SOCIAL AMENITIES AND REGIONAL DEVELOPMENT : A CASE STUDY OF BHILWARA DISTRICT, RAJASTHAN

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Certified that the dissertation entitled "Social Amenities and Regional Development: A Case Study of Bhilwara District, Rajasthan" submitted by Shri Prahlad Rai Vyas in fulfilment of six credits out of the total twenty-four credits for the Degree of Master of Philosophy of this University, is to the best of our knowledge, his original work, and may be placed before the examiners for evaluation.

S Raizi
20th Sept. '84
(SUPERVISOR)

(CHAIRMAN)
AIJAZUDDIN AHMAD
20.9.1984

Dedicated

To

My

Parents

A C K N O W L E D G E M E N T

My grateful thanks are due to

- Dr S. Raju for supervision and guidance;
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Prahladrvyas

(PRAHLAD R. VYAS)

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CHAPTER I

CHAPTER I

INTRODUCTION

Social development is one of the elements of development. Societies always seek ways to satisfy their needs in the immediate vicinity. Wherever man lives he has to adopt himself to his surroundings in order to meet the fundamental necessities. Therefore, the first step for a regular development programme is to provide infrastructural facilities to rural settlement. The development of social amenities in rural settlements will help to improve the economic and cultural life of the people. This is because about 80 per cent of the Indian population lives in rural areas of India. In sociological literature, social development has been defined as the development of men in their mutual relation.[1] In actual practice social development has been measured in terms of a variety of suitable criteria. These include health, education, transport and population mobility. These indicators among others reflect the quality of functioning of a social system; efficiency of its economic welfare, bias of its policy and behavioural patterns of its people.

The analysis of the existing spatial amenities of the region is necessary for the fulfilment of the aims of balanced regional development. Among all the sciences

concerned with development, economics has achieved the most in generating theory and policy prescriptions.[2] Conceptually the term development has been defined as change from a given situation to attain a better one and this change is a basic component of development.[3] It is obvious that improvement in one situation transforming it to a better situation is the normative of desirable change.

1.1 Literature Survey

Much of the recent interest in social indicators has been connected with the proposal for a regular national social report in United States of America. This idea is generally said to have begun in 1929, with President Hoover's Committee on Social Trends. It reports social trends in the United States, was an attempt to analyze social factors likely to have a bearing on public policy in the second and third decades of the century. However, very little progress was made in regular social reporting until the very end of that period. Between 1959 and 1966 the publication of HEW (United States Department of Health, Education and Welfare) indicators and HEW trends represented a small step towards expanding the available social statistics, although the indicators used were rather conventional.[4] Then within a

short period, four books were published on the need for social reporting and the problems involved, a study edited by Bauer.[5]

Some writers add other necessary findings characteristic of social indicators that, "it must be part of coherent system of socio-economic measurement that can facilitate comprehensive and balanced judgement about major aspects of a society",[6] (Olson 1969, 339). "It is normally used to describe the condition of a single element factor, or the like, which is part of a complex inter-related system."[7] One possible economic framework for a system of social indicators has been demonstrated by Terlecky.[8]

The available literature, specially in India indicates that the works brought out so far have various themes like integrated area development, micro level planning, community development, district Taluka or Block level planning and planning for central places etc. dealing with the problem of spatial organisation of social facilities.

The works on spatial planning for socio-economic structure have their beginning in the mid-sixties. The foremost endeavour in this direction has been made by the National Council of Applied Economic Research (NCAER).[9] In 1965 this organization brought out report on market towns

and spatial planning. Further, in 1968 Bhamri[10] clarified through his papers, theoritical fframework for the balanced growth and supply factors in the context of balanced regional development. An account of the theme of micro level planning for the location of growth centres was brought out in 1970 and aim of the balanced regional development was undertaken for the Fourth Five Year Plan by the Government of India. The same year National Institute of Community Development (N.I.C.D.), Hyderabad, brought out a base work of S. Wanmali on the problem of regional planning for social facilities.

B.K. Roy Burman, and C.S. Chandrashekhar contributed on the theme of integrated regional approach and the frame of balanced regional development respectively.[12] Baldev Raj Nayyar suggested some concrete steps helpful in regional planning for economic growth.[13] Satyesh Chakraborty expressed the need for adoption of all these techniques which are relevant for integrated area development at micro level and submitted some research objectives for the rural area development.

