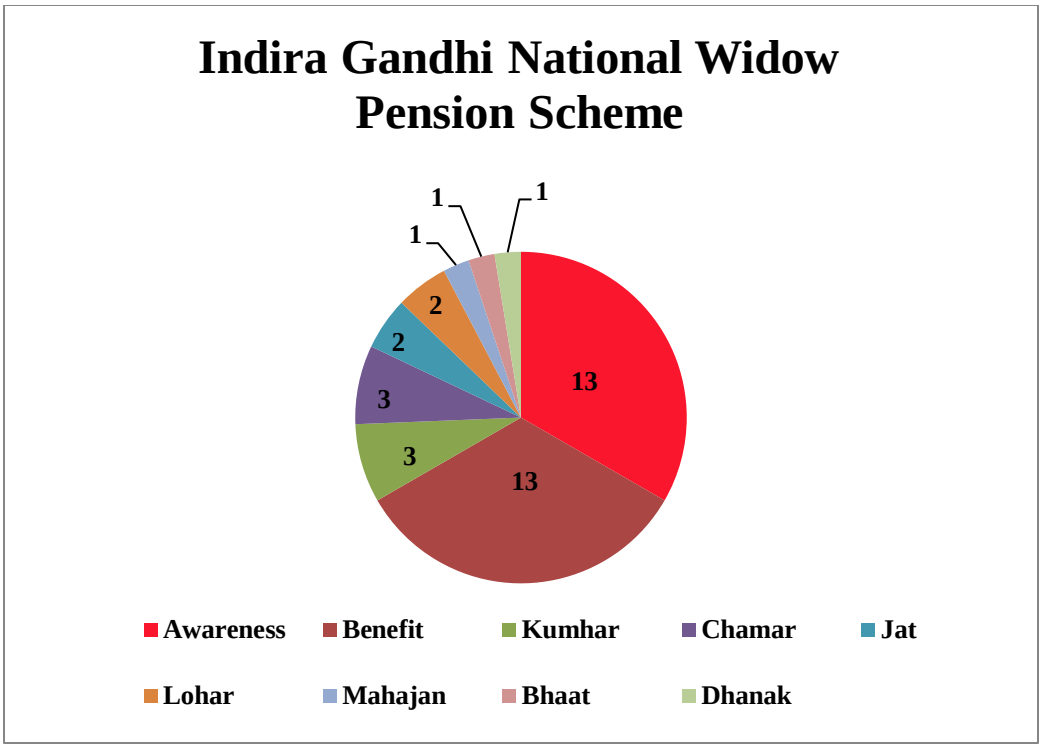


Fig. 6.7

The table shows that 13 respondents (3.21 percent) are acquainted with IGNWPS. Only 13 respondents (3.21 percent) have been observed by taking the benefits of the Indira Gandhi National Widow Pension Scheme.

6.8 Employment Guarantee Scheme:

This scheme was a historic and revolutionary step to increase the livelihood level of rural areas. The MGNREGA was launched on 2005 under the central government. The main goal of this scheme is to provide annual 100 days work to the members of the families who want to do manual labor due to lack of skill. It is a program to provide compulsory employment to the families living at the lowest level of poverty line due to non-availability of opportunity.

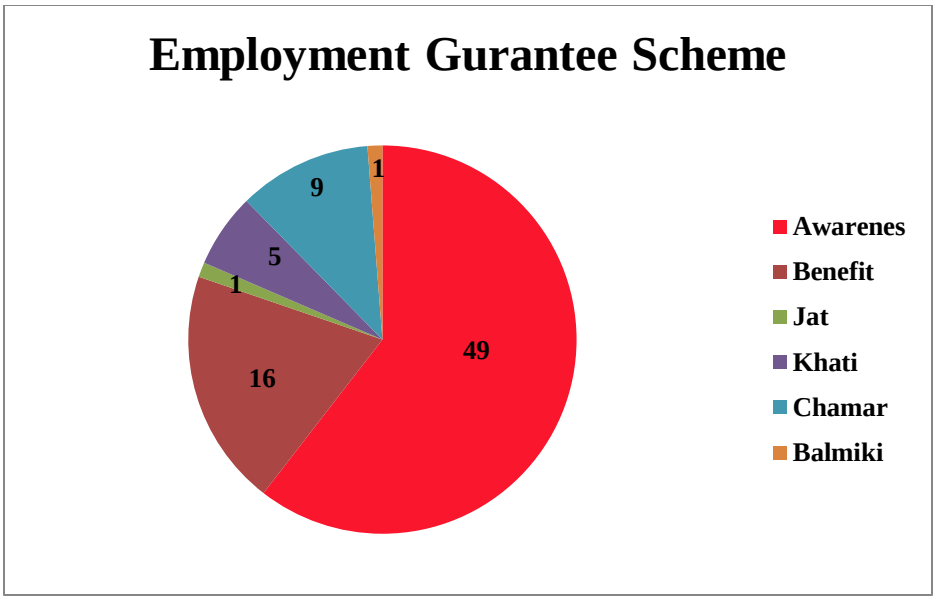


Fig. 6.8

Table shows that 49 respondents (12.10 percent) are familiar regarding Employment Guarantee Scheme while only 16 respondents (3.95 percent) have taken the advantage of this scheme belonging to Jat caste (General caste), Khati caste (Backward Caste) and Chamar & Balmiki caste (Scheduled Caste).

6.9 Indra Awas Yojana:

IAS is sponsored by the central Government, which is running under the name of Pradhan Mantri Awas Yojana since 2016. The central theme of this scheme is to provide residential facility to BPL families. It is a one-time financial assistance scheme started with the participation of 75:25 ratio of the central and local government. This is a central scheme launched for the schedule caste, schedule tribes and families with income below the poverty level. Panchayat level, Zilla Parishad and other administrative units are involved in the active implementation of this project.

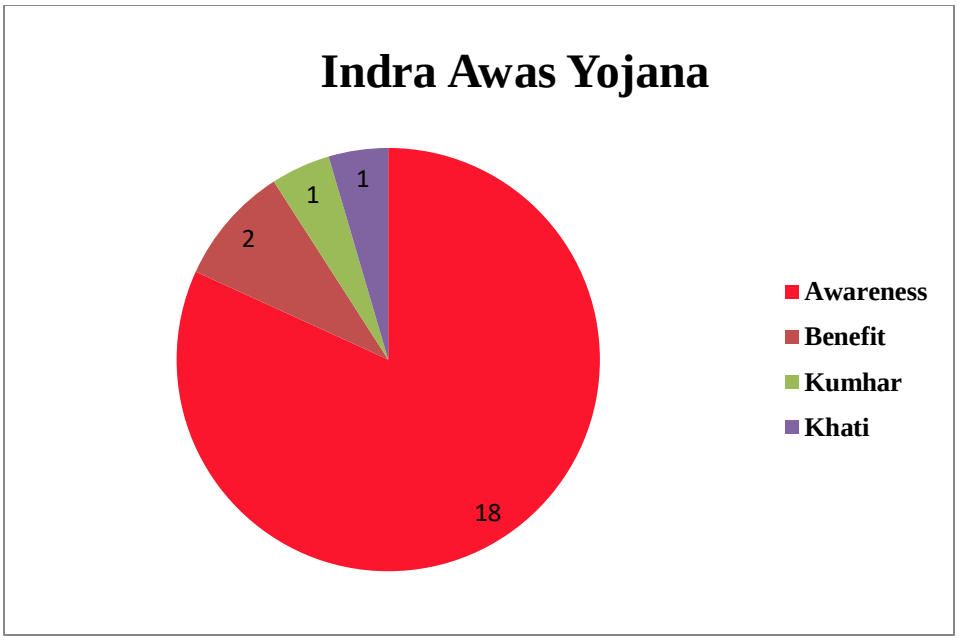


Fig. 6.9

It is evident from the table that only 18 respondents (4.44 percent) out of surveyed respondents (405) in 9 sampled villages of Hisar District have awareness regarding this scheme. But only 2 respondents (0.49 percent) have taken the benefit of this scheme belonging to Kumhar (Backward Category) and Balmiki caste (schedule category).

6.10 Swaranjayanti Gram Swarozgar Yojana:

It is a campaign to provide protective income to the communities living at the lowest level of the poverty line in rural areas. Swaranjayanti Swarozgar Yojana started from April 1999 is a central government subordinate scheme. Its main objective is to nurture the maximum potential for self-employment to the villagers by selecting the skills, abilities and qualifications. The various financial agencies are leading the way in providing funds for this scheme.

The table reveals that only 9 respondents (2.22 percent) are acquainted with this scheme. But, none of the respondents has been observed by taking the benefits of the Swaranjayanti Gram Swarozgar Yojana.

6.11 Sarva Shiksha Abhiyan:

It is an integrated campaign launched by the central Government in 2002 in collaboration with the State Administration. The central theme of this plan is to provide basic education to the children up to the age of 6-14 years, to bridge the gender gap among the enrolled children and to accelerate the pace of learning of the enrolled children. Education is a continuous process in the all round development of youth power and progressive man. The command of a well-ordered future of the country rests on the shoulders of the younger generation, so originality, quality and integrity in education are essential.

Only 13 respondents (3.21 percent) have responded to be familiar with this programme. But no one is observed with enrollment in this scheme.

6.12 Beti Bachao-Beti Padhao:

This program was implemented in 2015 from Panipat, Haryana. The main aim of this ideology is to eradicate gender inequality in the society, to change the negative mindset of the society towards girls and to spread awareness about them. This campaign leads to the awareness of ending the vicious cycle of female feticide spread in the society, balancing the sex ratio and providing equal importance and opportunities to girls as boys. Rapidly declining child sex ratio is a burning issue for developing India. Through Jan Jagran Abhiyan, the community mindset has to be made positive towards women so that a strong nation can be nurtured by using women's ability in social development.

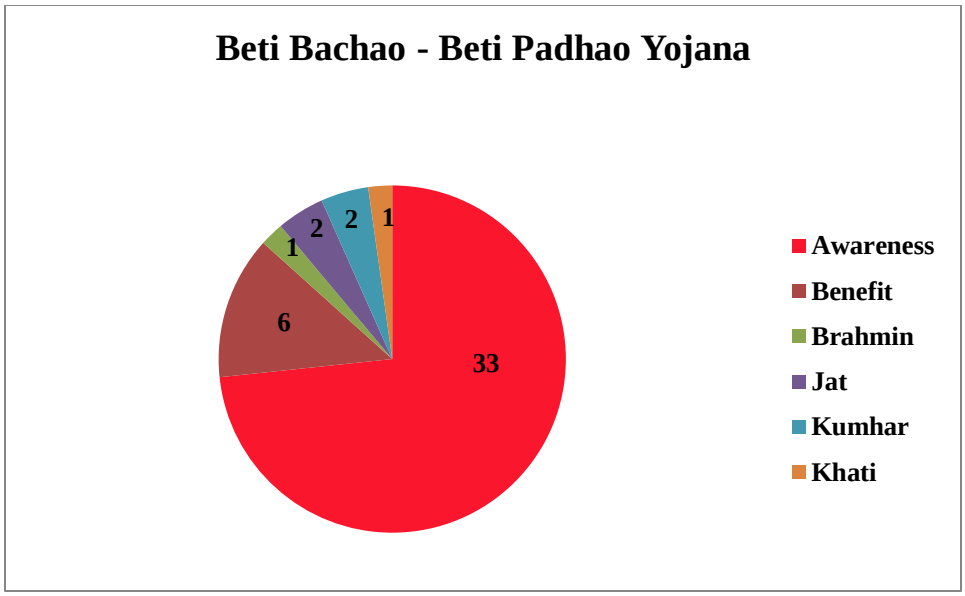


Fig. 6.10

Out of total 405 respondents, 33 (8.15 percent) respondents are registered having the knowledge about this scheme. These respondents belong to Brahmin & Jat caste (General caste) and Kumhar & Khati (Backward caste).

6.13 Pradhan Mantri Suraksha Bima Yojana:

This term plan based scheme is implemented by the central government since 2015. Under this scheme, the beneficiary will get the benefit on the basis of certain terms and conditions on the minimum annual payment. This is a scheme covering full and partial risk, payable by the administration. Accidental death and total disability of ₹ 200000 and partial disability up to ₹ 100000 will be paid to the insured. The beneficiary between the ages of 18-70 will be free to leave or re-join the scheme at any time.

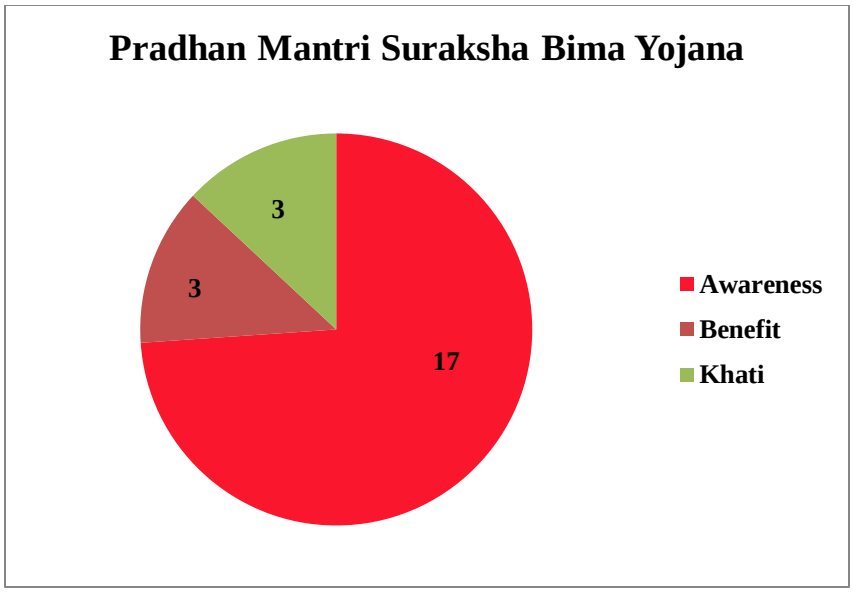


Fig. 6.11

Only 4.20 percent respondents report to be aware this scheme. From this, 3 respondents (0.74 percent) have taken the benefit of Pradhan Mantri Suraksha Bima Yojana.

6.14 Swachh Bharat Abhiyan:

In the words of the Father of the Nation Gandhi, "Cleanliness is more important than freedom". Sanitation has been an important indicator in measuring the level of health and development of an area. This master plan was started in 2014 with the aim of envisioning quality lifestyle of human society. The central approach of this programme are to make rural areas free from open defecation, to motivate the public towards cleanliness, to adopt appropriate technology for sustainable sanitation and to develop scientific systems for the disposal of various waste materials at the community level. At the individual household level, where toilets cannot be built, there is a provision to build community toilets at places like parks and tourist places, bus and railway stations, markets etc. Through this campaign, the dream of a clean and healthy India is to be realized with the active participation of various levels of Panchayati Raj system, students and teachers.

It is a matter of concern that only 2.96 percent respondents have observed having the awareness regarding Swachh Bharat Abhiyan.

6.15 Haryana Disabled Persons Pension Scheme:

"Haryana Disabled Persons Pension Scheme" was implemented in 1981-82 for equality, financial benefits and security to the disabled persons in the society. This scheme was started for the residents of Haryana to provide financial benefits, education and social security to the physically-mentally disabled persons of 60 percent or more.

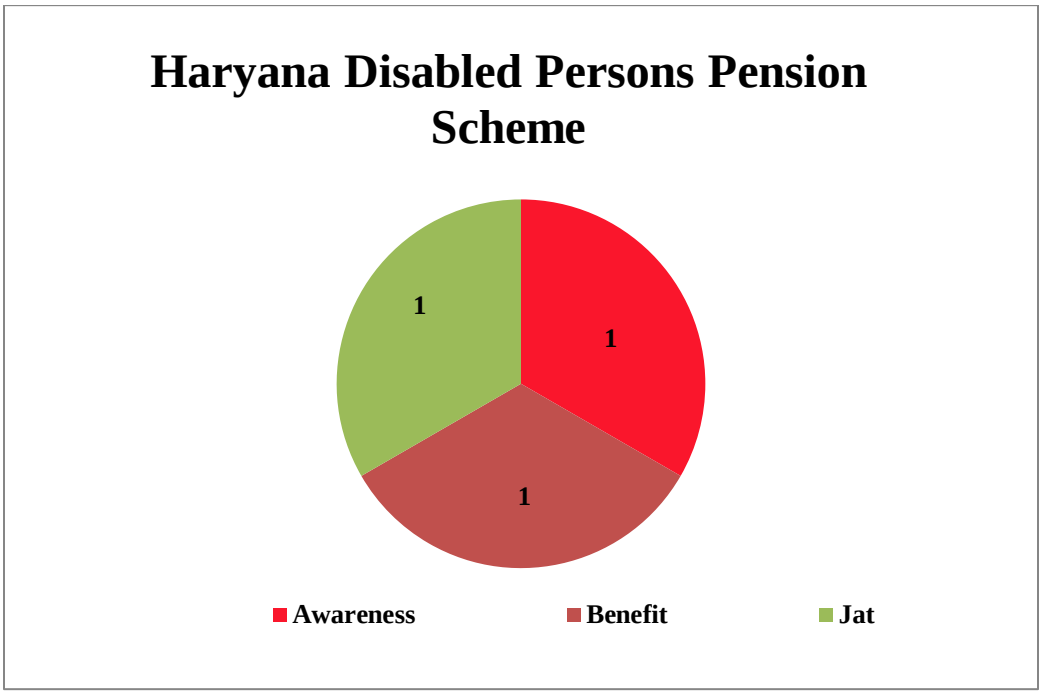


Fig. 6.12

Table shows that 1 respondents (0.25 percent) are registered having the awareness about Haryana Disabled Persons Pension scheme while only 0.25 percent respondent have been observed with taking the advantage of this scheme. As per the survey data, only Jat caste (General caste) in the study area has availed the benefit of this scheme.

CHAPTER - VII

SPATIAL AND TEMPORAL PATTERN OF RURAL DEVELOPMENT

In present scenario, rural development is relatively new idea. In order to enhance the standard of life for rural inhabitants, the concept "rural development" refers to the holistic development of the rural sector. Moreover, the advancement of agricultural production and related activities, local or family businesses, arts, local facilities and services (health, education, roads, means of transport energy and water resources), and especially the residing population in rural area are included in this broad and comprehensive concept. Furthermore, rural development may be understood as an ongoing collaborative process that involves people, institutions and economies to achieve their desired objectives. As an approach, it is intended to enhance personal and community welfare.

Traditionally, urban and rural are two major division of Indian economy. Since, 70 percent of Indians live in rural region; they have a significant role in determining the country's economic progress. Primary activities (agriculture and others) are the principal source of income for rural residents. Very small portion of rural population earn their income from small industries (secondary activities) and other services (tertiary activities). However, recent research results have demonstrated that India's rural population involvement and dependency on agricultural activities is decreasing during last few years. Furthermore, due to the lack of arable land (extreme pressure of population growth) and lack of infrastructural development (inadequate irrigation facility, improper land management and lack of technological advancement) rural population have been compelled to engage in non-agricultural activities.

Therefore, this chapter is an endeavor to investigate the pattern of rural development in Hisar district at village level and as well as at block level. For a comprehensive analysis secondary data has been collected from census, 2011 at village level. Twelve indicators

are shortlisted related to social, economic and infrastructural aspects (Table -1). These indicators are categorized into five level of development based on Z- score techniques.

7.1 Spatial Pattern of Rural development, 1971 & 2011:

Appendices 1 and fig. 7.1 exhibit that there was significant variation in the spatial pattern of rural development in 1971 & 2011 at village level. Proximity to the city and National Highway and size of population has played a central role in shaping the pattern of rural development in the study area. The availability of infrastructure and other basic facilities in the villages of large population size has been more as compared to the villages of small population size, which determines the level of rural development. Due to better irrigated pattern and more fertile area in the villages of the eastern part of the district, there has been more economic development, which is directly related to rural development. The derived categories are named and interpreted as under;

Areas of Very High Development: In 1971, 7 villages (2.73 percent) were observed in this category but it declined to two (0.76 percent) villages in 2011. These villages were Arya Nagar & Ludas of Hisar-II block of Hisar district. The village, Arya Nagar of Hisar-II block, was the leading developed village in the study area. Both villages were located within the 8 km buffer of urban centre such as Hisar city as well as national highway i.e.NH-9 and NH-52. These villages covered only 0.48 percent area of the total rural area i.e. 3742.83 sq. km. and catered 1.06 percent of the rural inhabitants i.e. 1137420. Eastern part of district was observed with the concentration of villages from this category in 1971 but in 2011, the very high developed villages were located very near to Hisar city.

Areas of High Development: A total of 27 (10.55) villages were included in this category of rural development in 1971. It is increased to 30 villages (11.41 percent) out of 263 in 2011. But, majority of villages of this category was observed within 8 km buffer followed by 16 km buffer from National Highway and urban center. These 30 villages had 10.27 percent of total area and served to 13.39 percent population. In 1971, majority villages of this category were observed in south-eastern part of the district but in 2011, the same pattern was also noticed.

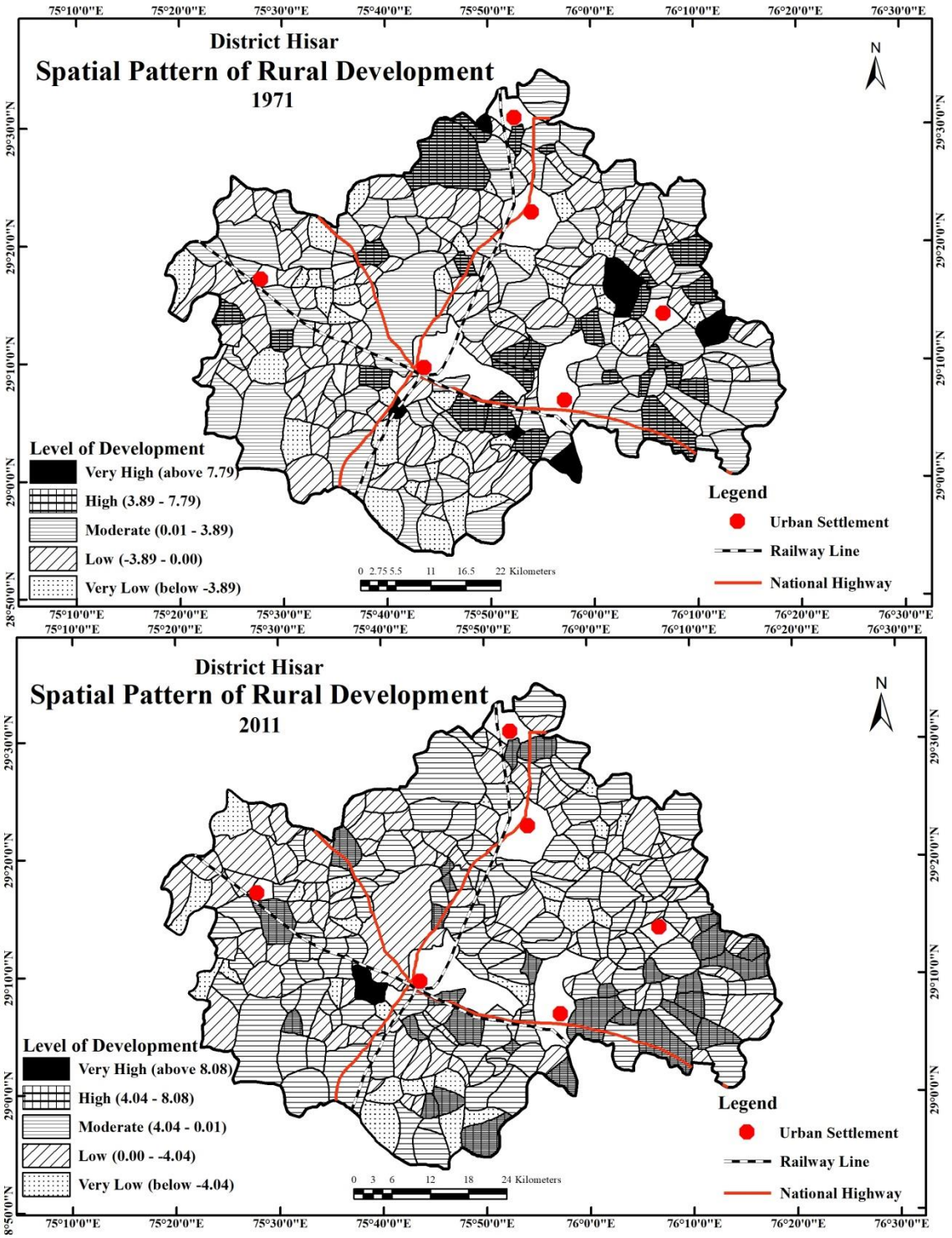

District Hisar
Spatial Pattern of Rural Development
1971
N
Level of Development
Very High (above 7.79)
High (3.89 - 7.79)
Moderate (0.01 - 3.89)
Low (-3.89 - 0.00)
Very Low (below -3.89)
Legend
Urban Settlement
Railway Line
National Highway
0 2.75 5.5 11 16.5 22 Kilometers
District Hisar
Spatial Pattern of Rural Development
2011
N
Level of Development
Very High (above 8.08)
High (4.04 - 8.08)
Moderate (4.04 - 0.01)
Low (0.00 - -4.04)
Very Low (below -4.04)
Legend
Urban Settlement
Railway Line
National Highway
0 3 6 12 18 24 Kilometers

Fig. 7.1

Areas of Moderate Development: A significant increased (8.56 percent) of villages were observed during 1971 to 2011 i.e. 91 (35.55 percent) and 116 (44.11) villages respectively. In 1971, these villages were found in all parts of the district but in 2011, except north-western the villages of this category were also observed in every part of the district. In 2011, about half of total area (48.46 percent) and half of total population (50.32 percent) was enshrouded and fed by these villages.

Areas of Low Development: In 1971, 92 (35.94 percent) villages were observed in the category of low development with slightly lowering in 2011 i.e. 87 (33.08 percent). In 1971, the villages of this category scattered in every part of the district. But in 2011, same settlements situated in the northern half of the district. These villages had accounted 33.56 percent of total area and served 29.99 percent of total population.

Areas of Very Low Development: This category of rural development also witnessed decreasing share of villages i.e. 39 (15.23percent) in 1971 and 28 (10.65 percent) villages in 2011. The village, Tharwa, was the least developed village in the Hisar district. These villages covered only 7.22 percent of total area and catered to 5.22 percent of total population. During 1971 to 2011, there was noticed a gradual shifting in the villages of this category from south and south-eastern to north and north-western part of the district.

7.2 Correlation Computation, 2011:

Person Correlation was applied to examine the causation and association between dependent and independent variables. It is an index of a linear relationship between two variables which is represented by r. Given table exhibits the results of correlation coefficient.

Table 7.1

District Hisar

Correlation Matrix (2011)

	Persons per household	Population density	Sex Ratio	Literacy Rate	Female literacy rate	Work participation rate	Non-agricultural worker	Net area sown	Irrigated area	Education	Health	Techno-Banking	Composite
Persons per household	1	-0.073	-0.056	-0.105	-0.041	-0.009	0.005	-0.022	-0.068	-0.145	-0.033	-0.073	0.94
Population density		1	0.093	0.191	0.131	-0.296	0.289	-0.193	0.297	0.29	0.28	0.18	0.542
Sex Ratio			1	0.241	0.24	-0.100	0.08	-0.123	-0.129	0.176	0.076	0.093	0.393
Literacy Rate				1	0.886	-0.167	0.084	-0.112	0.138	0.001	-0.047	-0.004	0.521
Female literacy rate					1	-0.164	0.144	-0.089	0.174	-0.003	-0.048	0.018	0.557

Work participation rate						1	-0.423	0.187	-0.088	-0.315	-0.181	-0.177	-0.181
Non-agricultural worker							1	-0.134	0.048	0.144	0.046	0.105	0.344
Net area sown								1	-0.187	-0.057	-0.028	-0.135	0.207
Irrigated area									1	-0.033	0.06	-0.024	0.294
Education										1	0.511	0.451	0.5
Health											1	0.386	0.5
Techno-Banking												1	0.45
Composite													1

The correlation between female literacy rate and rural development showed the value of r = 0.557 which indicate that female literacy rate had a significant and moderate positive effect (r = 0.3 to 0.6) on rural development followed by population density (r = 0.542), literacy rate (r = 0.521), education (r = 0.50), health (r = 0.50), technical & banking (r = 0.450), sex ratio (r = 0.393), non-agricultural worker (r = 0.344). There was a significant and week positive relationship between irrigated area (r = 0.294) and rural development. Work participation rate (r = -0.181) had a significant and week negative relationship with rural development. While the indicators such as persons per household and net sown area had insignificant relationship with rural development.

A significant positive correlation has been observed between male and female literacy rate (0.886). The correlation between educational and health infrastructure, educational and techno-banking infrastructure and health and techno-banking had also exhibited moderate positive correlation while the correlation between work participant rate and non-agricultural worker, and educational infrastructure and work participant rate was found with moderate negative correlation. The correlation between remaining variable are observed with low positive and negative correlation.

7.3 Trends of Rural development during 1971 & 2011:

Table 7.2 depicts the distribution of villages having change at different level in rural areas development which can be summarized as follows:

Very high progressive area: in 2011, three villages (1.17 percent) namely Ludas, Panghal, Bass Azam Shahpur had shown significant improvement in their rural development score as compared to 1971. Therefore, these villages hence recognized as very high progressive villages. The figure reveals that the village Ludas is located in the vicinity of the Hisar city, village Panghal near to Barwala Town and village Bass Azam Shahpur near to Hansi-Narnaund town.

High progressive area: 44 villages in 2011 (17.19 percent) accounted with a good improvement in their rural development score in comparison to 1971. Hence, the villages

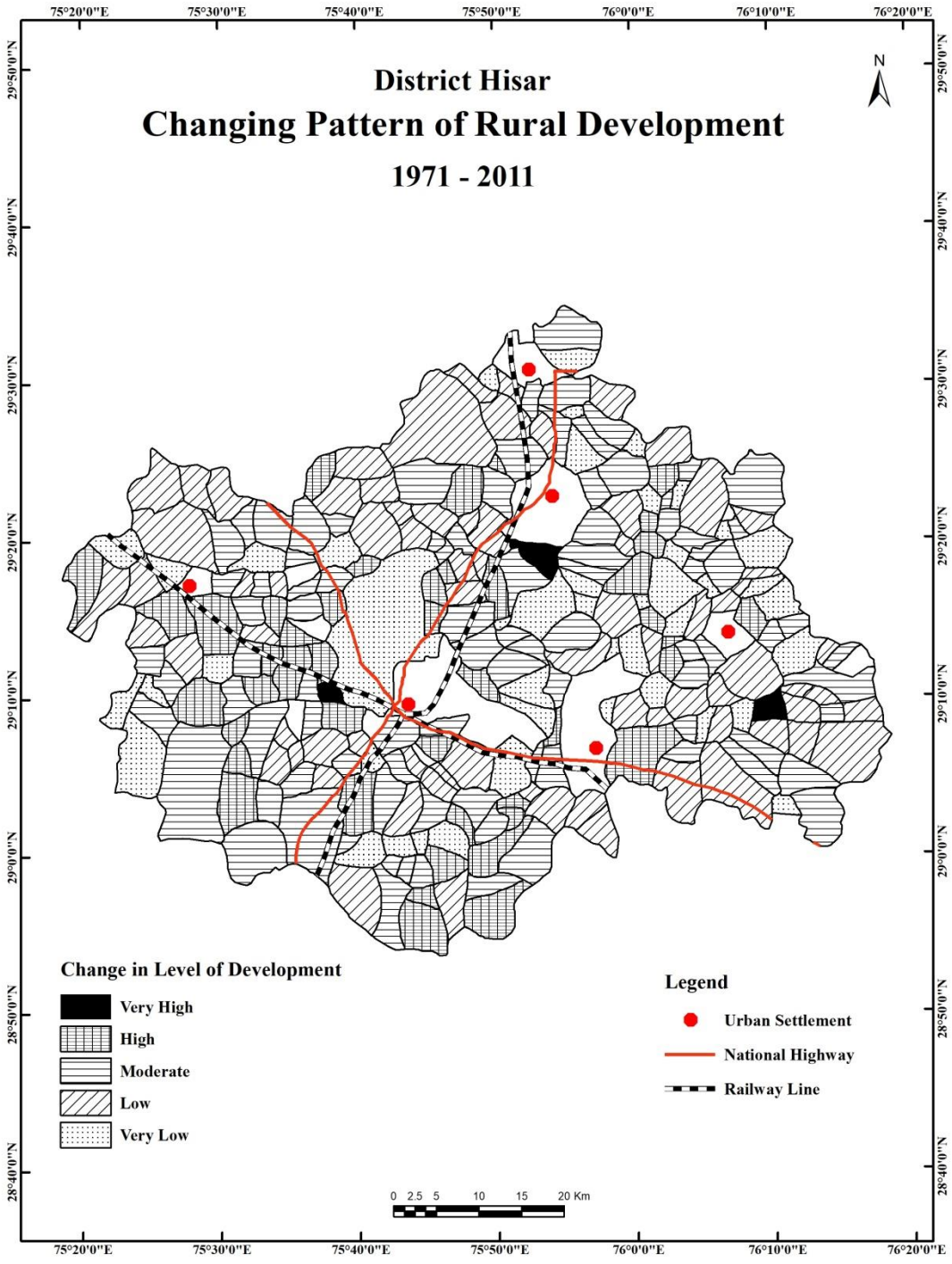

District Hisar
Changing Pattern of Rural Development
1971 - 2011
N
75°20'0"E
75°30'0"E
75°40'0"E
75°50'0"E
76°0'0"E
76°10'0"E
76°20'0"E
29°50'0"N
29°40'0"N
29°30'0"N
29°20'0"N
29°10'0"N
29°0'0"N
28°50'0"N
28°40'0"N
Change in Level of Development
Very High
High
Moderate
Low
Very Low
Legend
Urban Settlement
National Highway
Railway Line
0 2.5 5 10 15 20 Km

Fig. 7.2

Table 7.2 **Changing Trend of Rural Development** 1971 - 2011			
Trend of Development	**No. of villages**	**No. of villages (%)**	**Name of the villages**
Very High Progressive	3	1.17	Ludas, Panghal, Bass Azam Shahpur
High Progressive	44	17.19	Kaluwas, Shala Dheri, Bhiwani Ruhelan, Juglan, Chuli Khurd, Kajal, Bugana, Sundawas, Neoli Kalan, Gianpura, Nalwa, Mater Sham, Bheni Amirpur, Bure, Bahbalpur, Saharwa, Siswal, Data, Dhana, Isharheri, Durjanpur, Thaska, Mirka, Talwandi Rana, Dobhi, Rajpura, Bhojraj, Sarsana, Neoli Khurd, Dhamian, Mohabatpur, Malapur, Sultanpur, Raipur, Badon Brahmanan, Sabarwas, Kutabpur, Bayana Khera, Banbhori, Balak, Kanwari, Kirtan, Meengni Khera.
Stable	92	35.94	Jeora, Khanpur, Chaudhriwas, Payal, Hari Kot, Kharkhari, Shahpur, Khasa Mahajanan, Jagan, Guzar, Sarangpur, Chikanwas, Madha, Kajla, Kharia, Nayana, Sulchani, Gorchhi, Budha Khera, Kohli, Agroha, Siswala, Bandaheri, Kheri Barki, Gamra, Singhran, Fransi, Badhawar, Sarera, Talwandi Rukka, Mohla, Bhada Khera, Bhaini Badshahpur, Dahima, Madloda, Rakhi Khas, Majra, Bithmara, Hindwan, Mazadpur, Chandnaud, Kagsar, Harita, Kaimri, Bobua, Kharbla, Channot, Garhi, Mirzapur, Pali, Dhansu, Sandlana, Madan Heri, Kheri Jalib, Telanwali, Sisar, Khar Khara, Ugalan, Chiraud, Muklan, Mangali Surtia, Gaibipur, Ladwi, Kheri Lochap, Koth Kalan, Dabra, Balawas, Mothsara, Kanoh, Kherampur, Kirara, Kulana, Dharam Kheri, Khedar, Hasangarh, Ramayan, Nara, Gawar, Panihar Chak, Panhari, Parbhuwala, Balsmand, Singhwa Khas, Gurana, Rajli, Mirpur, Khokha, Depal, Ghursal, Salemgarh, Bhodia Khera Bishnoian, Rawalwas Kalan.
			Bhairi Akbarpur, Jakhod Khera, Bichpari, Nawagaon, Dhiran Was, Sheikhpura, Mangali Jhara, Sisai Bola, Thurana, Kharak, Kirori, Mangali

Retrogressive	72	28.13	Akalan, Mahalsara, Bass Khurd Bejan, Bhaklana, Bagla, Tokas, Umra, Puthi Saman, Bass Badshahpur, Jamawari, Bhatol Jatan, Khumba, Petwar, Patan, Sorkhi, Milakpur, Budana, Chhan, Bad Chhapar, Bhana, Badon Pati Awal, Kheri Roj, Chamar Khera, Sarsod, Chabbarwal, Dhingtana, Rawalwas Khurd, Mangali Mohbat, Daulatpur, Putthi Mangalkhan, Nang Thala, Samani, Bass Akbarpur, Moda Khera, Pabra, Koth Khurd, Dhadh, Kapro, Bherian, Daroli, Mehanda, Hajampur, Shamsukh, Dhanderi, Kuleri, Latani, Talwandi Badshahpur, Khera Rangran, Masoodpur, Sadelpur, Chuli Kalan, Ladwa, Bhatla, Dhani Jatan, Dobeta, Asranwan, Badon Pati Doyan, Kirmara, Moth Rangran, Sandol, Jamni Khera.
High Retrogressive	45	17.58	Haibatpur, Raj Thal, Sulkhani, Kharar, Bir Hisar, Sindhar, Bharri, Badala, Burak, Chuli Bagarian, Landhari Sukh Lambran, Kinnar, Singhwa Ragho, Khanda Kheri, Sisai Kali Rawan, Daha, Sarsana, Chudhriwali, Rakhi Shahpur, Ghirai, Sotha, Kumbha Khera, Surewala, Kallar Bhaini, Kheri Shioran, Banda Heri, Rawat Khera, Kalirawan, Bir Hansi, Kheri Gangan, Khara Barwala, Kabrer, Bhagana, Moth Karnail Shab, Mirchpur, Sahu, Kharkhara, Badon Rangran, Kutia Kheri, Bhatol Rangran, Luhari Ragho, Majod, Alipur, Dewe, Tharwa.

Static area: In 2011, 92 villages (35.94 percent) were observed with slightly positive rural development score in contrast 1971. So these villages were nominated as static villages. These villages were found in all parts of the district.

Low Retrogressive area: More than one-fourth of the villages (28.13 percent) out of 256 registered with low negative rural development score as recorded in 1971. This group of villages designed as low retrogressive villages. A significant concentration of low retrogressive villages was found in north and eastern part.

High retrogressive area: 45 villages (17.58 percent) recorded with a significant negative rural development score in contrast to 1971. Accordingly, these villages were grouped as high retrogressive villages. The villages of this category also mapped in each and every part of the district.

7.4 Spatial Pattern of Rural Development in Relation to Physical Distance from the Urban Centre, 2011:

Table 7.3 depicts the distribution of villages in different level of rural development in relation to physical distance from the urban centers i.e., Hisar city and Hansi town. It is evident that 9 villages (14.07 percent) belonging to very high and high category of development were observed within 8 km distance from city centre.