A new strategy to rural area development was also submitted by S. Brahama which could be profitably applied for planning at micro level.[15] B.N. Das and A.K. Sarkar in 1972 contributed an article suggesting a strategy for rural area development at micro-level taking a case study of

Karnal, Haryana.[16] A.K. Bhattacharya has suggested some basic considerations towards regional frame of rural urban planning.[17] K.S. Rana Gowda has clarified his strategy for simultaneous regional planning both for rural and urban development.[18] In 1973, an appraisal of strategy pertaining to the rural agricultural development was made by C.R. Pathak,[19] viewing especially the latest comprehensive area development programme worked out by the West Bengal Government. India's Fourth Five Year Plan (1969-74) provided a "Pilot project" in growth centres,[20] which was to be concerned with development of a methodology to contribute towards the villages of rural India with services essential to social and economic development in the long run process of raising national productivity levels and equalising levels of welfare.[21]

In 1974, L.K. Sen and G.K. Misra[22] produced a good work pointing out the techniques of regional planning at micro level for estimating the future needs of electricity for the development of agriculture, industries and social amenities. The role of some research institutes to develop a level of understanding among researchers and government authorities imparting special training programmes towards the aspects and methodology of the micro-level planning has been quite encouraging. They key role in this connection is being

played by the NICO, Hyderabad and the department of Architecture and Regional Planning ITI, Kharagpur.[23]

An attempt has been made to delineate a strategy for micro-level planning in 1976 by L.S. Bhat and others taking a case study of Karnal area of Haryana. In this work conceptual as well as empirical aspects have been dealt with based on statistical methods.

Regarding the nature and the progress of district planning, the contribution of S. Mindle[24] (1977) and K.N. Kabra[25] (1977) may be accepted as analytical guidelines for understanding the problem of micro-level integrated planning for social welfare.

1.2 Statement of the Problem

The present study attempts at assessing the existing distribution of social amenities in Bhilwara district. This leads to identification of areas having unequal share of social amenities in relation to their population forming the base for determination of levels of development within the district. The specific objectives are as follows:

1.2.1 Objectives

i) Analysis of the existing levels of social amenities according to population size of settlements and their characteristic inter-relationships.

ii) Examination of spatial distribution of social amenities in relation to their correlates.

iii) Determination of levels of development on the basis of the distribution of social amenities in rural areas of the district.

iv) Determination of levels of development of tehsils on the basis of the distribution of social amenities.

v) Suggestions on Policy-implication of such locational analysis of social amenities in the Bhilwara district.

1.2.2 Hypotheses

The hypotheses are as follows:

i) One of the basic hypotheses is that internal spatial structure of settlement is a function of its size, i.e., the larger settlements occupy larger areas and achieve higher hierarchies in terms of social amenities.

ii) It is hypothesised that each of the given variables, i.e., the size of settlement, density of population

and rate of literacy will have positively relation with the composite score of social amenities.

iii) It is logical to assume that the level of social amenities would decrease with distance and increase after a certain distance from the urban centre.

iv) It is expected that higher the proportion of primary work force lower the availability of social amenities.

1.3 Significance of the Study

In this study, importance of social amenities in individual settlements have been assessed relative to the median population thresholds of the size-class settlements to which a given settlement belong. The methodology adopted and developed is very useful in identification of hierarchic order of settlements on the basis of distribution and composite scores of social amenities. Thus, not only a review of existing social amenities is in order but areas of disparities are also recognized with a view to offer some policy implications for indicative as well as locational planning of social amenities. This dimension makes the study relevant in the contemporary Indian context.

1.5 Data Base

For the data base of this study the following secondary sources have been utilised. For 1981, district handbook is not yet available.

i) General district population data for the district as a whole from 1901 to 1971 have been taken from the Census of India:

   a) Census of India, 1971: District Census Handbook, Town and Village Directory, Bhilwara District, Series 18 Parts XA and XB.

   b) Census of India, 1971, Rajasthan IIB 17

   c) Census of India, 1961, District Census Handbook and Village Directory, Bhilwara district

ii) The information regarding relief climate, soil, drainage, natural vegetation and flora and fauna of the district is mainly based on the Gazzetter of Bhilwara district.

   (K.K. Sehgal, Rajasthan District Gazzetters Bhilwara, Government of Rajasthan, 1971).