Table 7.3

District Hisar

Level of Development by Distance from the Urban Centre

Level of Development	Below 8 km	8 to 16 km	Above 16 km
Very High	2 (3.13)	0	0
High	7 (10.94)	17 (11.11)	6 (13.04)
Moderate	31 (48.44)	67 (43.79)	18 (39.13)
Low	21 (32.81)	51 (33.33)	15 (32.61)
Very Low	3 (4.69)	18 (11.77)	7 (15.22)
Total	64 (24.34)	153 (58.18)	46 (17.49)

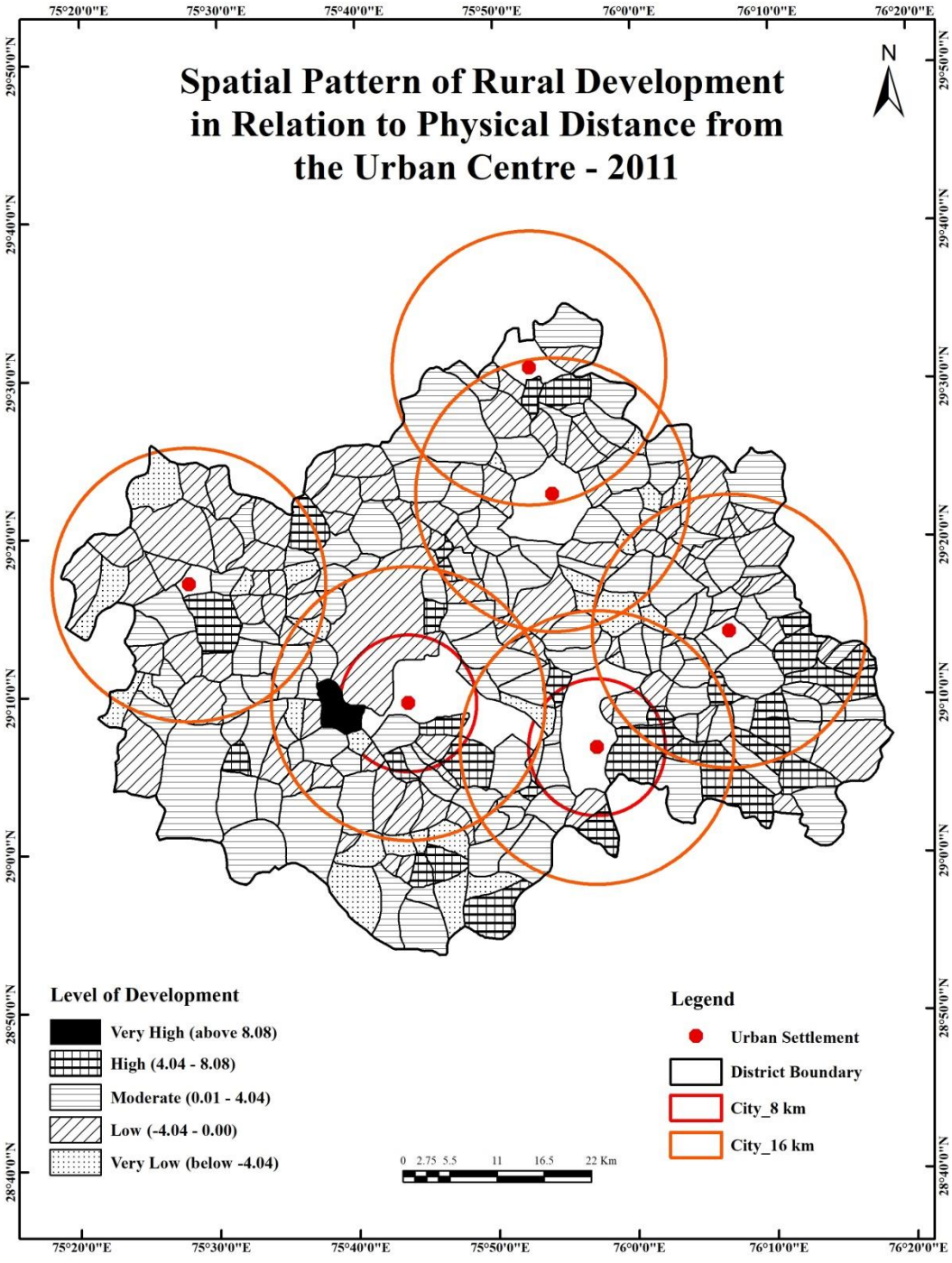

Spatial Pattern of Rural Development in Relation to Physical Distance from the Urban Centre - 2011
N
75°20'0"E
75°30'0"E
75°40'0"E
75°50'0"E
76°0'0"E
76°10'0"E
76°20'0"E
29°50'0"N
29°40'0"N
29°30'0"N
29°20'0"N
29°10'0"N
29°0'0"N
28°50'0"N
28°40'0"N
Level of Development
Very High (above 8.08)
High (4.04 - 8.08)
Moderate (0.01 - 4.04)
Low (-4.04 - 0.00)
Very Low (below -4.04)
0 2.75 5.5 11 16.5 22 Km
Legend
Urban Settlement
District Boundary
City_8 km
City_16 km

Fig. 7.3

The share of said categories decreased as the distance increased (11.11 percent between 8 to 16 km and 13.04 percent above 16 km) from urban centre (Roy B. 2017).

In contrast, the proportion of low and very low developed villages increased as the distance increased (37.5 percent below 8 km, 45.10 percent between 8 to 16 km and 47.83 percent above 16 km) from the urban centre. Interestingly, share of moderate developed category was also decreasing as moved away from the city centre in their respective zone. There is a week negative correlation (r = -0.109) between rural development and physical distance from urban centre meaning as the physical distance increases, the level of rural development decreases.

7.5 Spatial Pattern of Rural Development in Relation to Physical Distance from the National Highway, 2011:

Table 7.4

District Hisar

Level of Development by Distance from National Highway

Level of Development	Below 8 km	8 to 16 km	Above 16 km
Very High	2 (1.64)	0	0
High	17 (13.93)	7 (7.53)	6 (12.5)
Moderate	55 (45.08)	43 (46.24)	18 (37.5)
Low	42 (34.43)	27 (29.03)	18 (37.5)
Very Low	6 (4.92)	16 (17.20)	6 (12.5)
Total	122 (46.39)	93 (35.36)	48 (18.25)

Table 7.4 shows the distribution of villages in different level of rural development in relation to physical distance from the National Highways i.e., NH-9 & NH-52. It is revealed that 15.57 percent villages observed within 8 km distance from National Highways belong to very high and high category. The proportion of these categories

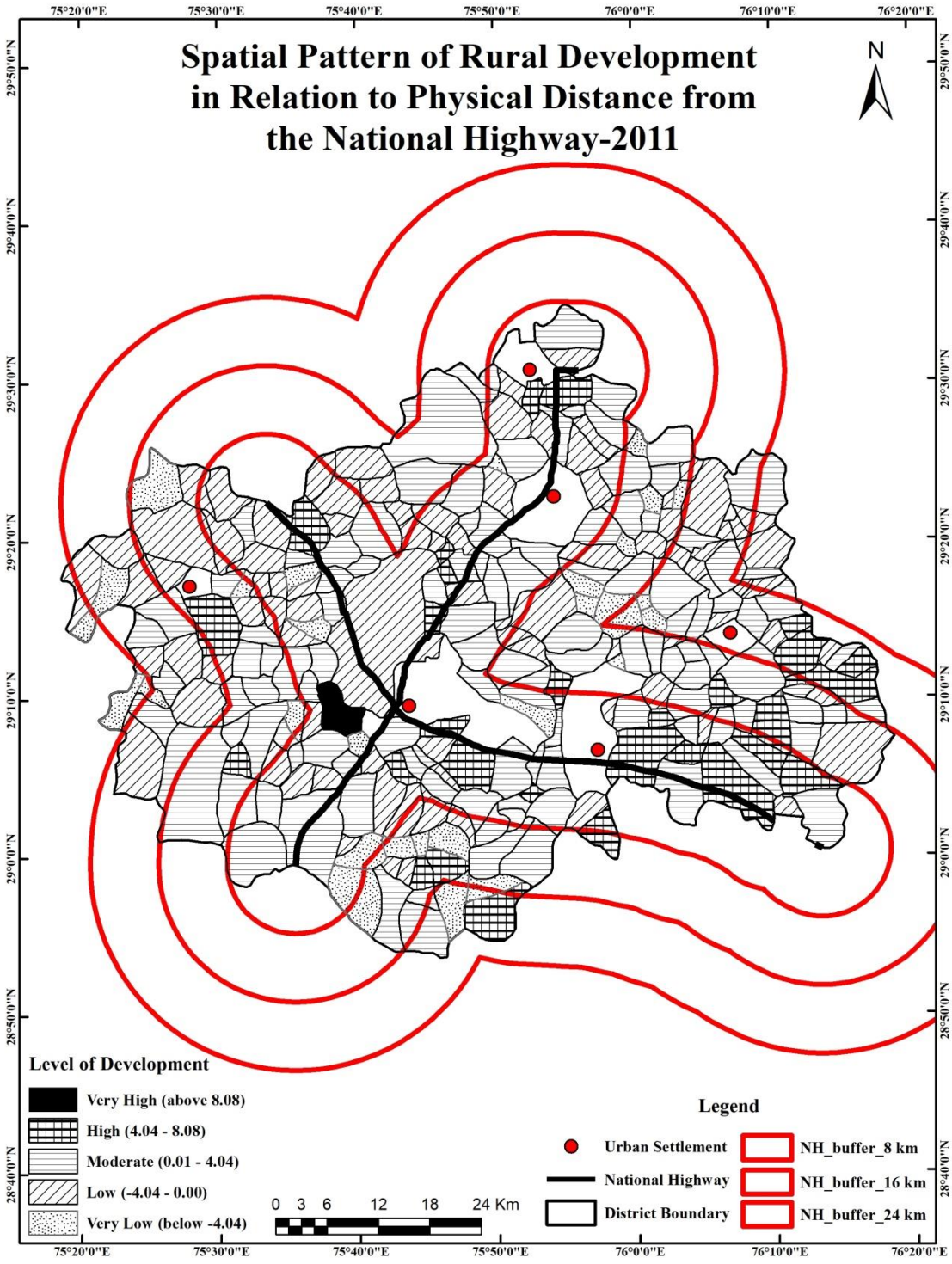

Spatial Pattern of Rural Development in Relation to Physical Distance from the National Highway-2011
N
75°20'0"E
75°30'0"E
75°40'0"E
75°50'0"E
76°0'0"E
76°10'0"E
76°20'0"E
29°50'0"N
29°40'0"N
29°30'0"N
29°20'0"N
29°10'0"N
29°0'0"N
28°50'0"N
28°40'0"N
Level of Development
Very High (above 8.08)
High (4.04 - 8.08)
Moderate (0.01 - 4.04)
Low (-4.04 - 0.00)
Very Low (below -4.04)
0 3 6 12 18 24 Km
Legend
Urban Settlement
National Highway
District Boundary
NH_buffer_8 km
NH_buffer_16 km
NH_buffer_24 km

Fig. 7.4

decreased as the distance increased (15.57 percent below 8 km, 7.53 percent between 8 to 16 km and 12.5 percent above 16 km) from National Highways. In contrast, the proportion of low and very low developed villages increased as the distance increased (39.35 percent below 8 km, 46.23 percent between 8 to 16 km and 50.00 percent above 16 km) from the National Highway. Again, it is interesting to note that more than three – fourth villages of respective distance from the National Highway were observed in the category of moderately rural developed (Roy B. 2017).

There is a week negative correlation (r = -0.181) between rural development and physical distance from national highway meaning as the physical distance increases, the level of rural development decreases.

7.6 Spatial Pattern of Rural development in relation to size of rural settlement in term of population, 2011:

Table 7.5

District Hisar

Level of Development by Size of Village's Population

Level of Development	Above 10000	6000-10000	3000-6000	1000-3000	Below 1000
Very High	0	1 (2.38)	1 (0.86)	0	0
High	1 (10.00)	9 (21.43)	14 (11.97)	5 (6.67)	1 (5.26)
Moderate	5 (50.00)	21 (50.00)	65 (55.56)	23 (30.67)	2 (10.53)
Low	4 (40.00)	9 (21.43)	32 (27.35)	35 (46.66)	7 (36.84)
Very Low	0	2 (4.76)	5 (4.27)	12 (16.00)	9 (47.37)
Total	10 (3.80)	42 (15.97)	117 (44.49)	75 (28.52)	19 (7.22)

Table 7.5 highlights the distribution of villages in different level of rural development in relation to population size of rural settlement i.e., above 10000, 10000 – 6000, 6000 – 3000, 3000 - 1000 & below 1000. It is observed that only 10 villages (3.80 percent) out of total villages were observed with above 10000 populations. Only single village (10 percent) among these villages was found in the category of high development whereas 50 percent villages belonged to moderate developed category followed by low developed category (40 percent). 23.81 percent villages of 6000 – 10000 population were observed in the group of high to very high development. The proportion of high to very high categories decreased as the size of settlements decreased (12.83 percent in 6000 - 3000, 6.67 percent in 3000 - 1000 and 5.26 percent below 1000) in term of population. In contrast, the proportion of low and very low developed villages increased as the size of settlements (10000 to below) decreased (26.29 percent in 10000 – 6000, 31.62 percent in 6000 - 3000, 62.66 percent in 3000 - 1000 and 84.21 percent below 1000) in term of population. A majority of villages of their respective size of settlements exceptionally below 1000 were observed in the category of moderately rural developed.

7.7 Block wise Level of Development:

Table 7.6 exhibits the level of socio – economic and infrastructural development in different blocks of Hisar district. Only two out of nine blocks, namely Barwala and Hansi-I are found with high level of rural development. The blocks Hisar-I, Narnaund, Uklana, Agroha, Hisar-II & Hansi-II are included in the category of moderate rural development. While only Adampur block is observed with low level of rural development.

Table 7.6 District Hisar Block wise Level of Development			
Level of Development	**No. of Blocks**	**No. of Blocks (%)**	**Name of the Block**
Very High	0	0	-
High	2	22.22	Barwala, Hansi-I
Moderate	6	66.67	Hisar-I, Narnaund, Uklana, Agroha, Hisar-II, Hansi-II
Low	1	11.11	Adampur
Very Low	0	0	-
Total	9	100	

7.8 Block wise Distribution of Villages by Level of Development:

Table 7.7 depicts the block-wise distribution of villages as per different level of rural development. 8.11 percent villages of Barwala block are included in very high category. The blocks Agroha, Uklana, Hisar-I & Adampur have shown a significant proportion of villages in high level of rural developed category. Hansi-I block have accounted 82.05 percent villages in moderate category of development followed by Barwala (81.08 percent), Hisar-II (79.49 percent) & Hansi-II (77.27 percent). A significant proportion of villages having low level of development are observed in Hisar-I (15.00 percent) &Narnaund (13.79 percent) followed by Uklana (9.09 percent), Agroha (8.70 percent), Adampur (8.70 percent) etc. A major proportion of villages of their respective blocks are observed in the category of moderately rural developed. There is no any block in very high and very low category.

Table 7.7

District Hisar

Block wise Distribution of Villages by Level of Development

Name of Block	Level of Development				
	Very High	High	Moderate	Low	Very Low
Adampur	0	4 (17.39)	16 (69.57)	2 (8.70)	1 (4.34)
Agroha	0	5 (21.74)	15 (65.22)	2 (8.70)	1 (4.34)
Barwala	3 (8.11)	2 (5.41)	30 (81.08)	1 (2.70)	1 (2.70)
Uklana	0	2 (18.18)	8 (72.73)	1 (9.09)	0
Hisar-I	1 (2.5)	7 (17.5)	26 (65)	6 (15.00)	0
Hisar-II	1 (2.56)	3 (7.69)	31 (79.49)	3 (7.69)	1 (2.56)
Hansi-I	0	3 (7.69)	32 (82.05)	3 (7.69)	1 (2.56)
Hansi-II	1 (4.55)	2 (9.09)	17 (77.27)	1 (4.55)	1 (4.55)
Narnaund	1 (3.45)	4 (13.79)	20 (68.97)	4 (13.79)	0

7.9 Social Composition and Their Level of Rural Development in Sampled Villages:

It is evident from the table 7.8 that in 2021, 40.74 percent families belongs to general castes followed by backward castes (39.01 percent) and schedule castes (20.25 percent). Table also reveals that general castes are the leading caste and got position in high category of rural development. The backward castes have secured moderate position in the level of rural development. In comparison, schedule castes are lagging behind in the level of rural development and observed low levels of development.

Table 7.8

Social Composition and Their Level of Rural Development in Sampled Villages, 2021

Name of Caste	Composite Score	Level of Development 2021	Kutia Kheri	Arya Nagar	Gunzar	Thurana	Dhana Kalan	Dolatpur	Khasa Mahajan	Koth Khurd	Behbalpur
Brahmin	1.13	M	0.00	4.44	4.44	11.11	0.00	8.89	6.67	2.22	0.00
Baniya	3.86	M	0.00	6.67	0.00	0.00	0.00	0.00	0.00	0.00	6.67
Jat	17.41	VH	100.00	24.45	0.00	66.67	6.67	20.00	40.00	53.33	0.00
Arora	15.30	H	0.00	2.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rajput	1.59	M	0.00	0.00	0.00	0.00	2.22	0.00	0.00	0.00	0.00
General	**10.64**	**H**	**100.00**	**37.78**	**4.44**	**77.78**	**8.89**	**28.89**	**46.67**	**55.56**	**6.67**
Yadav	3.07	M	0.00	0.00	84.44	0.00	6.67	0.00	0.00	0.00	0.00
Saini	-7.05	L	0.00	0.00	0.00	0.00	35.56	0.00	2.22	6.67	0.00
Kumhar	-0.89	M	0.00	8.89	0.00	0.00	13.33	24.44	8.89	6.67	44.45
Khati	-0.02	M	0.00	31.11	0.00	6.67	0.00	0.00	4.45	2.22	0.00
Nai	-10.06	VL	0.00	0.00	0.00	0.00	0.00	0.00	13.33	0.00	2.22
Lohar	-13.68	VL	0.00	0.00	0.00	0.00	20.00	0.00	0.00	4.44	13.33
Sunar	15.15	H	0.00	2.22	0.00	0.00	0.00	0.00	0.00	0.00	2.22
Jogi	3.02	M	0.00	0.00	0.00	0.00	2.22	0.00	0.00	0.00	0.00
Chimpa	-6.24	L	0.00	0.00	0.00	0.00	0.00	0.00	2.22	0.00	0.00

Bhaat	-8.16	L	0.00	0.00	0.00	0.00	0.00	0.00	2.22	0.00	0.00
OBC	**-5.69**	**M**	**0.00**	**42.22**	**84.45**	**6.67**	**77.78**	**24.44**	**33.33**	**20.00**	**62.22**
Chamar	-4.12	L	0.00	20.00	2.22	15.56	13.33	4.44	15.56	4.44	2.22
Dhanak	-0.92	M	0.00	0.00	8.89	0.00	0.00	42.22	4.44	0.00	24.44
Balmiki	-9.75	L	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.00	4.44
SC	**-14.19**	**L**	**0.00**	**20.00**	**11.11**	**15.55**	**13.33**	**46.67**	**20.00**	**24.44**	**31.11**
		Level of Development 2021	**H**	**M**	**M**	**M**	**L**	**L**	**L**	**VL**	**VL**

Table also depicts different castes of general, backward and schedule category. The caste wise distribution and their level of development are discussed as under;

Brahmin: Their numerical strength in the sample households is only 4.2 percent households. Brahmin as a priest community has been remained at the top position in the traditional social hierarchy. In 2021, Brahmin caste has got moderate position in the level of rural development.

Mahajan: In the sample households 1.48 percent households belong to Mahajan caste. Traditionally this caste is a business community. In the present study, this caste has attained moderate level of the rural development.

Jat: Jat caste is the dominant caste of Hisar region. Therefore, it is the leading community having 34.57 percent households. Traditionally, it is an agricultural community. In 2021, Jat caste has secured leading position in the level of rural development.

Arora: Traditionally, this caste engaged in agricultural community with only 0.25 percent households. In sampled villages, this caste got high category in the level of rural development.

Rajput: Traditionally, Rajput is hereditary soldiers and landowners. Rajput caste has accounted with 0.25 percent households in the sample villages and found in the category of moderate level of the rural development.

Yadav: Yadav caste has accounted with 10.12 percent households in the sample villages and found in the category of moderate level of the rural development.

Saini: The traditional occupation of the Saini community is the vegetable growing and gardening. They are observed with 4.94 percent households in the sampled villages. Presently, this caste is included in the category of low level of the rural development.

Kumhar: Kumhar (11.85 percent household) a traditionally service community, is the second top community in numerical strength in the Hisar region. This community has found his place in the moderate level of the rural development.

Khati: Khati (4.94 percent household) a traditionally service community, has also accounted with moderate level of the rural development.

Sunar: Traditionally, Sunar worked as goldsmiths. caste is community of other backward class, has also accounted with high level of the rural development.

Nai: Nai (1.73 percent household) a traditionally service community, is included in the category of very low level of the rural development.

Lohar: Lohar (4.2 percent household) a traditionally service community, is observed with very low level of the rural development.

Jogi: Jogi (0.25 percent household) a traditionally service community, is observed with moderate level of the rural development.

Chimpa: Chimpa (0.25 percent household) a traditionally service community, is observed with low level of the rural development.

Bhaat: Bhaat (0.25 percent household) a traditionally service community, is observed with low level of the rural development.

Chamar: Chamar caste is an important community of schedule caste. This caste has registered with low level of the rural development.

Dhanak: Dhanak caste is also an important community of schedule caste. This caste has registered with moderate level of the rural development.

Balmiki: Balmiki caste is an important community of schedule caste. This caste has registered with low level of the rural development.

7.10 Trends and Pattern of Rural Development of Sampled Villages (1971, 2011 & 2021):

Table 7.9 and figure reveal the trend of rural development of nine sampled villages of the Hisar district during 1971, 2011 & 2021 as under;

Kutia Kheri: The village Kutia Kheri is the sampled village of Adampur block was included in the low category of the rural development in 1971. In 1991 and 2011, it slipped down to low and very low category of the rural development. During 2011 to 2011, this village has made a great effort and reached at the top level rural development score. Accordingly, this village has been included in the high level category of the rural development and attained the status of progressive village. The main reason for this great improvement is due to the dominance of Jat caste a leading caste in the level of rural development.

Table 7.9

Trends of Rural Development

Name of Village/Years	1971	1991	2011	2021	Changing Trend
Kutia Kheri	-2.51	-3.33	-6.87	14.39	Increasing Trend
Arya Nagar	5.68	5.60	6.97	10.77	Increasing Trend
Gunzar	-0.29	-1.48	1.36	10.59	Increasing Trend
Thurana	4.54	3.34	3.78	7.12	Increasing Trend
Dhana Kalan	1.53	9.39	2.76	-2.54	Average Trend
Dolatpur	1.71	1.99	-4.49	-2.74	Average Trend
Khasa Mahajan	-7.17	-2.32	-2.29	-10.91	Decreasing Trend
Koth-Khurd	-3.72	-5.69	-4.62	-12.98	Decreasing Trend
Behbalpur	0.22	1.37	3.42	-13.70	Decreasing Trend

Arya Nagar: The village Arya Nagar (Hisar-II block) had observed in category of high level of development in 1971 but in 1991 slipped down in the moderate category in the level of rural development. But in 2011, this village again got high category of the rural development. In 2021, this village is included in the moderate level of the rural development hence designated as retrogressive village. It is also evident from the table that the village Arya Nagar has continuously maintained their positive development score during the study period. This village is dominatingly inhabited by backward castes (Khati 31.11 percent, Kumhar 8.89 percent) and followed by general castes (Jat 24.44 percent, Brahmin 4.44 percent & Baniya 6.67 percent) have been observed in the category of high rural development.

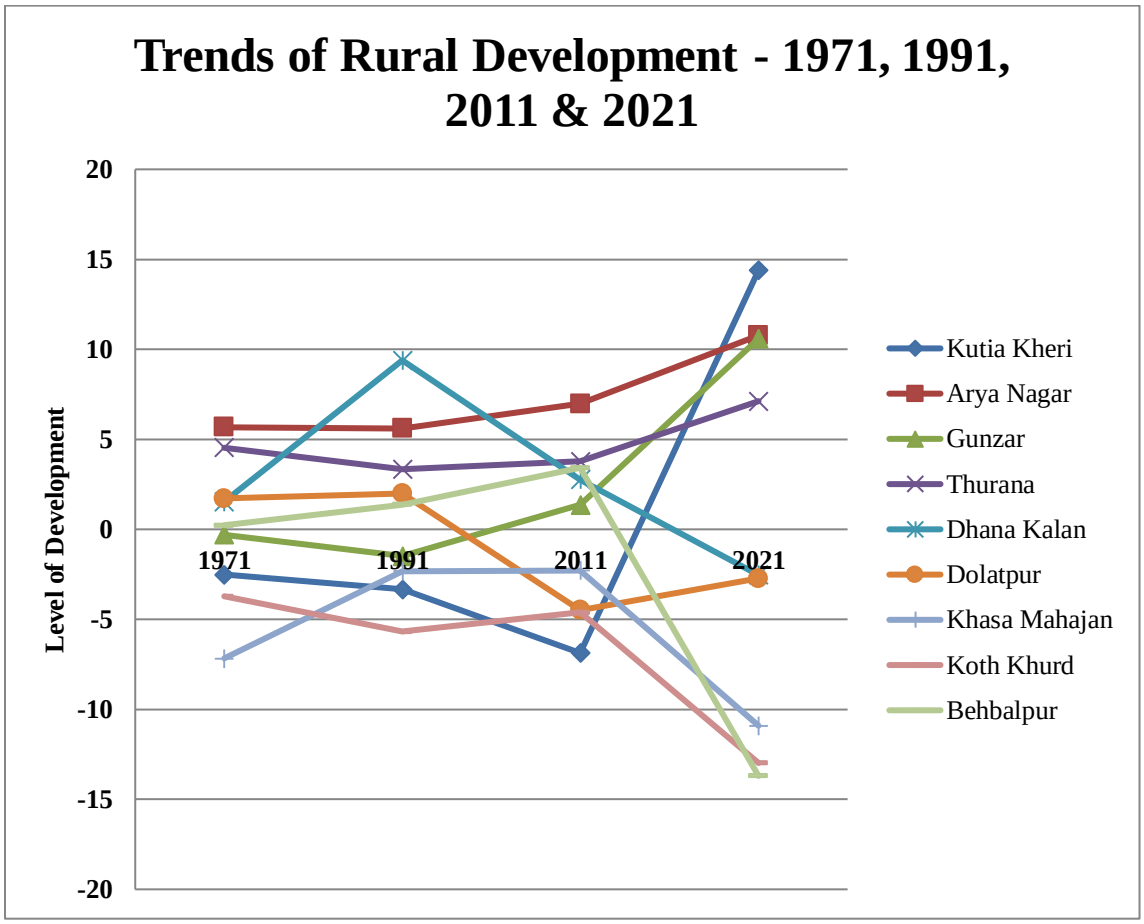
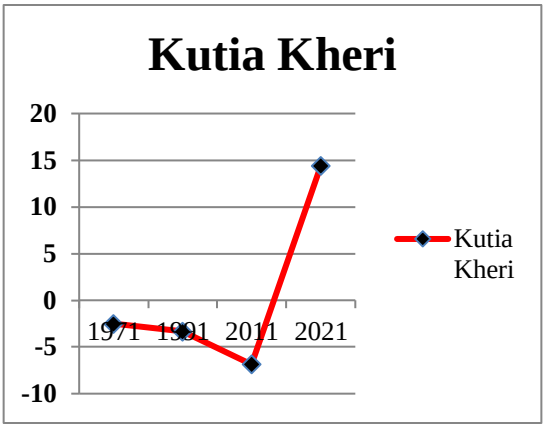


Fig. 7.5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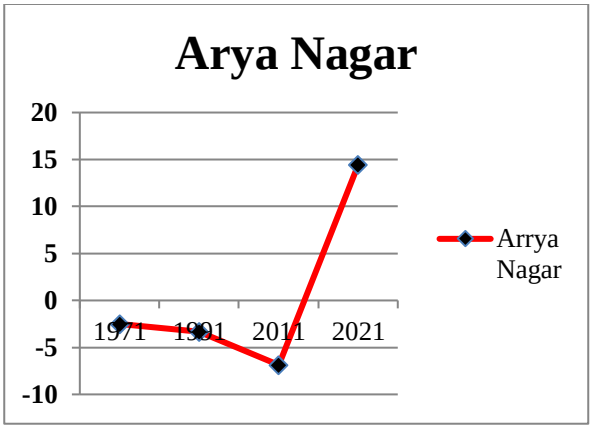
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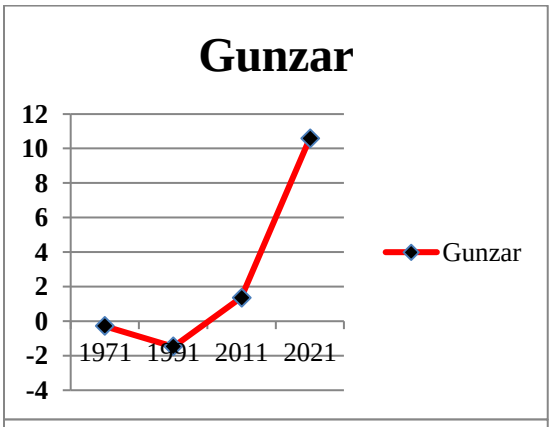
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1971
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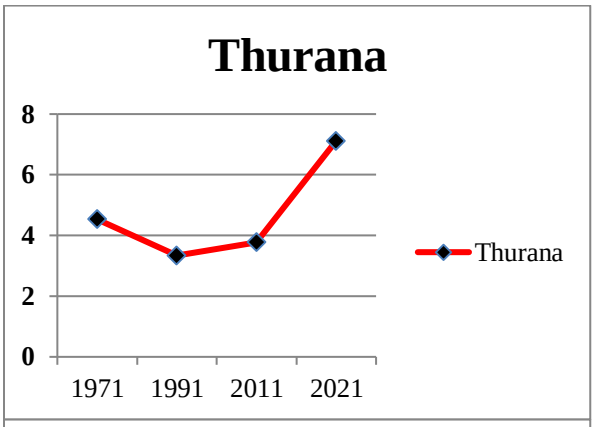
Gunzar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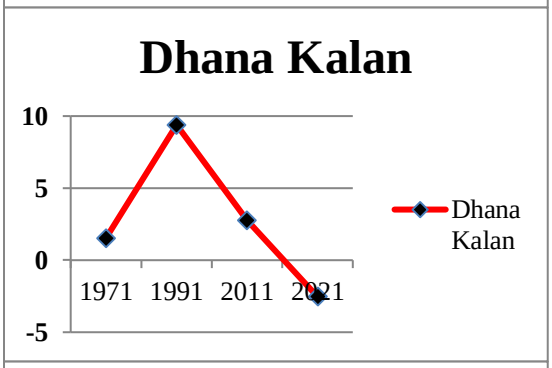
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1971
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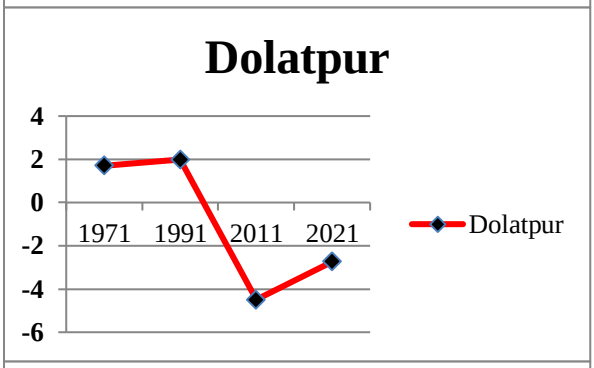
Dhana Kalan


Dolatpur
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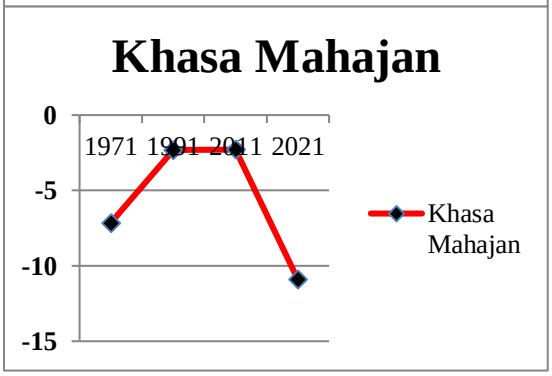
1971
1991
2011
2021
Dolatpur


Khasa Mahajan
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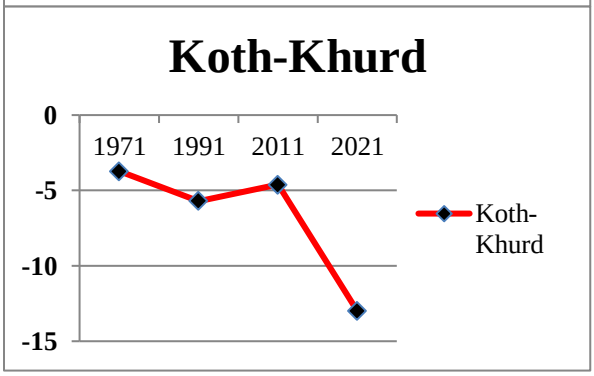
Khasa Mahajan


Koth-Khurd
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2021
Koth-Khurd

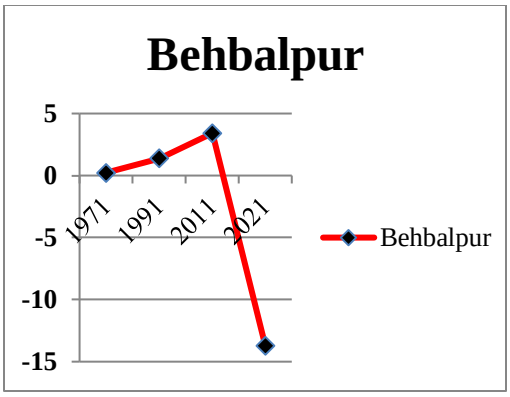

Fig. 7.6

Gunzar: The village Gunzar (Hisar-I block) attained low level of the rural development in 1971 and 1991. In 2011, this village improved his rural development score and accordingly included in moderate level of the rural development. Interestingly, the village Gunzar has maintained their rural development status in 2021. Hence, this village is designated as static village. In the social composition of the village the significant concentration is of the Yadav caste (84.44 percent households) followed by Dhanak & Chamar caste (11.11 percent household) of the schedule category and Brahmin caste (4.44 percent household).

Thurana: The village Thurana (Hansi-II block) observed in high level of the rural development in 1971 and moderate level of the rural development in 1991. In 2011, this village showed slightly decline in the rural development score accordingly found in moderate level of the rural development. In 2021, it again improved its rural development score and repeated its moderate level of the rural development. So this village is also represented as static village. Majority of population of this village predominantly belongs to general caste (77.78 percent) including Jat caste (66.67 percent) and Brahmin caste (11.11 percent). A significant proportion of Chamar caste (15.56 percent), a schedule caste is observed in this village. Besides Khati caste (6.67 percent) is also seen in this settlement.

Dhana Kalan: In 1971, Dhana Kalan accounted in the category of moderate level of the rural development. In 1991 with large improvement in the rural development score the village Dhana Kalan accounted in the category of high level of the rural development. In 2011, Dhana Kalan again accounted in the category of moderate level of the rural development. But in 2021, the rural development of this village declined significantly and secured negative rural development score hence including in the category of low level of the rural development. Therefore, the village Dhana Kalan is recognized as retrogressive village. About three-fourth households of sample villages has been belonged to backward castes (75.56 percent) such as Saini caste (35.56), Lohar caste (20 percent), Kumhar Caste (13.33 percent) & Yadav caste (6.67 percent) followed by schedule castes (13.33 percent) having Chamar caste (13.33 percent). Among general caste (6.67 percent), only Jat caste (6.67 percent) is resided in this class.

Dolatpur: The village Dolatpur observed in moderate level of the rural development in 1971 and 1991. In 2011 and 2021, this village showed slightly decline in the rural development score accordingly found in low level of the rural development. Therefore, the village Dhana Kalan is recognized as static village. This village is dominatingly inhabited by schedule caste (Dhanak 42.22 percent, Chamar 4.44 percent) backward castes (Kumhar 24.44 percent) and general caste (Jat 20 percent, Brahmin 8.89 percent).

Khasa Mahajan: The village Khasa Mahajan observed in very low level of the rural development in 1971. During 1991 to 2021, this village showed little improvement in the rural development score accordingly found in low level of the rural development. Therefore, the village Khasa Mahajan is recognized as static village. Majority of population of this village predominantly belongs to general caste (46.67 percent) including Jat caste (40 percent) and Brahmin caste (6.67 percent). A significant proportion of Chamar 15.56 percent, Dhanak 4.44 percent, a schedule caste is observed in this village. Besides Backward castes (Nai 13.33 percent, Kumhar 8.89 percent, Khati 4.44 percent and Saini 2.22 percent) is also seen in this settlement.

Koth Khurd: The village Koth Khurd (Narnaund block) attained low level of the rural development in 1971. In 1991, this village showed slightly decline in the rural development score accordingly found in very low level of the rural development. In 2011, this village improved his rural development score and accordingly included in low level of the rural development. In 2021, the village Koth Khurd again showed slightly decline in the rural development score accordingly found in very low level of the rural development. Hence, this village is designated as Retrogressive village. In the social composition of the village the significant concentration is of the Jat caste (53.33 percent households) followed by Balmiki caste (20 percent)), Kumhar & Saini caste (13.34 percent household) of the Backward category and Brahmin caste (2.22 percent household).

Behbalpur: The village Behbalpur (Barwala block) had observed in category of moderate level of development during 1971 to 2011. In 2021 slipped down in the very low category in the level of rural development hence designated as retrogressive village. This village is dominatingly inhabited by backward castes (Kumhar 44.44 percent, Lohar 13.33 percent and Nai 2.22 percent) and followed by schedule caste (Dhanak 24.44 percent, Balmiki 4.44 and Chamar 2.22 percent) and general castes (Brahmin 6.67 percent).

7.11 Changing Status of Selected Villages in the Level of Rural Development:

In 2011, the blocks Hansi-I and Barwala registered high level of rural development while their respective villages (Dhana Kalan and Behbalpur) achieved the very high level of rural development.

Table 7.10
Changing Status of Selected Villages in the Level of Rural Development 2011 - 21

Sampled Villages with respective blocks	Level of Development-2011	Level of Development-2021	Status changed in rural development
Kutia Kheri (Adampur)	L	H	Progressive
Khasa Mahajan (Agroha)	M	M	Static
Behbalpur (Barwala)	VH	M	Retrogressive
Dolatpur (Uklana)	M	L	Retrogressive
Gunzar (Hisar-I)	M	M	Static
Arya Nagar (Hisar-II)	VH	H	Retrogressive
Dhana Kalan (Hansi-I)	VH	M	Retrogressive
Thurana (Hansi-II)	M	M	Static
Koth Khurd (Narnaund)	M	M	Static

In 2021, the respective villages of these blocks have lowered their level of rural development from very high to moderate. In the process of transformation, these villages are not able to retain their top status but have slipped downwards, hence recognized as retrogressive villages. The blocks Agroha, Hisar-I, Hansi-II, Narnaund with their respective villages (Khasa Mahajan, Gunzar, Thurana and Koth Khurd) attained moderate level of rural development in 2011. These villages have retained their moderate level of rural development recognized as static villages. In 2011, the block Uklana with respective village (Dolatpur) also accounted with moderate level of rural development. But in 2021 the village Dolatpur has stepped down from moderate to low level of rural development designated as retrogressive village.

7.12 Results of Hypotheses Testing:

The outcomes of the resulting two simple linear regression models are discussed as under;

A. H_0 (Null hypothesis): There is no significant impact of national highway on rural development.

   The composite index of rural development (dependent variable) was regressed on distance from National Highway (independent variable) to test the hypothesis. The p – value is .000 which is less than .05. **Thus, null hypothesis stands rejected.** It means that national highway has important role in shaping the pattern of rural development. It is also evident that as the distance increases from national highway, the composite score of rural development decreases ($b = -7.268$, $p < .05$). Moreover, the R square = .089 depicts that the model explains 8.9 percent of the variance in the composite index of rural development.