1.5 Methodology

For the analysis of levels of development, 1568 villages and 4 towns have been included in this study. For analysis of social amenities, only those settlements which have them, i.e. 923 settlements have been taken. The methodology is as follows:

1. The relative importance of social amenities has been worked out through Mediam Population Threshold Method which in turn is applied to compute the value of composite scores of settlements.
2. Correlation coefficient has been used to determine the relationship between the variable viz. social amenities, density of population, rate of literacy, size of settlement, distance from urban centre and percentage of primary workforce.
3. The multiple regression technique has been applied to find out functional relationship between social amenities and their correlates.
4. Similarly, the Lorenz Curve have been used for working out the concentration of population and the spatial pattern of settlement with social amenities respectively.
5. Wherever necessary, maps and appropriate diagrams are provided for visual comprehension.

1.6 Chapter Scheme

The dissertation has been divided into six chapters. The first chapter deals with the general introduction, it includes statement of the problem, significance of the study, literature survey, objectives, hypotheses and methodology.

The second chapter covers the general profile of the study area, i.e., physiography, climatic condition, socio-economic setting, demographic characteristics, and spatial distribution of settlement according to population size.

In the third chapter, spatial distribution of social amenities in Bhilwara district has been presented. The distribution of seventeen social amenities under five major categories has been dealt with at a tehsil level.

The fourth chapter analyses the functional hierarchy of the settlements. It deals with the levels of development at village level on the basis of composite score.

The fifth chapter brings out the relationship between social amenities and a number of variables. Various aspects of the relationship have been assessed with the help of correlation and multiple regression analysis.

Further on the basis of population threshold several villages are recognised which need social amenities. Some suggestions have also been made for indicative and locational planning.

Chapter Six summarises the analysis and brings out the conclusion and suggestion.

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CHAPTER II

CHAPTER II

GENERAL PROFILE OF THE STUDY AREA

Introduction of the Study Area

The district Bhilwara is situated between latitude 25° 1'N and 25° 58'N and longitude 74° 1'E and 75° 28' east of Greenwhich. It is bounded by Ajmer district in the north west, [illegible] west and southwest by Udaipur district. The total length of district from west to east is 144 KM while the breadth from North to South is 104 KM (Fig. 1). The total area of Bhilwara district is 10450 Sq. Km. It is fifteenth in the state of Rajasthan in respect of area and eleventh in respect of population. (Fig. 1).

The district of Bhilwara had cultural historical and traditional affinity with the adjoining districts of Bundi, Tonk, Ajmer, Chittorgarh and Udaipur. The district mainly comprises the former Chiefship of Shahpura and the former states. Zilas and parganas were Bhilwara, Asind, Banera, Bijolin, Jahazpur Mandal and Mandalgarh. Tradition had it that it came to be known as Bhilwara because, it was mostly inhabited by Bhils in the earlier days. These Bhils were eventually driven away towards the hilly tracts and interior places of less importance by the ancestors of the present district. Ironically enough, now very few Bhils live in this area, another version records that the present Bhilwara city had a mint where coins known as Bhiladi were minted.[1]