B. H_0 (Null hypothesis): There is no significant impact of urban centre on rural development.

   The composite index of rural development (dependent variable) was regressed on distance from urban centre (independent variable) to test the hypothesis. The p – value is .000 which is less than .05. **Thus, null hypothesis stands rejected.** It means that urban centre has crucial effect in shaping the pattern of rural development. It is also evident that as the distance increases from urban centre, the composite score of rural development decreases ($b = -9.219$, $p < .05$). Moreover, the R square = .049 depicts that the model explains 4.9 percent of the variance in the composite index of rural development.

Chapter VIII

Summary of Conclusions

The Hisar district is located between 28°53'45" to 29°49'15" North latitudes and 75°13'15" to 76°18'15" East longitudes. Total 3983 sq.km geographical area occupies by the district. District Hisar is surrounded by Rajasthan State & Fatehabad district in the North-West and West, Bhiwani in the South, Rohtak in the East and Jind district in the North-East.

Geographically, Hisar was the largest district of Haryana at the time of the formation of the state in 1966. Later, parts of district located at the north eastern periphery were transferred to newly formed district of Jind. Subsequently, Bhiwani district was created in 1974 with the Bhiwani tehsil and Loharu of Hisar being also transferred to the newly formed Bhiwani district. The district was again bifurcated to carve out Sirsa as yet another district of state. Recently, Fatehabad has also been carved out. However, at present it is the second largest district of the state.

The name of the district "Hisar" is a shortened name of Hisar-e-Feroza. In 1354 B.C. Feroz Shah Tughlaq founded the city of Hisar by building a fort. Rakhigarhi in the north-eastern part of the district and Siswal in the western region are sites rich in Pre - Harappan remains which take us back to the time before the 3rd millennium BC of history. The earliest settlers of the district came to the region during Pre – Harappans periods. Subsequently, Harappans settled down at Siswal, Banawali and Rakhigarhi. Changed course of Sarasvati and Drishadvati rivers, severe drought followed by flood and present archaeological findings confirm the extinction of Harappan civilization (Hisar District Gazetteers).

The history of farming communities in District Hisar is believed to date back even before 4200 BC when humans started agriculture in this area. Thereafter, under the influence of the Bronze Age culture, the socio-economic life pattern of the people developed here. The people here believed in the collective way of life and were familiar with mixed

farming and trade. The fertile alluvial plain created by the Indus-Sarasvati attracted people to settle in this area. Rakhigarhi, Siswal and other archaeological sites are found in district Hisar, which are considered to be the remains of the Harappan culture. The people of this culture are counted among the most advanced farming community. The impression of holy river Sarasvati is also clearly visible on the culture of district Hisar. A glimpse of the culture here can be seen in the festivals of Diwali, Holi, Ram Navami, Janmashtami, Shivratri, Lohri, Goga Navami, Basant Panchami, Teej etc.

According to 2011 statistics, 97.54 percent of the population in district Hisar belongs to the Hindu culture followed by Islam 1.24 percent, Sikhs 0.7 percent, and others 0.15 percent.

The present study seeks to realize the following objectives. It seeks (1) To evaluate the pattern of socio-economic and infrastructural development during 1971 & 2011; (2) To examine the quality of life in sampled villages as well as different section of society; (3) To explore the role of agriculture in rural development; (4) To analyse the status of women empowerment (education, work participation rate, decision making, female in home outside work, in elected Panchayat bodies, female not under veil system); (5) To evaluate the role of social welfare schemes and services.

The study area comprises the Rural Hisar district (2018) as base year having 263 villages. The urban towns and villages are excluded from the present study area of Hisar district as per district Census handbook, 2011. The present study used both primary and secondary sources of data to understand and evaluate the pattern of rural development. The hard copy of administrative map of Hisar District was procured from District Census Handbook of Hisar District-1991. It was scanned at 300dpi and georeferenced using appropriate projection parameters i.e. Projection- Universal Transverse Mercator (UTM), Datum- WGS-1984 and Zone- 43N for database generation. The village boundaries were digitized and appropriate attribute data such as village name, population, etc. were also integrated. The cartographic work has been prepared on the GIS platform using QGIS – open-source software.

The secondary data related to geographical setting of the Hisar district has been collected from Hisar district gazetteer, handbook of Indian Metrological department, Irrigation department of Haryana, Statistical abstract of Haryana 2018 to 2021. The satellite images of 1988 (Landsat TM-5) and 2018 (Landsat IRS P-6, LISS-3) have been downloaded from open-source web portal i.e., GLCF and Bhuvan portal respectively. Land use and Land cover map of the Hisar district has been prepared with the help of supervised classification using Saga GIS into five major categories i.e., vegetation, built up land, wasteland, agriculture land and water bodies. The secondary data relating to social, economic and infrastructural variables (Household, Population, Sex Ratio, Literacy, Female Literacy, Work Participation Rate, Other Worker, Net Area Sown, Irrigated Area, Educational Infrastructure, Health Infrastructure and Banking & Technical Infrastructure) have been collected from Census of India - 1971 & 2011 at village level of Hisar District and gazetteer of Hisar, etc. the variables relating to secondary data have been computed and mapped. In order to collect the primary data, nine villages have been selected on random basis from each block of the Hisar district. The primary data relating to social, economic, housing, sanitation, amenities/assets etc. have been gathered through interview schedules at household level from each selected village randomly. A total of 405 households have been covered in this study. While doing survey, the social (caste) and economic (income) condition of the households with the help of Sarpanch, Panchayat members and old age persons have been kept in mind. The data relating to quality of life and various social welfare schemes have been tabulated, analyzed and interpreted.

With respect to the first objective- To evaluate the pattern of socio-economic and infrastructural development during 1971 & 2011 following conclusions may be drawn**.** The study displays that the average size of household in the district was 7 persons in 1971. But it declined to 5 persons in 2011. In 1971, about 8.62 percent villages were observed with large size of household. This decline may be attributed to rise in literacy and educational attainments in the households and shift of workers category from primary to secondary and tertiary services. This decline may be attributed to rise in literacy and educational attainments in the households and shift of workers category from primary to

secondary and tertiary services. There has been a special effect of the government policy to control the population like "Hum Do - Hamare Do". It is easier to provide qualitative facilities to the members of a small sized household as compared to a large sized household, due to which the household size declined. The study reveals that in 1971, total rural population of Hisar district was 575834 persons. It doubled in 2011 i.e., 1137420 persons. The average distribution and concentration of population was 2291 persons in 1971 which increased to 4325 persons in 2011. Population concentration was observed higher in North, north-east & eastern part of the district as compare to north-west, western, south-west & southern part of the district. The higher concentration in north east may be attributed to strong irrigation pattern compared to western part of the district.

During 1971 to 2011, the average growth rate of the study area was 117 percent. About 24 villages (constituted about 9.38 percent) out of 256 villages experienced high growth rate (above 150 percent) mapping a pocket of villages near to Hisar city & along National highway. The figure exhibits that a pocket of villages in eastern part of the district witnessed high population growth. Due to reasons like better availability of health services, connectivity to the city by road and rail, proximity to the city and well-organized education infrastructure, the concentration of population has increased at the village level. Educated population is the biggest resource of any place. It was found in the study that access to basic facilities is more in big villages as compared to small villages.

It is evident from the study that there was a little improvement in the Hisar district's sex ratio from 879 in 1971 to 880 in 2011. The number of villages having excess of females (above 1000) over males had declined from 6 in 1971 to 2 in 2011. The share of villages having high sex ratio (900 to 1000) also declined from 28.52 percent in 1971 to 25.48 percent in 2011. A positive relationship has been found between education and sex ratio. But more importance to boys than girls, dowry system, and low level of education, more gender inequality, illiteracy and lack of awareness of women, concept of male dominated society and social security have been the main obstacles in the decrease in sex ratio. In Jat caste-dominated villages, a significant decrease in sex ratio has been registered.

In 1971, the rural crude literacy rate of Hisar district was 17.56 percent. It significantly increased to 68.90 in 2011 i.e., 51.34 percent change. For males and female, it was 79.71 and 56.64 respectively with significant gender disparity i.e., 23.07 percentage point. The villages having above 75 percent literacy rate distributed in the eastern part of the district, along south of NH 9 from Hansi to Hisar city & NH 52 from Hisar city to Barwala town and near to Hisar city. The major shift in the literacy rate from 1971 to 2011 is due to state and central government schemes such as SSA (Sarva Shiksha Abhiyan, Mid day Meal etc.) and opening of new educational institutions in the district and change in the attitudes of people towards female education. Fig. 4.5 reveals that there are significant spatial variations in literacy level and gender disparity at village level. Proximity to the city and national highways, influence of more than one city, economic prosperity and strong educational infrastructure, etc., have a special contribution in raising the education level in the study area. Gender discrimination is mainly seen in education in caste-dominated villages. Along with this, due to the male-dominated society, more importance to boys than girls, lack of educational infrastructure at village level, lack of awareness among women, distance from the city and social security factors like gender inequality in education.

The average gender disparity index was 0.22 in 2011. The gender disparity seemed increasing from low to very high as we farthest away from Hisar city to in all directions. More than half of the total villages witnessed above average (0.22) gender disparity in the district. The participation rate among male and female was 48.56 and 4.53 percent respectively. In 2011, it increased to 31.64 percent at district level. The male and female work participation rate was observed 45.39 and 15.95 percent respectively with significant gender disparity. The work participant rate for females showed about 11.42 increases. High work participation for males compared to females is due to male dominant society as male is supposed to be the sole bread earner for the family.

The study reveals that 28.04 percent of the district's population was at work at the time of 1971 census. However, there are significant spatial variation in work participation rate in

1971 and 2011. About three-fourth (74.61 percent) villages were observed moderate work participation rate (25 to 35 percent). In 2011, 154 villages were included in this category. The map reveals that as we move from east to western part of the district, the work participation rate had shown increasing trend from 1971 to 2011. Opportunities in government jobs and business activities (small scale i.e. poultry farming, dairy farming etc.) are the major causes for the increase in other workers category. The low work participation among females may be attributed to low sex ratio, biased attitude towards women in outside home workplace and female house activities are not included in paid category. Due to improvement in irrigation system, employment opportunities in agriculture business, political reasons and increase in literacy are the main reasons for increase in work rate especially in the villages of Block Adampur. At the same time, the proximity of the city and roadways in the district and the government's efforts for small scale industry seem to have a clear effect in improving the work rate. Increase in work participation rate may be due to improvement in agriculture sector i.e. strengthening of irrigation pattern, use of hybrid seeds and pesticides and consequently more employment and improvement in literacy and education levels.

It is also evident from the study that in 1971, 65.79 percent worker was recorded as cultivators followed by agricultural labour (17.22 percent) and others (8.46 percent). In 2011, cultivators declined to 54.18 percent while agricultural and others workers increased to 20.78 and 25.04 percent respectively. It is evident that district's composition of worker had undergone a significant change from 1971 to 2011. The most significant feature of composition of worker was that the proportion of other workers to total workers increased in 96.09 percent villages of the district. Opportunities in government jobs and business activities (small scale i.e. poultry farming, dairy farming etc.) are the major causes for the increase in other workers category.

The study reveals the changes in land use pattern during the periods between 1971 and 2011, showing the changes in different activities over the periods. The area under agriculture land is found to be 284111 ha (68.13 percent) in 1988 against 77.96 percent in

2018 of the district. It is observed that 15.06 percent of total geographical area, i.e. 62819.5 ha, has been found under vegetation in 1988. An area of 53515.3 ha (12.83 percent) in 1988 against 7.56 percent in 2018 of the district has been found under different kinds of wasteland. The built up land covers an area of about 14789.8 ha, which is 3.55 percent in 1988 against 6.86 percent in 2018 of total geographical area of the district.

It is evident that the proportion of net sown area for the district was 88.88 percent in 1971 and 90.27 percent in 2011 of the total geographical area (374283 ha). It is also evident from the map that some villages of southern and northern part of the district had shown higher proportion of net sown area while overwhelmingly villages were approached towards average net sown area (90.27 percent) during the periods.

The number of villages having high proportion of net area sown area (above 95 percent) had increased from 10 in 1971 to 13 in 2011. During the periods, this category had shown an increase in net sown area almost double (8861 ha in 1971 and 17026 ha in 2011). The village Kharar was the leading in percentage of proportion of net sown area in the district in 1971. But in 2011, this position was replaced by village Pabra. The lowest proportion of net sown area was recorded in the village Badon Rangran i.e., 40.94 percent of respective geographical area. Improvement in irrigation system, technological changes in agricultural system, technology and mechanization, government policy like KCC, crop insurance and credit facilities, population pressure and increasing demand of cash crops in cities etc. factors influenced the pattern of net sown area.

The study shows that the proportion of net irrigated area to net shown area increased by 31.35 percent from 54.33 percent in 1971 to 85.68 percent in 2011. During the periods, the irrigation map of the district had changed drastically. In 1971, the villages of eastern part of the district showed very high proportion of irrigated area, but it diffused in every part of the district except west & southern margin in 2011. The pattern of irrigation area has changed due to the construction of new canals, construction of paved drains in the fields, government subsidy on mechanized tube well, electric tube well and fountain

irrigation etc. But irrigation development has decreased in villages far away from Sutlej and Yamuna rivers.

It is evident from the study that in 1971, the availability of educational facilities at any level in the rural Hisar district was in 91.26 percent villages out of 256 villages. It increased to 96.58 percent villages in 2011. In 1971, about 57.03 percent villages had the availability of educational facilities at primary level followed by middle level (16.73 percent), Sr. secondary school (14.83) & college level (2.66). But in 2011, Sr. secondary school education level was upgraded in 39.92 percent villages (105 villages) followed by matric level (32.70 percent), middle level (12.55 percent), & college level (5.32 percent). Only 16 villages (6.08 percent) reported with primary level of education in the district. There was only 9 village's having no availability of educational institutes at primary level or any level in the district. Theses villages namely Inchha Kharkhari, Kutia Kheri, Risalu Khera, Nathwana, Tharwa, Shala Dheri, Kajal, Kheri Barkesh, Ghuskani were depended on very nearby villages for educational attainment. Compulsory education for every child of 6-15 years, increasing demand for higher and technical education has led to the improvement of educational infrastructure at the village level. Mid Day Meal and Sarva Shiksha Abhiyan have a special contribution in increasing the student enrolment in the school.

The study reveals that in 1971 as per recorded data, 15 villages were facilitated with Hospitals (PHC / Sub PHC) followed by Dispensary in 11 villages & private medical petitioners in 82 villages. In 2011, 146 villages (55.13 percent of the total) were reported with Sub PHC (one Sub PHC on every two villages) followed by PHC in 26 villages, Dispensary in 14 villages & CHC in 5 villages. It is also evident that in 2011, 9.51 percent village (25 villages) out of 263 villages (rural Hisar) registered the facility of Common Service Centre. Interesting to note that 78.33 percent villages (206 villages) had the availability of banking facility. But only six villages were reported with ATM facility. Large size villages in terms of population have attracted more technical and banking facilities.

It is evident from the study that Analysis of distribution of households by family size indicates that maximum families are large in size. More than half of the total households (57.78 percent) have six or more than six persons in their family in the rural area of the district. Prominently, more than 70 percent joint families justify the existence of such large families in the area. Interestingly, the number of joint families is more than nuclear families in the rural part of Hisar district. Moreover, these results prove the prevalence of rural culture in the study area. Moreover, sex ratio is an indicator of the status of women in the society. Furthermore, out of the total villages, two villages (Dhana Kalan and Gunzar) have recorded gender ratio above 900 in the history. Interestingly, all these figures reveal positive signs of a healthy sex ratio which started to increase in the Hisar district and as well as in the Haryana state. This upward movement in sex ratio is the result of Govt. schemes, initiatives and strict actions. In case of dependency ratio, low ratio has been observed in the rural area of the district. In 2021, more variations have been noticed in male and female literacy rate and also gender disparity in the rural area of the district. In totality, 78.36 percent rural people are literate whereas literacy rate for males and females is traced 87.21 and 67.84 percent respectively with a gender disparity of 0.0425. Generally it is believed that education plays an important role in improving the condition of people leading them from the state of deprivation to prosperity. Analysis of data reveals that the largest proportion (fourth-fifth) of the total population is literate up to intermediate level (80 percent) rather than higher levels of education in the district. Moreover, proportion of female's attainment of higher education (up to matric to post graduation) is lower than males in the studied area. This may be an indication of the gender biasness and backwardness of society showing that more opportunities for higher education are being provided to males than females. If we talk about average work participation rate we find it 31.59 percent in the district. There are variations in male and female work participation rate as 53.93 percent males are recorded as worker, whereas the corresponding figure for the females' population is only 3.41 percent. Dhana Kalan is observed with highest work participant rate (34.34 percent) while the village Gunzar is found with lowest work participant rate (28.95 percent) in the district. Study of

occupation structure demonstrates that 63.28 percent households are engaged in primary activities followed by territory (29.38 percent) and secondary (7.34 percent) activities. Due to location very near of the urban center, the village Arya Nagar has recorded highest share (54.28 percent) of territory activities. Examination of households by size of land holding shows that about 44 percent are observed without agricultural land. Moreover, 62.47 percent of households in the study area have their own two wheelers and 21.48 percent have four wheelers. Kutia Kheri is the leading village in the ownership of two and four wheelers. Availing of banking services in the study area is more appreciable in the study area.

Type of houses (Pucca, Semi-pucca and Kutcha) is the main measurement of quality of life. Prominently, more than 80 percent households reside in pucca houses whereas only 2 percent households live in kutcha houses in rural area of the district. Non existence of kutcha houses in the villages (Arya Nagar, Doltpur, Khasa Mahajan, Kutia Kheri and Thurana) indicates towards the good living conditions of households in the studied area. Tap water supply is the main source of drinking water in rural area of Hisar district as 97 percent households consume water from tap supply. Furthermore, in the four villages (Arya Nagar, Gunzar, Kutia Kheri and Dhana Kalan) of the district, tap water is the only and main source of drinking water. Briefly, the present study suggests that almost all the households have access to safe water for the purpose of drinking. Fuel used type has also been discussed in the present study. Households residing in the villages of Arya Nagar, Dhana Kalan, Kutia Kheri and Thurana consume clean fuel whereas, households from Koth Khurd and Kutia Kheri use unclean fuel as major fuel for cooking. Toilet facility has been analyzed by its location and types. Households have toilet facility within their premises in the rural area of the Hisar district. Households residing in the villages of Koth Khurd (93.33 percent), Behbalpur (86.67 percent), Khasa Mahajan (86.67 percent) and Doltpur (82.22 percent) have highest number of without flush toilets. In case of kitchen facility, 55.31 percent households having separate kitchen facility whereas 44.69 percent households do not have separate kitchen facility. Availability of separate kitchen is highest in Kutia Kheri (Adampur block) with 87 percent and lowest in Dhana Kalan

(Hansi-I block) with 38 percent. Analysis of households by dwelling number of rooms indicate that near about 50 percent households have four or more than four rooms in rural area of the district. Availability of four and above more than four rooms are highest in the village Kutia Kheri with 91 percent, followed by 61 percent in Arya Nagar and 60 percent in Khasa Mahajan and lowest in Koth Khurd with 22 percent and Behbalpur with 20 percent. More than fifty percent households in the five villages (Arya Nagar, Dhana Kalan, Gunzar, Kutia Kheri and Thurana) having good cleanliness houses support the fact of good housing condition in the rural area of the district.

Since immemorial, house is a primary need of human beings. With the advancement of civilization, house in a modern society has occupied the position of valuable asset and wealth of human beings. Several scholars employ housing as an indicator of measuring the socio-economic development of a society as it is one of the fundamental needs of the people.

The study also tries to evaluate the level of awareness about different government welfare schemes. Pradhan Mantri Jan Dhan Yojana was launched in 2014 with the objective of making banking accessible to every household at the national level. It is very popular scheme among the respondents. About half of the respondents (50.12 percent) are aware about this scheme. A little below about half of the respondents (49.14 percent) have opened up their Jan-Dhan account and accordingly benefited. Brahmin, Baniya, Jat, Arora, Yadav, Saini, Kumhar, Khati, Sunar, Nai, Lohar, Bhaat, Chamar, Dhanak, Balmiki has taken maximum advantage of this scheme. About one-third respondents (36.79 percent) are familiar with Atal Pension Yojana. Also, 33.09 percent respondents have responded that their family member/members have been receiving the benefit of this scheme. Brahmin, Baniya, Jat, Arora, Yadav, Saini, Kumhar, Khati, Sunar, Nai, Lohar, Chamar, Dhanak, Balmiki has taken benefit of this scheme. About one-fourth of the respondents (26.42) are familiar with Kisan Credit Card. About a similar respondent (23.21 percent) have utilized the facilities of Kisan Credit Card. Majority of respondents are belong to Jat caste followed by Yadav, Kumhar, Brahmin, Saini, Khati, Sunar, Nai

and Chamar castes. The study also reveals that one-third of respondents (33.09) are awarded with MSP and 30.86 percent respondents have taken the advantage of MSP while selling their agricultural products (wheat, rice & cotton crops). Jat caste (General Caste) has taken maximum advantage of this scheme while Yadav, Kumhar, Nai, Brahmin, Saini, Khati, Sunar, Chamar and Dhanak is the other caste to get benefit. About 50 respondents (12.35 percent) have availed the benefit of Pradhan Mantri Kaushal Vikas Yojana, which has increased the opportunities for economic growth on the basis of self-employment. The Brahmin & Jat (General caste), Kumhar, Saini, Kati, Nai, Sugar & Lohar (Backward caste) have benefited from this scheme. About15 respondents (3.70 percent) are familiar regarding Ujjwala Scheme while only 15 respondents (3.70 percent) have taken the advantage of this scheme belonging to Chamar & Dhanak caste (Schedule caste), Kumhar & Lohar caste (Backward Caste).About 13 respondents (3.21 percent) are acquainted with IGNWPS. Only 13 respondents (3.21 percent) have been observed by taking the benefits of the Indira Gandhi National Widow Pension Scheme. A total of 49 respondents (12.10 percent) are familiar regarding Employment Guarantee Scheme while only 16 respondents (3.95 percent) have taken the advantage of this scheme belonging to Jat caste (General caste), Khati caste (Backward Caste) and Chamar & Balmiki caste (Scheduled Caste). Only 18 respondents (4.44 percent) out of surveyed respondents (405) in 9 sampled villages of Hisar District have awareness regarding this scheme. But only 2 respondents (0.49 percent) have taken the benefit of this scheme belonging to Kumhar (Backward Category) and Balmiki caste (schedule category). Only 9 respondents (2.22 percent) are acquainted with this scheme. But, none of the respondents has not been observed by taking the benefits of the Swaranjayanti Gram Swarozgar Yojana. About 13 respondents (3.21 percent) have responded to be familiar with this programme. But no one is observed with enrolment in this scheme. Out of total 405 respondents, 33 (8.15 percent) respondents are registered having the knowledge about this scheme. These respondents belong to Brahmin & Jat caste (General caste) and Kumhar & Khati (Backward caste). Only 4.20 percent respondents report to be aware this scheme. From this, 3 respondents (0.74 percent) have taken the benefit of Pradhan Mantri Suraksha

Bima Yojana. It is a matter of concern that only 2.96 percent respondents have observed having the awareness regarding Swachh Bharat Abhiyan. Only 1 respondent (0.25 percent) are registered having the awareness about Haryana Disabled Persons Pension scheme while only 0.25 percent respondent have been observed with taking the advantage of this scheme. As per the survey data, only Jat caste (General caste) in the study area has availed the benefit of this scheme.

The study exhibits that there was significant variation in the spatial pattern of rural development in 1971 &2011 at village level. In 1971, 7 villages (2.73 percent) were observed in area of very high development but it declined to two (0.76 percent) villages in 2011. These villages were Arya Nagar & Ludas of Hisar-II block of Hisar district. The village, Arya Nagar of Hisar-II block, was the leading developed village in the study area. Both villages were located within the 8 km buffer of urban centre such as Hisar city as well as national highway i.e., NH-9 and NH-52. These villages covered only 0.48 percent area of the total rural area i.e., 3742.83 sq. km. and catered 1.06 percent of the total rural population i.e., 1137420. The eastern part of the district was observed with the concentration of villages from this category in 1971 but in 2011, the very high developed villages were located very near to Hisar city. A total of 27 (10.55) villages were included in the category of area of high rural development in 1971. It is increased to 30 villages (11.41 percent) out of 263 in 2011. But, majority of villages of this category was observed within 8 km buffer followed by 16 km buffer from National Highway and urban center. These 30 villages had 10.27 percent of total area and served to 13.39 percent population. In 1971, majority villages of this category were observed in south-eastern part of the district but in 2011, the same pattern was also noticed. A significant increased (8.56 percent) of villages were observed in the areas of moderate development during 1971 to 2011 i.e., 91 (35.55 percent) and 116 (44.11) villages respectively.In1971, these villages were found in all parts of the district but in 2011, except north-western the villages of this category were also observed in every part of the district. In 2011, about half of total area (48.46 percent) and half of total population (50.32 percent) was enshrouded and fed by these villages. In 1971, 92(35.94 percent) villages were observed

in the category of low development with slightly lowering in 2011 i.e. 87 (33.08 percent). In 1971, the villages of this category scattered in every part of the district. But in 2011, these villages located in the northern half of the district. These villages had accounted 33.56 percent of total area and served 29.99 percent of total population. The areas of very low rural development also witnessed decreasing share of villages i.e. 39 (15.23percent) in 1971 and 28 (10.65 percent) villages in 2011. The village, Tharwa, was the least developed village in the Hisar district. These villages covered only 7.22 percent of total area and catered to 5.22 percent of total population. During 1971 to 2011, there was noticed a gradual shifting in the villages of this category from south and south-eastern to north and north-western part of the district.

The Person correlation between female literacy rate and rural development showed the value of r = 0.557 which indicate that female literacy rate had a significant and moderate positive effect (r = 0.3 to 0.6) on rural development followed by population density (r = 0.542), literacy rate (r = 0.521), education (r = 0.50), health (r = 0.50), technical & banking (r = 0.450), sex ratio (r = 0.393), non-agricultural worker (r = 0.344). There was a significant and week positive relationship between irrigated area (r = 0.294) and rural development. Work participation rate (r = -0.181) had a significant and week negative relationship with rural development. While the indicators such as persons per household and net sown area had insignificant relationship with rural development. It is also evident from the study that there was a strong and significant positive correlation between literacy rate and female literacy rate (0.886). The correlation between educational and health infrastructure, educational and techno-banking infrastructure and health and techno-banking had also exhibited moderate positive correlation while the correlation between work participant rate and non-agricultural worker, and educational infrastructure and work participant rate was found with moderate negative correlation. The correlation between remaining variable is observed with low positive and negative correlation.

The study depicts that in 2011, three villages (1.17 percent) namely Ludas, Panghal, Bass Azam Shahpur had shown significant improvement in their rural development score as compared to 1971. Therefore, these villages hence recognized as very high progressive villages. The village Ludas is located in the vicinity of the Hisar city, village Panghal near to Barwala Town and village Bass Azam Shahpur near to Hansi-Narnaund town. A total of 44 villages in 2011 (17.19 percent)accounted with a good improvement in their rural development score in comparison to 1971.Hence, the villages of this category designated as high progressive villages. Majority villages were identified in the western and south-western part of the district as well as west side of the National Highway-09. In 2011, 92 villages (35.94 percent) were observed with slightly positive rural development score in contrast 1971. So these villages were nominated as static villages. These villages were found in all parts of the district. More than one-fourth of the villages (28.13 percent) out of 256 registered with low negative rural development score as recorded in 1971. This group of villages designed as low retrogressive villages. A significant concentration of low retrogressive villages was found in the north and eastern part of the district. In total 45 villages (17.58 percent) recorded with a significant negative rural development score in contrast to 1971. Accordingly, these villages were grouped as high retrogressive villages. The villages of this category also mapped in each and every part of the district.

The study analysis the distribution of villages in different level of rural development in relation to physical distance from the urban centers i.e., Hisar city and Hansi town. It is evident that 9 villages (14.07 percent) belonging to very high and high category of development were observed within 8 km distance from city centre. The share of said categories decreased as the distance increased (11.11 percent between 8 to 16 km and 13.04 percent above 16 km) from urban centre. In contrast, the proportion of low and very low developed villages increased as the distance increased (37.5 percent below 8 km, 45.10 percent between 8 to 16 km and 47.83 percent above 16 km) from the urban centre. It is also interesting to note that the proportion of moderate developed category was also decreasing as moved away from the city centre in their respective zone. There is a week negative correlation (r = -0.109) between rural development and physical distance

from urban centre meaning as the physical distance increases, the level of rural development decreases.

The composite index of rural development (dependent variable) was regressed on distance from urban centre (independent variable) to test the hypothesis. The p – value is .000 which is less than .05. **Thus, null hypothesis stands rejected.** It means that urban centre has played a significant role in shaping the pattern of rural development. It is also evident that as the distance increases from urban centre, the composite score of rural development decreases ($b = -9.219$, $p < .05$). Moreover, the R square = .049 depicts that the model explains 4.9% of the variance in the composite index of rural development.

The study also analysis the distribution of villages in different level of rural development in relation to physical distance from the National Highways i.e., NH-9 & NH-52. It is revealed that 15.57 percent villages observed within 8 km distance from National Highways belong to very high and high category of development. The proportion of these categories decreased as the distance increased (15.57 percent below 8 km, 7.53 percent between 8 to 16 km and 12.5 percent above 16 km) from National Highways. In contrast, the proportion of low and very low developed villages increased as the distance increased (39.35 percent below 8 km, 46.23 percent between 8 to 16 km and 50.00 percent above 16 km) from the National Highway. Again, it is interesting to note that more than three – fourth villages of respective distance from the National Highway were observed in the category of moderately rural developed. There is a week negative correlation ($r = -0.181$) between rural development and physical distance from national highway meaning as the physical distance increases, the level of rural development decreases.

The composite index of rural development (dependent variable) was regressed on distance from National Highway (independent variable) to test the hypothesis. The p – value is .000 which is less than .05. **Thus, null hypothesis stands rejected.** It means that national highway has played a significant role in shaping the pattern of rural development. It is also evident that as the distance increases from national highway, the composite score of rural development decreases ($b = -7.268$, $p < .05$). Moreover, the R

square = .089 depicts that the model explains 8.9% of the variance in the composite index of rural development.

The study highlights the distribution of villages in different level of rural development in relation to population size of rural settlement i.e., above 10000, 10000 – 6000, 6000 – 3000, 3000 - 1000 & below 1000. It is observed that only 10 villages (3.80 percent) out of total villages were observed with above 10000 populations. Only single village (10 percent) among these villages was found in the category of high development whereas 50 percent villages belonged to moderate developed category followed by low developed category (40 percent).23.81 percent village's of6000 – 10000 populations were observed in the category of high to very high development. The proportion of high to very high categories decreased as the size of settlements decreased (12.83 percent in 6000 - 3000, 6.67 percent in 3000 - 1000 and 5.26 percent below 1000) in term of population. In contrast, the proportion of low and very low developed villages increased as the size of settlements (10000 to below) decreased (26.29 percent in 10000 – 6000, 31.62 percent in 6000 - 3000, 62.66 percent in 3000 - 1000 and 84.21 percent below 1000) in term of population. A majority of villages of their respective size of settlements exceptionally below 1000 were observed in the category of moderately rural developed.

The study exhibits the level of socio – economic and infrastructural development in different blocks of Hisar district. Only two out of nine blocks, namely Barwala and Hansi-I are found with high level of rural development. The blocks Hisar-I, Narnaund, Uklana, Agroha, Hisar-II & Hansi-II are included in the category of moderate rural development. While only one block i.e., Adampur block is observed with low level of rural development. It is evident that 8.11 percent villages of Barwala block are included in the category of very high rural development. The blocks Agroha, Uklana, Hisar-I & Adampur have shown a significant proportion of villages in high level of rural developed category. Hansi-I block have accounted 82.05 percent villages in moderate category of development followed by Barwala (81.08 percent), Hisar-II (79.49 percent) & Hansi-II (77.27 percent). A significant proportion of villages having low level of development are

observed in Hisar-I (15.00 percent) &Narnaund (13.79 percent) followed by Uklana (9.09 percent), Agroha (8.70 percent), Adampur (8.70 percent) etc. A major proportion of villages of their respective blocks are observed in the category of moderately rural developed. There is no any block in the category of very high and very low level of rural development.

It is evident from the study that in 2021, 40.74 percent of the total sampled households belong to general castes followed by backward castes (39.01 percent) and schedule castes (20.25 percent). Table also reveals that general castes are the leading caste in the level of rural development and got position in the category of high rural development. The backward castes have secured moderate position in the level of rural development. In comparison, schedule castes are lagging behind in the level of rural development and observed low level of rural development. The study also depicts the distribution of different castes of general, backward and schedule category. The caste wise distribution and their level of development are discussed in detail. Brahmin's numerical strength in the sample households is only 4.2 percent households. Brahmin as a priest community has been remained at the top position in the traditional social hierarchy. In 2021, Brahmin caste has got moderate position in the level of rural development. In the sample households, 1.48 percent households belong to Mahajan caste. Traditionally this caste is a business community. In the present study, this caste has attained moderate level of the rural development. Jat caste is the dominant caste of Hisar region. Therefore, it is the leading community having 34.57 percent households. Traditionally, it is an agricultural community. In 2021, Jat caste has secured leading position in the level of rural development. Yadav caste has accounted with 10.12 percent households in the sample villages and found in the category of moderate level of the rural development. The traditional occupation of the Saini community is the vegetable growing and gardening. They are observed with 4.94 percent households in the sampled villages. Presently, this caste is included in the category of low level of the rural development. Kumhar (11.85 percent household) a traditionally service community, is the second top community in numerical strength in the Hisar region. This community has found his place in the

moderate level of the rural development. Khati (4.94 percent household) a traditionally service community, has also accounted with moderate level of the rural development. Nai (1.73 percent household) a traditionally service community, is included in the category of very low level of the rural development. Lohar (4.2 percent household) a traditionally service community, is observed with very low level of the rural development. Chamar caste is an important community of schedule caste. This caste has registered with low level of the rural development. Dhanak caste is also an important community of schedule caste. This caste has registered with moderate level of the rural development. Balmiki caste is an important community of schedule caste. This caste has registered with low level of the rural development.

The study reveals the trend of rural development of nine sampled villages of the Hisar district during 1971, 2011 & 2021. The village Kutia Kheri is the sampled village of Adampur block was included in the low category of the rural development in 1971. In 2011, it slipped down to very low category of the rural development. During 2011 to 2011, this village has made a great effort and reached at the top-level rural development score. Accordingly, this village has been included in the category of high level of the rural development and attained the status of progressive village. The main reason for this great improvement is due to the dominance of Jat caste a leading caste in the level of rural development. The village Arya Nagar (Hisar-II block) had observed in category of high level of development during 1971-2011. In 2021, this village is included in the moderate level of the rural development hence designated as retrogressive village. It is also evident from the table that the village Arya Nagar has continuously maintained their positive development score during the study period. This village is dominatingly inhabited by backward castes (Khati 31.11 percent, Kumhar8.89 percent) and followed by general castes (Jat 24.44 percent, Brahmin 4.44 percent & Baniya 6.67 percent) have been observed in the category of high rural development. The village Gunzar (Hisar-I block) attained low level of the rural development in 1971. In 2011, this village improved his rural development score and accordingly included in moderate level of the rural development. Interestingly, the village Gunzar has maintained their rural development

status in 2021. Hence, this village is designated as static village. In the social composition of the village the significant concentration is of the Yadav caste (84.44 percent households) followed by Dhanak & Chamar caste (11.11 percent household) of the schedule category and Brahmin caste (4.44 percent household). The village Thurana (Hansi-II block) recorded in the category of high level of the rural development in 1971. In 2011, this village showed slightly decline in the rural development score accordingly found in moderate level of the rural development. In 2021, it again improved its rural development score and repeated its moderate level of the rural development. So this village is also represented as static village. Majority of population of this village predominantly belongs to general caste (77.78 percent) including Jat caste (66.67 percent) and Brahmin caste (11.11 percent). A significant proportion of Chamar caste (15.56 percent), a schedule caste is observed in this village. Besides Khati caste (6.67 percent) is also seen in this settlement. During 1971-2011 with little improvement in the rural development score the village Dhana Kalan accounted in the category of moderate level of the rural development. But in 2021, the rural development of this village declined significantly and secured negative rural development score hence including in the category of low level of the rural development. Therefore, the village Dhana Kalan is recognized as retrogressive village. About three-fourth households of sample villages has been belonged to backward castes (75.56 percent) such as Saini caste (35.56), Lohar caste (20 percent), Kumhar Caste (13.33 percent) & Yadav caste (6.67 percent) followed by schedule castes (13.33 percent) having Chamar caste (13.33 percent). Among general caste (6.67 percent), only Jat caste (6.67 percent) is resided in this class. A majority of villages namely Khasa Mahajan (Agroha block), Dhana Kalan (Hansi-I block), Koth Khurd (Narnaund block), Gunzar (Hisar-I block) and Thurana (Hansi-II block) have been included in the moderate level of rural development while only one village i.e., Dolatpur (Uklana block) are found in low level of rural development. In 2011, the blocks Hansi-I and Barwala registered high level of rural development while their respective villages (Dhana Kalan and Behbalpur) achieved the very high level of rural development. In 2021, the respective villages of these blocks have lowered their level of rural

development from very high to moderate. In the process of transformation, these villages are not able to retain their top status but have slipped downwards, hence recognized as retrogressive villages. The blocks Agroha, Hisar-I, Hansi-II, Narnaund with their respective villages (Khasa Mahajan, Gunzar, Thurana and Koth Khurd) attained moderate level of rural development in 2011. These villages have retained their moderate level of rural development recognized as static villages. In 2011, the block Uklana with respective village (Dolatpur) also accounted with moderate level of rural development. But in 2021 the village Dolatpur has stepped down from moderate to low level of rural development designated as retrogressive village.

In nutshell, the study indicates that the trend of spatial variation in level of rural development has been minimized and approaching towards average level of development during the study period. But, among different section of society at caste level, there are observed still significant variation in level of rural development. The study indicates that castes have been played an important role to design the pattern of rural development. There are also observed a significant gender disparity in literacy, educational level, work participation rate, administration etc.

Bibliography/References:

- Thompson, Warren S. (1936): The Distribution of Population. Annals of the American Academy of Political and Social Science, Vol. 188, 250-259
- George, M.V. (1962): A decade of unprecedented population growth in India. Asian Survey, 1(12), 33.
- Clawson M. and Stewart C. L. (1965): Land use information, A critical survey of U.S. statistics including possibilities for greater uniformity: Baltimore, Md., The Johns Hopkins Press for Resources for the Future, 17: 402.
- Thompson, Warren S. and David T. Lewis. (1965): Population problems, New York: McGraw Hill.
- Thomlinson, Ralph (1967): Demographic problems: Controversy over, population control, Belmont: Dickenson Publishers.
- Warton, C.R. (1967): The infrastructural for agricultural growth. In agricultural development and economic growth, ed. H.M. Southworth and B.F. Johnston, London: Cornell University Press.
- Zachariach and Ambannavar, J.P. (1967): Population redistribution in India, Inter-State and rural-urban patterns of population change in India (ed.) Bombay: Ashish Bose.
- Smith, T. Lyn and Zopf Paul E. (1970): Demography: Principles and Methods, Philadelphia.
- Clarke, J.1. (1972). Population geography, Perogmon Press: Oxford.
- Anderson et al (1976): A Land use and land cover classification system for use with remote sensor data, U.S. Geological Survey Professional Paper, 964:1-28.
- Anderson J. R. (1977): Land use and land cover changes- a frame work for monitoring, Journal of Research, USGS publication, 143-153.
- Smith, D.M. (1977): Human geography a welfare approach, Edward Arnold Publisher, London.
- Myrdal G. (1977): Asian Drama' An Inquiry into the Poverty of Nation, Allen Lance The Penguin Press London, pp 80-89.