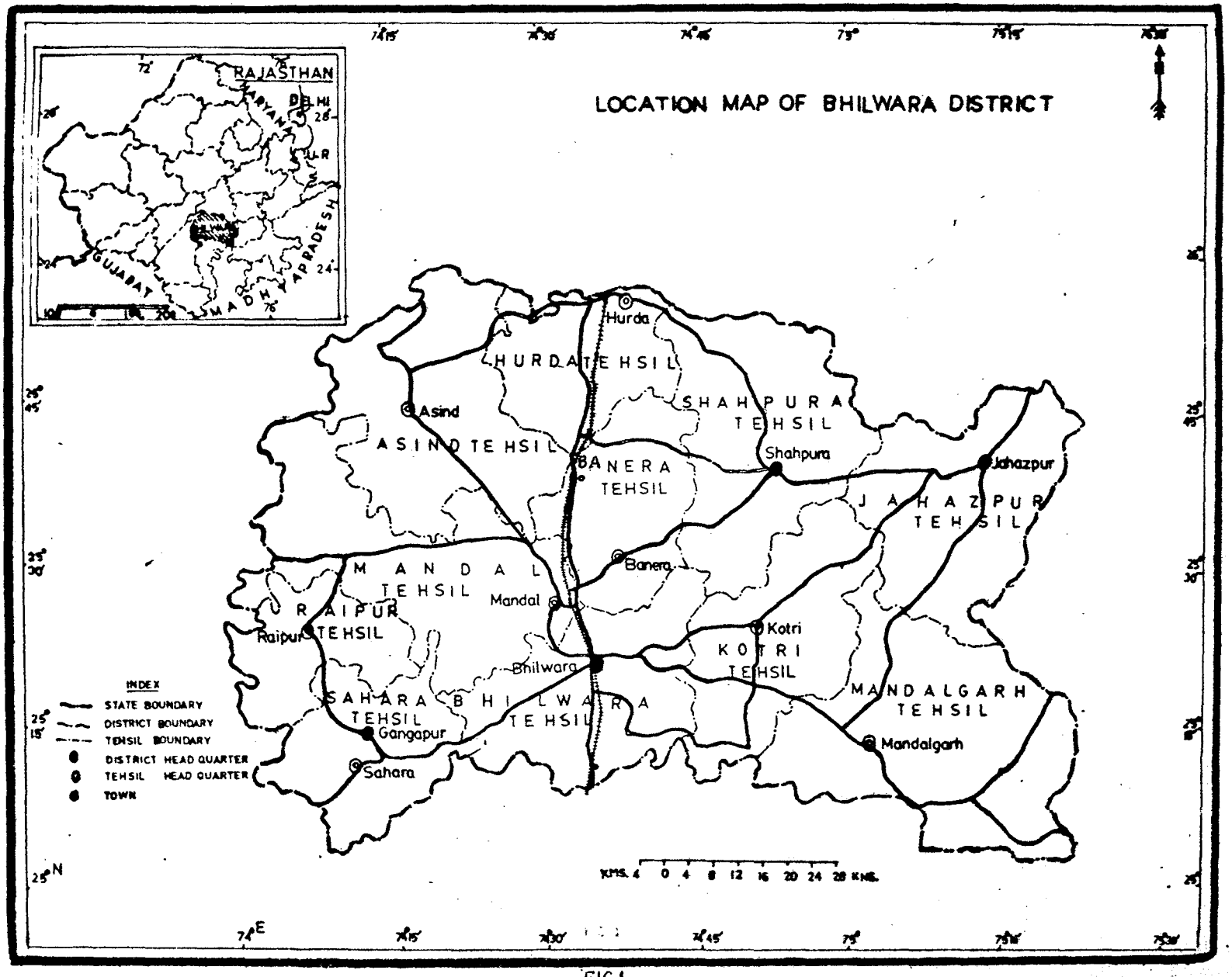

LOCATION MAP OF BHILWARA DISTRICT
RAJASTHAN
DELHI
U.P.
GUJARAT
MADHYAPRADESH
Hurda
HURDA TEHSIL
SHAHPURA TEHSIL
Asind
ASIND TEHSIL
BANERA TEHSIL
Shahpura
Jahazpur
JAHAZPUR TEHSIL
Banera
MANDAL TEHSIL
Mandal
RAIPUR TEHSIL
Raipur
Kotri
KOTRI TEHSIL
Bhilwara
SAHARA TEHSIL
BHILWARA TEHSIL
MANDALGARH TEHSIL
Gangapur
Sahara
Mandalgarh
INDEX
STATE BOUNDARY
DISTRICT BOUNDARY
TEHSIL BOUNDARY
DISTRICT HEAD QUARTER
TEHSIL HEAD QUARTER
TOWN
KMS. 4 0 4 8 12 16 20 24 28 KMS.

FIG-1

2.1 Physiography:

The district appears rectangular in its general shape with one exception that its western side is somewhat broader than its eastern side. At micro level of physical divisions of Mewar,[2] district Bhilwara is a part of "Upper Banas Plain" or a portion of "Northern Mewar Plain" drained by Banas and its tributories. The Upper Banas Plain is a pene plain having an elevation of about 380 meters from the mean sea level

In the eastern part of the district there are a number of hills which are part of the Aravalli range. The range of Aravalli hills intersect the district at several places. These hills are prominent in the south east in Mandalgarh tehsil. Height of the important hills of the Bhilwara are given below:

TABLE 2.1

HEIGHT OF HILLS IN BHILWARA DISTRICT

Hills	Height in Meters
1. Daragarh Hill (Banera)	581
2. Hill South of Bijolia	570
3. Hill near Jahazpur	529
4. Highest hill of Gangapur	679

Source: District Gazetteer of Bhilwara.

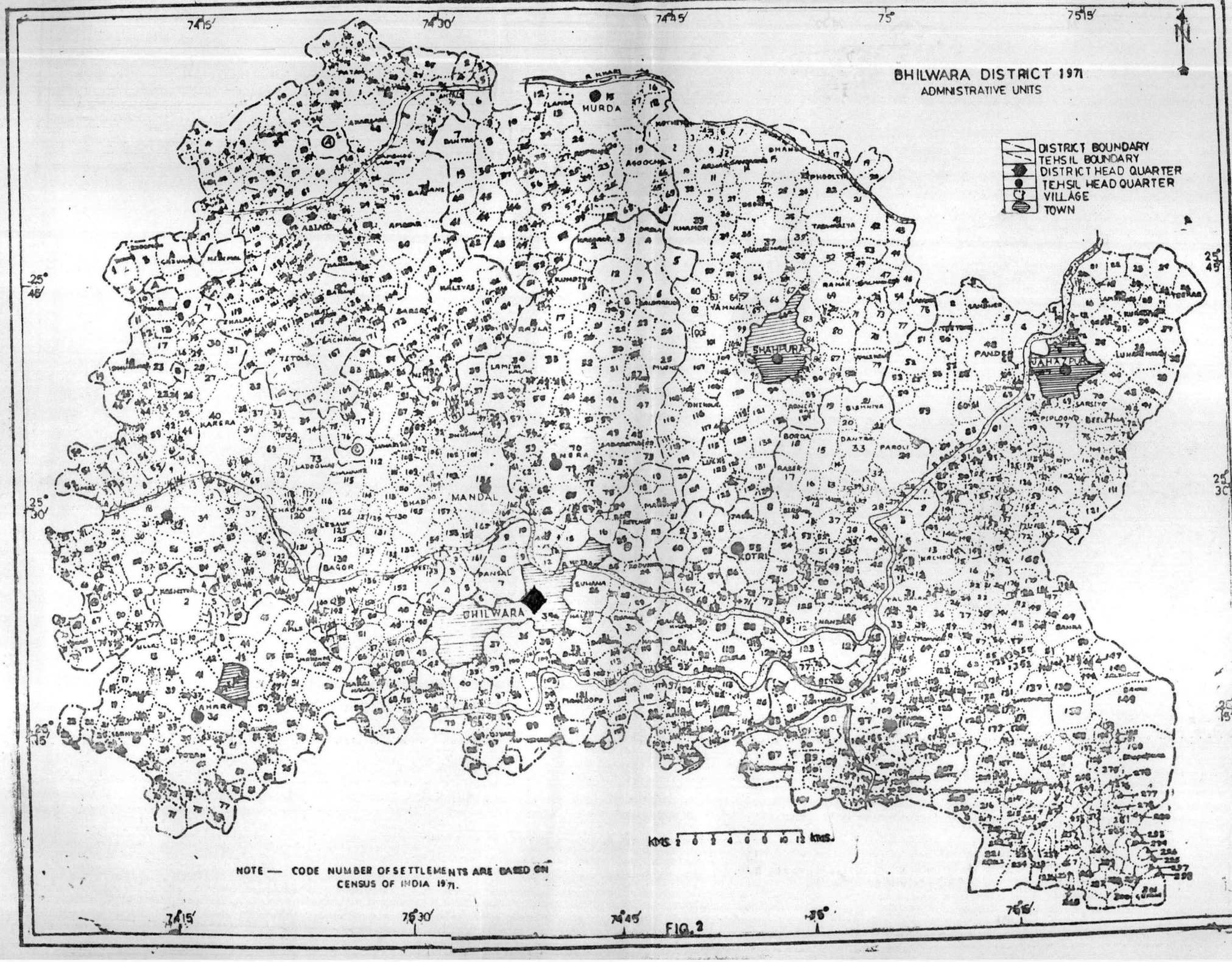

BHILWARA DISTRICT 1971
ADMINISTRATIVE UNITS
DISTRICT BOUNDARY
TEHSIL BOUNDARY
DISTRICT HEAD QUARTER
TEHSIL HEAD QUARTER
VILLAGE
TOWN
HURDA
ASIND
SHAHPURA
JAHAZPUR
MANDAL
BHILWARA
KOTRI
KARERA
BAGOR
KMS. 2 0 2 4 6 8 10 12 kms.
NOTE — CODE NUMBER OF SETTLEMENTS ARE BASED ON CENSUS OF INDIA 1971.
74°15'
74°30'
74°45'
75°
75°15'
25° 45'
25° 30'
25° 15'