- Singh Rana, R.B. (1977): Clan settlement in the Saran plain: A study in cultural geography. Varanasi: National Geographical Society of India.
- Gosal, G.S. (1979): Spatial Perspective of literacy in India. Population Geography. 1(1&2) p. 41 & 45.
- Woods, Ropert (1979): Population analysis in geography, London: Longman.
- Singh, A.K. (1985): Population and settlement in Uttar Pradesh: A geographical analysis, New Delhi: Inter India press.
- Hisar District Gazetteer (1987): Haryana District Gazetteer of Hisar, Edited by S.P. Bhatia and S. Kumar, Haryana Gazetteers Organization, Chandigarh.
- Lockeretz W. (1988): Editor's introduction to special issue: Sustaining agriculture near cities, Landscape and Urban Planning, 16: 291-292.
- Gupta, S., B. Clements and E. Tiongson (1988): Public spending on human development. Finance and Development: 10-13.
- Mishra, O.P., Mithilesh Mishra and R.P. Shukla (1991): Planning for social infrastructure: A case study of tehsil colonel ganj, district Gonda (U.P), Geographical Review of India 53(3): 30-50.
- Hisar District Census, Census of India (1991): Primary Census Abstract of Haryana, Published by Director of Census Operation, Haryana.
- Ahmed, R. and C. Donovan (1992): Issues of infrastructural development: A synthesis of the literature, International food policy research institute, Washington: 1-40.
- Choudhry, Mahinder, D. (1992): Population growth in India: 1991 census. Population and Environment, 14(1), 31-48.
- Bhagabati, Abani K. (1993): Agricultural development in Assam. Annals, National Association of Geographers India 13(2):19-28.
- Diener et al. (1993): The relationship between income and subjective well-being: Relative or absolute? Social Indicators Research, 28(3): 195-223.
- Kumar, A.K. Shiva and VanitaNayak Mukherjee (1993): Health as development implications for research, policy and action. Economic and Political Weekly 28 (16):769-774.

- World Bank (1994): Infrastructure for development, World development report, Oxford University Press, Washington D.C.
- Raghuraman, V. (1995): Some issues on infrastructure development in India, Productivity, 36 (2): 181-91.
- Poleman, Thomas, T (1995): Population past growth and future control. Population and Environment, 17(1), 12-25.
- Datt, R. and Sundharam, K.P.M (1996): Indian Economy, S. Chand & Company (Pvt.) LTD, New Delhi, Pg 75.
- World Bank (1998) Reducing poverty in India: Options for more effective public services, World Bank, Washington, D.C.
- Ghosh, Buddhadeb and Prabir, De. (1998): Role of infrastructure in regional development-A study over the plan period. Economic and Political Weekly 33(47): 3039-48.
- M. Owango et al. (1998): Dairy Co-operatives and Policy Reform in Kenya: Effects of Livestock Service and Milk Market Liberalisation: Food Policy (Elsevier science), Vol. 23, No. 2.
- Bhardwaj, P.D. (1999): Literacy in Himachal Pradesh. Population Geography. 21(1&2) p. 32-33 & 34.
- Singh, A. K. 1999. Inter-state disparities in per capita state domestic product in India, trends and causes, ArthaVijana 41(2): 110-24.
- Modugall, Lori (2000): Gender Gap in Literacy in Uttar Pradesh, Questions for Decentralized Educational Planning. Economic and Political weekly. 35(19) p. 1649.
- Lever, J. P. (2000): The Development of an Instrument to Measure Quality of Life in Mexico City, Social Indicators Research, 50(2): 187-208.
- Dissart, J. C. & Deller, S. C. (2000): Quality of life in the planning literature, Journal of Planning Literature, 15(1): 135-161.
- Kumar P and Mittal S. (2000): Literacy, Technology Adoption, Factor Demand and Productivity: An Econometric Analysis, Indian Journal of Agricultural Economics, Vol. 55, No. 3

- Obong et al. (2001): Determinants of Health and Nutritional Status of Rural Nigerian Women, J Health Popul Nutr, Vol. 19(4).
- Ashley C. and Maxwell S., 2001: Rethinking Rural Development, Development Policy Review, 19 (4), pp. 395-425.
- Hisar District Census, Census of India (2001): Primary Census Abstract of Haryana, Published by Director of Census Operation, Haryana.
- Bloom, E., et al. (2001): The Quality of Life in Rural Asia. Published for the Asian Development Bank by Oxford University Press, Pp. 2-3.
- Ashley, C. & Maxwell, S. (2001): Rethinking rural development. Development Policy Review. 19(4): 395-425.
- Tiwari Ram Kumar and Raj Kumar Tiwari (2002): Population distribution in the Jharkhand State, Geographical Review of India, Vol. 64(3), 273.
- Ashok et al. (2002): Current Health Scenario in Rural India, Australian Journal of Rural Health, Vol. 10.
- Verburg, P. H., De Groot, W. T. and Veldkamp, A. (2003): Methodology for multi-scale land-use change modelling – concepts and challenges, in: A. J. Dolman, A. Verhagen and C. A. Rovers (ed.), Global Environmental Change and Land-Use. Kluwer Academic Publishers, Dordrecht, pp. 17–51.
- Premi C. (2003): Regional Disparities in Socio-Economic development of Scheduled Castes and Non-Scheduled Castes: A case study of Mandi District, Himachal Pradesh, Geography Department, H.P. University Shimla, p. 3. 6.
- Raj, Hans. (2003): Fundamental of demography: Population studies with special reference to India, New Delhi: Surjeet Publications.
- Sankar, Deepa and Vinish, Kathuria (2004): Health system performance in rural India: efficiency estimates across states. Economic and Political Weekly 39 (13):1427-1433.
- Sharma, Perveen (2004): Population growth and sustainable development. Economic and Political Weekly, 39(7), 629.

- Willoughby, C. (2004): Infrastructure and the million development goals. Complementary of infrastructure for achieving the millennium development goals, United Nations.
- Sharma R.B. and Gupta M. (2004): Gender Based Violence in India: A Never-ending Phenomenon, Journal of International Women's Studies, Vol. 6, Issue 1.
- Azim, Shaukath (2005): Literacy Growth Disparity in Karnataka. Economic and Political Weekly. 40(16) p. 1647 & 1649.
- Stevens et al., (2006): A cross sectional perspective on the development of global infrastructure to 2030, telecom, land transport, water and electricity, Organisation for economic cooperation and development: 13-49.
- Ghosh, R.A., and B. Debasree. (2006): Intra district disparity in the distribution of educational institution in Bankura, West Bengal. Geographical Review of India 68 (3): 302-315.
- Pawar, C.T., and R. Ingale (2006): Regional disparities in levels of social development in south plateau region of Maharashtra. Geographical Review of India 68 (4): 488-500.
- Yeon and Woo (2006): Agro-Tourism as a Rural Development Strategy in Korea, Journal of Rural Development, Vol. 29(6).
- Jacobson A. (2007): Connective Power: Solar Electrification and Social Change in Kenya, World Development (ELSEVIER), Vol. 35, No. 01.
- Herselman E.M. and Ouma S. (2008): E-health in Rural Areas: Case of Developing Countries, International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering Vol. 2, No. 4.
- Ali Asadi et al. (2008): Poverty Alleviation and Sustainable Development: The Role of Social Capital, Journal of Social Sciences, Vol. 4(3).
- Polyakov M & Zhang D. (2008): Population growth and land use dynamics along the urban-rural Gradient, Journal of Agricultural and Applied Economics40 (2): 649-666.
- Quintrell, Edith (2008): Director of operations. Multilateral investment guarantee agency, World Bank: 1.

- Delmon, J. (2008) Private sector investment in infrastructure, project finance, In PPP projects and risk, ed. Alphenaan and Den Rijn, 668, Netherland: Kluwer Law International.
- World Development Report (2008): Agriculture for development, The World Bank, Washington, D.C.
- Singh, R. (2009): Trends in regional disparities in India since independence: A geographical analysis, Doctoral dissertation, Punjab Geographer: 132.
- Singh, K. (2009): Rural Development: Principles, policies and management. SAGE Publications India.
- Thakur, B.R. (2009): Educational Development among Scheduled Tribes of Himachal Pradesh: A Spatio-Temporal Study (1971-2001), Population Geography, (31)1&2 p. 79.
- Mukhtar and Ogunlela (2009) Gender Issues in Agriculture and Rural Development in Nigeria: The Role of Women, Humanity & Social Sciences Journal, Vol. 4 (1).
- Vijay et al. (2009): Determinants of Small-Scale Farmer Inclusion in Emerging Modern Agrifood Markets: A Study of the Dairy Industry in India, Indian Institute of management, Ahmadabad, India.
- Satia K.J. and Kumar A. (2010): Rural Health Innovation through Leadership Development and Organisational Effectiveness, Jharkhand Journal of Social Development, Vol. III, No. 2.
- Bagchi, S. K. (2010): Project infrastructure finance. New Delhi: Ane Books Pvt. Ltd.
- Bhattacharyay, Biswanath (2010) Estimating demand for infrastructure in energy, transport, telecommunication, water and sanitation in Asia and the Pacific: 2010-2020. Asian development bank institute (ADBI), working paper series No. 248: 1-44.
- Kapil, A. (2010): Infrastructure and economic development. New Delhi: Deep and Deep Publication Pvt. Ltd.
- Mandal, Mrinal (2010): Status of health care facilities in Bankura district: A study of medical geography, Indian Journal of Landscape System and Ecological Studies (Special Volume on Ecological Studies in Geography) 33(2): 501-510.

- Aref A. (2011): Perceived Impact of Education on Poverty Reduction in Rural Areas of Iran, Life Science Journal, Vol. 8(2).
- Das, R. and Das, A. K. (2011): Industrial cluster: An Approach for Rural Development in North East India. International Journal of Trade, Economics and Finance. 2(2): 161.
- Ogechukwa D. A. (2011): The Role of Small Scale Industry in National Development in Nigeria, Universal Journal of Management and Social Science, Vol. 1, No. 1.
- Sharma and Tiwari (2011): Level of Agro-Based Industrial Development in Eastern Utter Pradesh, National Geographical Journal of India, Vol. 57.
- Oyekale O. T. (2011): Impact of Poverty Reduction Programs on Multidimensional Poverty in Rural Nigeria, Journal of Sustainable Development in Africa, Volume 13, No.6.
- Ismael A. and Ngahthis I. (2012): The Effect of Population Density on Rural Communities of Kurdistan Region, Iraq, American Journal of Human Ecology Vol. 1, No. 4.

- Ismael A. and Ngahthis I. (2012): The Effect of Population Density on Rural Communities of Kurdistan Region, Iraq, American Journal of Human Ecology Vol. 1, No. 4.

- Barakade A.J. (2012): Declining Sex Ratio: An Analysis with Special Reference to Maharashtra State, Geoscience Research, Vol. 3, Issue 1.
- Kour H and Gakhar K. (2012): Scenario of Present Education System: A Comparative Study of Haryana and Its Neighboring States, International Journal of Social Science & Interdisciplinary Research, Vol. 2, Issue 8.
- Murtaza F. K. (2012): Women Empowerment through Higher Education in Gilgit-Baltistan, International Journal of Academic Research in Business and Social Sciences, Vol. 02, No. 09.

- Barakade A.J. (2012): Declining Sex Ratio: An Analysis with Special Reference to Maharashtra State, Geoscience Research, Vol. 3, Issue 1.

- Lokhande A. M. (2012): Micro Financing Through women Self-Help Groups and Its Socio-Economic Impact- A Case Study of Konkan Region of Maharashtra, Arth Prabhand: A Journal of Economic and Management, Vol. 1, Issue 9.
- Buragohain T. (2012): Impact of Solar Energy in Rural Development in India, International Journal of Environmental Science and Development, Vol. 3, No. 4.
- Mathur et al. (2012): Progress and Performance of Kisan Credit Card Scheme with a Case Study Of Bihar, Agriculture Economic Research Review, Vol. 25, No. 1.
- Central Statistics Office (2012) Manual infrastructure Statistics, Ministry of Statistics, New Delhi: Government of India: 7+9. (http://mospi.nic.in).
- Tyagi, R.C. and Tarentum Siddiqui (2012): Need of quality in basic education: A study of Uttar Pradesh. Man and Development 34 (1): 85-104.
- Hausmann et al. (2012): Global Gender Gap Report. World Economic Forum p. 29.
- Kaur, Satvinderpal (2012): School dropouts at elementary stage: A study of selected districts of Punjab. Man and Development 34 (3):117-126.
- United Nation (2012): World population prospect, Wallchart, Department of Economic and Social Affairs, Population Division, United Nation, www.unpopulation.org.
- Central Statistical Organisation (2013) Statistical abstract of India. Government of India, New Delhi.
- Thakur, B.R. and Kumar Sandeep (2013): Distribution, density and growth of population in scheduled tribe areas of Himachal Pradesh: A village level analysis", National Geographical Journal of India, 59(4), 405.
- Mandal S. and Mondal M. (2013): Remote Village Electrification through Renewable Solar Energy: A Case Study of Sagar Island, West Bengal, India, The International Journal of Engineering and Science (IJES), Vol. 2, Issue 01.
- Mukherjee S. and Biswas B. (2013): A Comparative Study of Low Solar Based Lighting System and Fuel Based Lighting System for Remote off Grid Location in India, International Journal of Modern Engineering Research, Vol. 3, Issue 5.
- Arici I and Kirmikil M. (2013): The Role of Land Consolidation in the Development of Rural Areas in Irrigation Areas, Journal of Food, Agriculture & Environment, Vol. 11(2).

- Samantroy E. (2013): Gender and Social Protection in North East India: Towards a transformative Approach, Labour & Development, Vol. 20, No. 2.
- Gupta A. and Pathak S. (2013): Status of Women in India with Particular Reference to Gap in Male Female Literacy Rate in India, International Journal of Environmental Engineering and Management, Vol. 4, No. 6.
- Shah R. N. (2013): Literacy Rate in India, International Journal of Research in All Subjects in Multi Languages, Vol. 1, Issue 7.
- Nagaraja G. and Sreekanthachari G.J. (2013): An overview of Rural Education in India, Advance Research Journal of Social Science, Vol. 4, Issue 1.
- Frone and Frone (2013): Sustainable Tourism and Water Supply and Sanitation Development in Romania, Journal of Tourism and Hospitality Management, Vol. 1, No. 3.
- Das and Kumar (2014): Drinking Water and Sanitation Facility in India and Its Linkages with Diarrhoea among Children under Five: Evidence from Recent Data, International Journal of Humanities and Social Science Invention, Vol. 3, Issue 4.
- Das M. and Das S. (2014): Shifting Cultivation in Tripura – A Critical Analysis, Journal of Agriculture and Life Sciences Vol. 1, No. 1.
- Osuala et al. (2014) The Place of Information and Communication Technology in Students' Cognitive Assessment in Imo State Tertiary Institutions, International Journal of Education and Research, Vol. 2, No. 11.
- Samanta S. and Das D. (2014): Rural Education in India: As an Engine of Sustainable Rural Development, International Journal of Research in Humanities, Arts and Literature, Vol. 2, Issue 10.
- Karrar H. (2014): "Demographic Characteristics of Karnataka – A Spatial Analysis", Online International Interdisciplinary Research Journal, Vol. 04.
- Meenu and Talwar D. (2014): An Analysis of Literacy Rate in Haryana, Journal Of Business Management & Social Science Research, Vol. 3, No. 7.
- Karrar H. (2014): A Study of Demographic Characteristics in Kerala, Scholarly Research Journal for Humanity Science & English Language, Vol. 1, Issue 5.

- Mishra P.R. and Som S. K. (2014): Gender Imbalance: Trends, Pattern and its Impact on West Bengal, International Journal of Scientific and Research Publication, Vol. 4, Issue 7.
- Amjad et al. (2014): Role of Small Business Firm in Women Economic Empowerment: A Case Study of Gilgit Baltistan, International Journal of Academic Research in Economic and Management Science, Vol. 3, No. 6.
- Popa C. and Nistor F. (2014): The Role of Transport in Economic Development, Mircea cel Batran, Naval Academy Scientific Bulletin, Volume XVII – 2014 – Issue 2.
- Ramaswamy S. and Anandan M. (2014): Rural Electrification: Pros and Cons, Strategies and Policies, International Journal of Advanced Technology & Engineering Research (IJATER), March 2014
- Nidhi Verma et al. (2014): Scenario of Rural Electrification in India- Challenges and Impact, Int. Journal of Engineering Research and Applications, Vol. 4, Issue 12.
- Akani R. O. and Ewomazino M. A. (2015): Demographic Transition and Rural Development in Nigeria, Developing Country Studies, Vol. 05, No. 06.
- Demenge et al. (2015): Multifunctional Roads: The Potential Effects of Combined Roads and Water Harvesting Infrastructure on Livelihoods and Poverty in Ethiopia, Journal of Infrastructure Development, Vol. 7(2).
- Oledinma A. (2015): The Institutional Framework Surrounding Agricultural Transportation Policy in Nigeria, The Journal of Transport Literature, Vol. 9(2).
- Agarwal M. and Patel P.J. (2015): Trends of Imbalance in Child Sex Ratio of Gujarat, India, International Journal of Health Sciences and Research, Vol. 5, Issue 7.
- Theuri S. F. and Sherah M. R. (2015): Effects of Gender Disparity on Enhancement of Household Food Security: A Case of Food/Cash-For-Assets Project in Kinango Sub County, Kwale County, Kenya, IOSR Journal Of Humanities And Social Science (IOSR-JHSS), Vol. 20, Issue 4.
- Ismail et al. (2015): The Role of Women in Household Decision-Making and their contribution to Agriculture and Rural Development in Nigeria, IOSR Journal Of Humanities And Social Science (IOSR-JHSS), Vol. 20, Issue 5.

- Mohammad et al. (2015): Factors of Rural Development Driver in Southeastern Bangladesh, American Journal of Rural Development, Vol. 3, No. 2.
- Raj S. and Syiem R. (2015): Access and Usage of ICTs for Agriculture and Rural Development by the Tribal Farmers in Meghalaya State of North-East India, Journal of Agricultural Informatics, Vol. 6, No. 3.
- Biswas S. (2015): The Role of Indra Awaas Yojana in Addressing Rural Homelessness: An Evaluation, International Journal of Humanities & Social Science Studies, Vol. 2, Issue 2.
- Md. Mahi et al. (2015): The Impact of Rural Development Program on Poverty Alleviation: A Case of Bangladesh, Global Journal of Management and Business Research: A Administration and Management, Vol. 15, Issue 04.
- Pal K.P. and Mondal P (2016): Educational impact of Sarva Shiksha Abhiyan (SSA) in Respect of Access to and Retention in Formal Education: A Comparative Study Between Agro-occupational and Non-agro-occupational groups in Traditional rural communities of West Bengal, India, Academia Journal of Educational Research, Vol. 4(3).
- De et al. (2016): Swachhbharat Abhiyan – An Overview, International Journal of Information Research and Review, International Journal of Information Research and Review, Vol. 03, Issue 11.
- Asyerem J.S.F. (2016): The Role of the Agriculture Sector in Regional Development Disparity in Pegunungan Arfak Regency, Asian Journal of Agriculture and Rural Development, Vol. 6(8).
- Anil et al. (2016): Status of Sugar Industry in Kushinagar District, U.P., Trans. Inst. Indian Geographers, Vol. 38, No. 1.
- Stuart Hart et al. (2016): Poverty, Business Strategy, and Sustainable Development, Organization & Environment, Vol. 29(4).
- Venugopal P. and Kumar V.M. (2016): E-Agriculture and Rural Development, Journal of Chemical and Pharmaceutical Sciences, Vol. 9, Issue 4.

- Suri K. (2016): Educational infrastructure in government schools in rural areas of Jammu and Kashmir: Issues and concerns, Asian Journal of Multidisciplinary Studies, Vol. 4, Issue 4.
- Oriji et al. (2016): E-education: Changing the Mindsets of Resistant and Saboteur Teachers, Journal of Education and Practice, Vol.7, No.16.
- Khan S. (2016): The Gender and Development (GAD) Paradigm: Empowerment of Rural Afghan Women through Collaborative Initiatives, Sociology and Anthropology, Vol. 4(5).
- Gavhale R. S. (2016): Inequality of Gender Ratio Among Religious and Social Groups in India, Humanities & Social Sciences Reviews, Vol. 4, No. 2.
- Mohanty K.S. and Seth N. (2016): Poor and non-poor differentials in household health spending in India, J Public Health (Springer).
- Nwaogu C. et al. (2016): Socio - Economic Implications Of Climate Seasonality: A Comparative Assessment Of Road Transport Inequalities Between Rural And Urban Areas, International Journal of Technology Enhancements and Emerging Engineering Research, Vol. 4, Issue 3.
- Samineni S. (2016): Social Entrepreneurship- As a Tool for Sustainable Development of Women in Rural India Leading to Economic Empowerment, IOSR Journal of Business and Management, Vol. 20, Issue 2.
- Tewari S. (2016): Rural Development through Women's Health, International Journal of Advanced Engineering, Management and Science (IJAEMS), Vol.2, Issue 4.
- Musa et al. (2016): On the Socioeconomic Determinants of Households' Access to Safe Drinking Water: Some Evidence from Nigeria, Indian Journal of Economics and Development, Vol. 4(7).
- Kateja A. (2016): Linkage Between Water, Sanitation and Health Outcomes: An Empirical Analysis of Indian States, International Journal of Scientific and Research Publication, Vol. 6, Issue 10.
- Kumar A. (2017): Household's Toilet Facility in Rural India: Socio-spatial Analysis, Indian Journal of Human Development, Vol. 11(2).

- HA E. et al. (2017): Knowledge and Perception of Healthcare providers Towards PHC-Health Management Information System In EDO State, Southern Nigeria, Annals of Medical and Surgical Practice, Volume 2, Issue 1.
- Yahaya et al. (2017): Gender Equality and Development, Journal of Research in Humanities and Social Science Volume 5, Issue 6.
- Bhagat R.D.D. (2017): Rural Education and Village Development, Gurukul International Multidisciplinary Research Journal (GIMRJ), Issue–III, Volume–VI.
- Goyal R. and Sharma N. (2017): Pradhan Mantri Jan Dhan Yojana (PMJDY)- A Conceptual Study, International Journal Of Research Granthaalayah, Vol.5, Issue 4.
- Pradhan P. (2017): Swachh Bharat Abhiyan and the Indian Media, Journal of Content, Community & Communication, Vol. 5.
- Neumeier, S., 2017: Social innovation in rural development: identifying the key factors of success. The geographical journal, 183(1), pp.34-46.
- Sharma, L.K. 2017: Rural Development: An approach for poverty alleviation in India, International Journal of Research and Analytical Reviews, Vol. 4, Issue 3.
- Unwin, T., 2017: Urban-rural interaction in developing countries: a theoretical perspective, pp. 11-32.
- Roy B., 2017: Towards Scientific Management of Solid Waste through Suitable Landfield Site Selection for Raiganj Municipality West Bengal, India: A Model Based Approach, International Journal of trend in Scientific Research and Development, Vol. 1, Issue – 6.
- Saurabh K. V. (2018): Rural Development of India: A Research Trend Analysis, International Research Journal of Management Sociology & Humanities (IRJMSH), Vol. 09, Issue 10.
- Narkhede P. and Ghom P. (2018): Emerging Trends in Rural Development: Planning for Smart Villages, International Journal of Engineering Technology Science and Research, Vol. 05, Issue 03.
- Saroha J. (2018): Trends of World Population Growth, International Journal of Creative Research Thoughts (IJCRT), Vol. 06, Issue 01.

- Singh V. (2018): Progress of Literacy and Education in India, Maharshi Dayanand University Research Journal ARTS, Vol. 17 (1).
- Vikhe L.R. (2018): Study and Review of role of Saravshikshaabhiyan in the Development of Elementary Education, IOSR Journal of Business and Management, Vol.20, Issue 3.
- Malipatil and Agnihotri (2018): A Study on Brief Information about Beti Bachao Beti Padhao Scheme, International Journal of Current Research, Vol. 10, Issue 01.
- Roy S. and Desai A. (2018): A Review of Cleanliness Mission "Swachh Bharat Abhiyan"- A Survey done for Thane District, International journal of Trend in Scientific Research and Development, Vol. 2, Issue 4.
- Tiwari S.S, (2018): Impact of Kisan Credit Card Scheme on the Socio-Economic Status of Farmer's in Anuppur District of Madhya Pradesh (with Special Reference to Co-operative Bank), International Journal of Science and Research, Vol. 8, Issue 8.
- Sharanya et al. (2018): A Study on the Impact of Pradhan Mantri Schemes towards the Upliftment of Scheduled Caste Population with Reference to Kammattipadam Ernakulam District, International Journal of Pure and Applied Mathematics, Vol. 118, No. 18 .
- Vezhaventhan D. and Swathi M. (2018): A Study on the Housing in Rural Areas with Special Reference to Pradhan Mantri Awas Yojana (PMAY-G), , International Journal of Pure and Applied Mathematics, Vol. 120, No. 05.
- Shobanageetha K. and Dhanabhakyam M. (2018): Rural Development Through Pradhan Mantri Awaas Yojana (PMAY) in Coimbatore District, Journal of Emerging Technologies and Innovative Research, Vol. 5, Issue 4.
- Kashyap C.G. and Bango M. (2018): Changing Trends in Work Participation of Tribal Women by Education in Some Selected States of India, International Journal of Arts Humanities and Social Sciences, Vol. 3, Issue 2.
- Parida et al. (2018): Gender and Communication Strategy for Rural Development Programme in India, International Journal of Agricultural Science and Research, Vol. 8, Issue 2.

- Ghosal J. (2018): Gender Equality, Women Empowerment and Role of Men in India, Research Journal of Humanities and Social Sciences, Vol. 09, Issue 03.
- Acharya S.S. (2018): Health Equity in India: An Examination through the Lens of Social Exclusion, Journal of Social Inclusion Studies, Vol. 4(1).
- Ekobi G. and Mboh L. (2018): An Exploratory Study in to the Benefits and Challenges Facing Small-Scale Farmers in the Taung Irrigation Scheme, North West Province, South Africa, Asian Journal of Agriculture and Rural Development, Vol. 8, Issue 1.
- Ironbar et al. (2018): Use of Soil Conservation Practices for Climate Change Adaption Among Arable Crop Farmers in Cross River State, Nigeria, Asian Journal of Agriculture and Rural Development, Vol. 8, Issue 1.
- Cay A. and Ozpinar S. (2018): The Role of Agricultural Mechanization in farming System in a Continental Climate, Journal of Tekirdag Agricultural Faculty, Vol. 15(02).
- Bhunia A. (2018): The Disparity of Sanitation Facility in the Rural Jangalmahal, West Bengal, Indian Journal of Spatial Science, Vol. 9.0, No. 2.
- Singh, R. (2018): Sustainable Rural Development in India: Issues and Challenges. International Journal of Research in Social Sciences, 8(3), pp.330-341
- (Kumar P. 2018): Ancient Societies and Culture in Haryana, International Journal of Creative Research Thoughts (IJCRT), Vol. 06, Issue 01.
- RAO, P.S. (2019): Rural Development Schemes in India–A Study. IJRAR-International Journal of Research and Analytical Reviews (IJRAR), 6(1), pp. 1072-1076.
- Agrawal S. (2019): Pre-Post Rural Development, International Journal of Socio-Legal Analysis and Rural Development, Vol. 2, Issue 01.
- Rao, P. S. (2019): Rural Development Schemes in India–A Study. IJRAR-International Journal of Research and Analytical Reviews (IJRAR). 6(1): 1072-1076.
- Sussman, G.E. (2019): The Challenge of Integrated Rural Development in India: A Policy and Management Perspective.
- Ohwo O. (2019): Dimensions of Inequality in Urban and Rural Water, Sanitation and Hygiene Services in Sub-Saharan Africa, European Scientific Journal, Vol. 15, No. 8 .

- Hariharan R. (2019): An Economic Analysis of Housing Environment and Health Status of Rural Households in Sivaganga District of Tamil Nadu, Indian Journal of Economics and Development, Vol. 7(4).
- Kushandajani K. (2019): Social and Economic Empowerment for Village Women as a Strategy of Village Development, The Indonesian Journal of Planning and Development, Vol. 04, No. 01.
- Diana et al. (2019): Rural and Indigenous Women Empowerment through Productive Groups and Social Microbusinesses in Mexico, Journal of Administration Sciences and Economic, Vol. 9(17).
- Okeke et al. (2019): Entrepreneurship as an Economic Force on Rural Development in Anambra State, Nigeria, IJRDO- Journal of Business Management, Vol. 5, Issue 3.
- Velimir et al. (2019): E-Education in Academic Environment, Annals of Spiru Haret University. Economic Series, Issue 4/2019.
- Mosse, D. (2020). Social research in rural development projects, In Inside organizations pp. 159-181.
- Rokicki B. et al. (2020) Accessibility in the regional CGE framework: the effects of major transport infrastructure investments in Poland, Springer.
- Vanclay F. and Castro-Arce K. (2020): Transformative Social Innovation for Sustainable Rural Development: An Analytical Framework to Assist Community-based Initiatives, Journal of Rural Studies, Vol. 74.
- Selvam V. and Rajalakshmi V. (2020): Rural Development Schemes in India Special Reference to Impact of Mgnregs Vellore District in Tamil Nadu, International Journal of Scientific & Technology Research, Vol. 9, Issue 02.
- Das D. (2020): Empowerment of Rural Women Through MGNREGA- A Study of MGNREGA Implementation in Barpeta Development Block of Barpeta District of Assam, Journal of Critical Reviews, Vol. 07, Issue 07.
- Singh, K. and Mann, V. (2020): A discussion on rural development strategies of Haryana, Asian Journal of Sociological Research, pp.1-4

- Faradiba, F. and ZET, L., (2020): The Impact of climate factors, disaster, and social community in rural development. Journal of Asian Finance, Economics and Business, 7(9), pp.707-717.
- Khan et al (2021): Analytical study of Spatial Changes in Rural and Urban Population Growth – A Case study of Hadouti Region, International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET), Vol. 10, Issue 6.
- Yadav et al. (2021): Spatial Patterns of Literacy in Rajasthan, International Journal of Innovative Research in Science, Engineering and Technology (IJIRSET), Vol. 10, Issue 09.
- Rahul et al. (2022): Study on Regional Rural Banks and their Impact on Poverty Reduction in India, Iconic Research and Engineering Journals, Vol. 05, Issue 10.

Appendices - 1

District Hisar

Spatial Pattern of Rural Development (1971 & 2011)

Level of Development	No. of Villages (%) 1971	Name of the Villages	No. of Villages (%) 2011	Name of the Villages
Very High	6 (2.34)	Dewe, Hajampur, Luhari Ragho, Khanda Kheri, Sahu, Moth Karnail Shab.	2 (0.76)	Arya Nagar, Ludas
High	28 (10.94)	Dhanderi, Landhari Sukh Lambran, Arya Nagar, Jamawari, Ladwa, Sorkhi, Bhatol Rangran, Bhagana, Badala, Kharar, Thurana, Mirchpur, Badon Pati Doyan, Rakhi Shahpur, Majod, Kallar Bhaini, Sisai Kali Rawan, Siswal, Pabra, Bass Khurd Bejan, Chamar Khera, Umra, Alipur, Kulana, Moda Khera, Moth Rangran, Budha Khera, Raj Thal.	30 (11.41)	Bass Azam Shahpur, Hajampur, Bahbalpur, Ghuskani, Budha Khera, Dhana, Jamawari, Kheri Barki, Nalwa, Talwandi Rana, Hari Kot, Harita, Sorkhi, Thurana, Siswal, Badon Brahmanan, Dhanderi, Madan Heri, Kulana, Kharbla, Khanda Kheri, Ugalan, Agroha, Dabra, Kagsar, Bhiwani Ruhelan, Bass Khurd Bejan, Ladwa, Garhi, Parbhuwala.
Moderate	91 (35.55)	Harita, Khara Barwala, Parbhuwala, Madan Heri, Mangali Mohbat, Sisai Bola, Ugalan, Patan, Dabra, Kharkhara,	116 (44.11)	Mangali Brahmnan, Majra, Chaudhriwas, Neoli Kalan, Thaska, Raipur, Umra, Depal, Badhawar, Sundawas, Bure,

		Bhatol Jatan, Kheri Barki, Latani, Kheri Gangan, Kharbla, Depal, Khumba, Budana, Rawalwas Khurd, Petwar, Banda Heri, Bhatla, Badon Pati Awal, Kharak, Sarsod, Bass Akbarpur, Kagsar, Chuli Bagarian, Chhan, Mehanda, Garhi, Ghirai, Bichpari, Kalirawan, Sadelpur, Kirmara, Mangali Akalan(, Nang Thala, Milakpur, Bhaklana, Singhwa Khas, Hasangarh, Kinnar, Bass Badshahpur, Kheri Shioran, Bad Chhapar, Dhani Jatan, Hari Kot, Burak, Bahbalpur, Dhana, Jamni Khera, Majra, Surewala, Putthi Mangalkhan, Ramayan, Balsmand, Bir Hansi, Haibatpur, Agroha, Sandol, Shamsukh, Rajli, Badon Brahmanan, Asranwan, Jakhod Khera, Badhawar, Talwandi Rana, Bir Hisar, Kutia Kheri, Bhaini Badshahpur, Sheikhpura, Sulkhani, Talwandi Rukka, Puthi Saman,		Kirtan, Landhari Sukh Lambran, Chamar Khera, Pabra, Bhaini Badshahpur, Sisai Bola, Durjanpur, Balak, Talwandi Rukka, Kutabpur, Kaluwas, Hasangarh, Badon Pati Doyan, Fransi, Juglan, Bugana, Singhwa Khas, Nayana, Bithmara, Sahu, Kanwari, Moda Khera, Bichpari, Kharak, Bhatol Jatan, Ramayan, Patan, Kharar, Mohla, Moth Karnail Shab, Badala, Balsmand, Data, Khumba, Chikanwas, Mirzapur, Petwar, Bheni Amirpur, Gorchhi, Guzar, Budana, Gianpura, Mangali Mohbat, Khar Khara, Panghal, Mangali Akalan, Bandaheri, Meengni Khera, Mater Sham, Badon Pati Awal, Rajli, Gaibipur, Dahima, Bhaklana, Rawalwas Khurd, Sarsod, Luhari Ragho, Mohabatpur, Chhan, Kaimri, Rakhi Shahpur, Koth Kalan, Madloda, Telanwali, Bass Badshahpur, Mazadpur,

		Daha, Kapro, Mirzapur, Bithmara, Bhana, Salemgarh, Gaibipur, Khar Khara, Nalwa, Kabrer, Dhiran Was, Daulatpur, Chaudhriwas, Koth Kalan, Kuleri, Fransi.		Sisai Kali Rawan, Jakhod Khera, Sisar, Milakpur, Muklan, Rakhi Khas, Latani, Bhagana, Bass Akbarpur, Kohli, Sarsana, Channot,Salemgarh, Banbhori, Dhamian, Kallar Bhaini, Sheikhpura, Bad Chhapar, Dharam Kheri, Moth Rangran, Gawar, Siswala, Madha, Nang Thala, Sultanpur, Kharia, Sarangpur, Pali, Kanoh, Bhatla, Kheri Jalib, Dhiran Was, Mehanda, Raj Thal, Rajpura, Shahpur, Saharwa, Khanpur, Dhansu.
Low	92 (35.94)	Daroli, Mohla, Gawar, Dharam Kheri, Sotha, Muklan, Telanwali, Bass Azam Shahpur, Ghursal, Kaimri, Kanoh, Sisar, Kirori, Nayana, Raipur, Dahima, Kumbha Khera, Sarsana, Kirtan, Dhingtana, Kheri Roj, Samani, Khera Rangran, Channot, Mazadpur, Bandaheri, Madloda, Khedar, Kheri Lochap, Chikanwas, Gorchhi, Kherampur, Koth	87 (33.08)	Mirchpur, Kheri Lochap, Bhojraj, Neoli Khurd, Putthi Mangalkhan, Dewe, Sabarwas, Ghursal, Bhada Khera, Puthi Saman, Sadelpur, Kherampur, Singhran, Gamra, Khedar, Dobhi, Mirka, Kabrer, Nara, Payal, Panihar Chak, Bayana Khera, Dhani Jatan, Kharkhari, Bhana, Jeora, Bhatol Rangran, Kirmara, Shamsukh, Malapur, Khasa Mahajanan, Kirori,

		Khurd, Kheri Jalib, Balak, Panihar Chak, Rakhi Khas, Nara, Thaska, Pali, Guzar, Kutabpur, Dhansu, Bagla, Bherian, Gurana, Kanwari, Panhari, Bure, Durjanpur, Bhairi Akbarpur, Neoli Kalan, Kohli, Ludas, Siswala, Rawalwas Kalan, Sundawas, Mirpur, Meengni Khera, Bhada Khera, Ladwi, Masoodpur, Rawat Khera, Madha, Kharia, Bhodia Khera Bishnoian, Badon Rangran, Bhiwani Ruhelan, Sarangpur, Khokha, Singhran, Mangali Jhara, Data, Gamra, Chabbarwal, Dhadh, Mohabatpur, Sandlana, Shahpur, Kirara, Bheni Amirpur, Nawagaon, Bobua, Banbhori, Chudhriwali, Hindwan, Bugana, Chuli Kalan, Khanpur, Gianpura, Dhamian, Mater Sham.		Gurana, Panhari, Ladwi, Sarera, Daulatpur, Hindwan, Jagan, Chuli Bagarian, Kapro, Sandlana, Jamni Khera, Bobua, Khara Barwala, Banda Heri, Kajla, Bhairi Akbarpur, Mirpur, Haibatpur, Sandol, Asranwan, Kheri Gangan, Kinnar, Bagla, Burak, Ghirai, Sulchani, Daroli, Rawalwas Kalan, Kheri Roj, Kuleri, Dhingtana, Khokha, Chuli Khurd, Majod, Kirara, Bhodia Khera Bishnoian, Samani, Kalirawan, Mangali Surtia, Aurang Shahpur, Kharkhara, Kheri Shioran, Chandnaud, Surewala, Bir Hisar, Koth Khurd, Sulkhani, Chiraud, Mangali Jhara, Kajal, Khera Rangran, Nawagaon, Bherian, Bir Hansi, Mothsara.
	39 (15.23)	Mangali Surtia, Sultanpur, Juglan, Sarsana, Sarera, Tokas, Payal, Chiraud,		Daha, Alipur, Chabbarwal, Sotha, Tokas, Masoodpur, Dhadh, Sarsana, Mahalsara,

Very Low		Singhwa Ragho, Dobeta, Sabarwas, Khasa Mahajanan, Kharkhari, Neoli Khurd, Rajpura, Bhojraj, Mothsara, Mahalsara, Chandnaud, Jagan, Kaluwas, Bayana Khera, Jeora, Kajla, Saharwa, Dobhi, Sindhar, Mirka, Sulchani, Malapur, Bharri, Panghal, Tharwa, Talwandi Badshahpur, Chuli Khurd, Kajal, Balawas, Isharheri, Shala Dheri.	28 (10.65)	Isharheri, Kumbha Khera, Chuli Kalan, Inchha Kharkhari, Kutia Kheri, Dobeta, Rawat Khera, Chudhriwali, Shala Dheri, Balawas, Singhwa Ragho, Sindhar, Badon Rangran, Talwandi Badshahpur, Kheri Barkesh, Bharri, Nathwana, Risalu Khera, Tharwa.
Total	256		263	