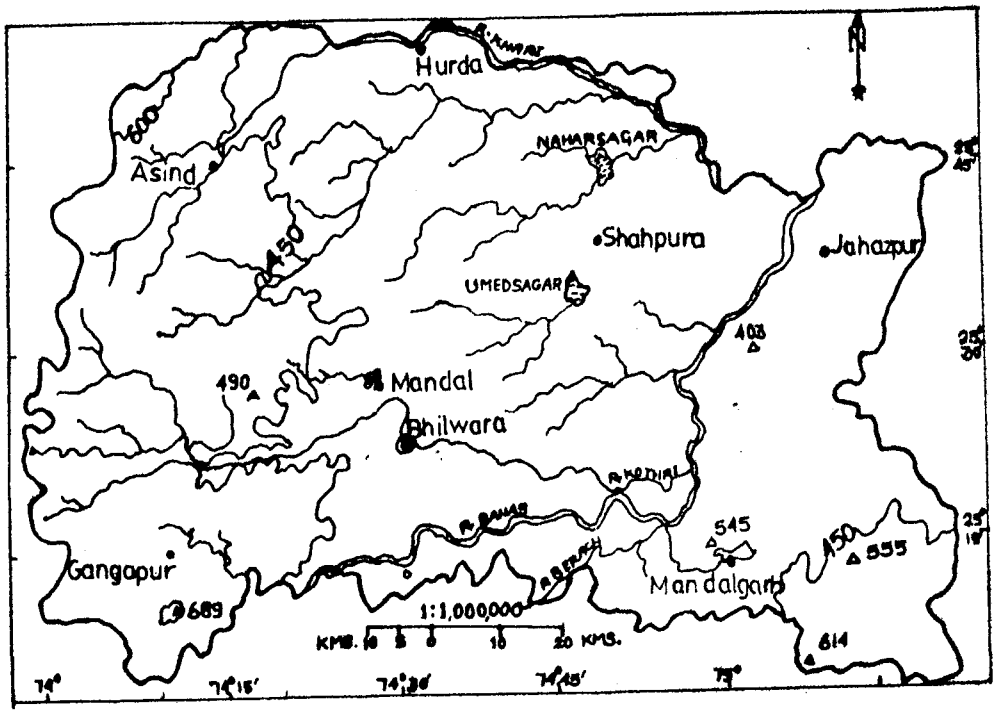
FIG. 2

The scattered and low hill ridges generally run from south west to north east having gentle slopes. Vegetation in this area is generally poor although small patches of wooded areas exist in hilly portions. The general height of the district is about 380 metres above the mean sea level in the plains of the north. It gradually rises towards the western part of the district upto a general level of 500 metres above the mean sea level. The plain moderately slopes towards north-east while some hillocks in the south steep considerably. (Fig. 3).

2.2. Drainage Pattern

The principal rivers flowing through the district are the Banas and its tributaries namely the Barach, the Kothari and the Khari. Other small rivers are the Mansi, the Chandrabhanga and the Nakadia (Fig. 3). Banas originates in the Aravalli hills in the north of Udaipur district. The river Banas enters in the Bhilwara district near village Doodiya in tehsil Bhilwara. It approaches the hills of Mandalgarh and is joined by the river Barach on the right and Kothari on the left bank. It then flows towards the north and then in the north-east direction along the western side of the Jahazpur tehsil and enters in the Tonk District.

BHILWARA DISTRICT
PHYSIOGRAPHY



INDEX

- RIVER
- LAKE
- CONTOUR
- SETTLEMENT

FIG 3

Bera ch river originates in the hills north of Udaipur district and enters the district near the village Barla ,(Vyas ji ka Barla) Mandalgarh and joins the Banas near Bigod in Mandalgarh Tehsil. It passes through a little portion of this district. River Khari is another longer river in the district. It originates near Deogarh in the district Udaipur and runs from the south east in the western half of the district and then runs parallel to the district boundary in the north. After leaving the district in the north it finally merges with the Banas. The important village near which it flows are Khajuri, Hurda and Gulabpura.

The low lying alluvial tracks of the southern and the northern portion of the area are more fertile than the elevated central plains. The central plain has generally thick soil cover. The alluvial soils are dark grey brown or brown shades. Locally lime concretion also occurs. Generally these soils are noted for good productivity. Mixed and black soil are confined in the eastern part of Bhilwara district. On the other hand red and yellow soils occur together in the western part of the district.

2.3 Climate

The Bhilwara district forms the southern part of Rajasthan. The climatic conditions in the north eastern part of the district vary from the eastern to south-eastern

hilly tracks. The average rainfall in the eastern and south eastern parts is higher than in the northern region of the district. The district has a hot dry summer and a bracing cold season. The cold season is from November end to February followed by hot season which starts in the last week of June.

The south-east monsoon season follows till about mid-September. The period from mid-September to about the end of November constituted the post-monsoon season.

There are four stations i.e. Shahpura, Gangapur, Bhilwara and Jahazpur where rainfall records are available. The average annual rainfall decreases from south east to north west. About 67% of the annual rainfall is received during the monsoon season. The period from March to May and the first half of June is the hottest part of the year. The mean of daily maximum temperature is in the month of May about 40°C and the mean of daily minimum is about 26°C. The maximum temperature on some days may go upto 45°C. The relative humidity is generally over 60 per cent during the south west monsoon season, August being the most humid month of the year. The afternoon humidity may be as low as 20 per cent.

During the south-west monsoon depressions which originate in the Bay of Bengal and move across the country

from west to north-west direction affect the district and its neighbourhood. Thunderstorms occur practically in all the months of the year but they are comparatively more frequent from May to September.

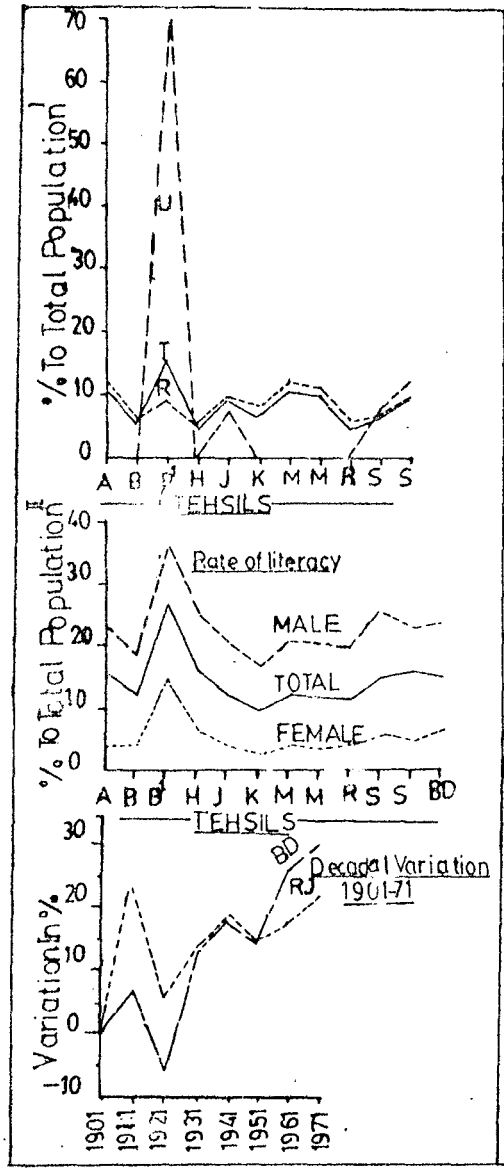
2.4 Socio-Economic Setting

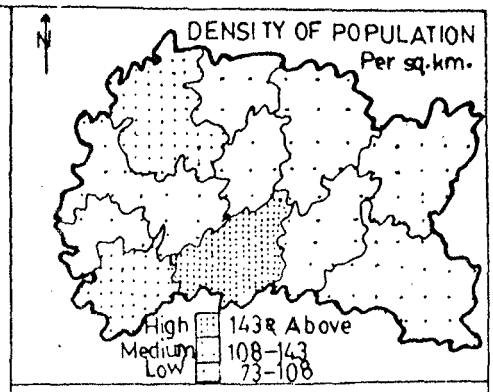
2.4.1 Demographic Characteristics

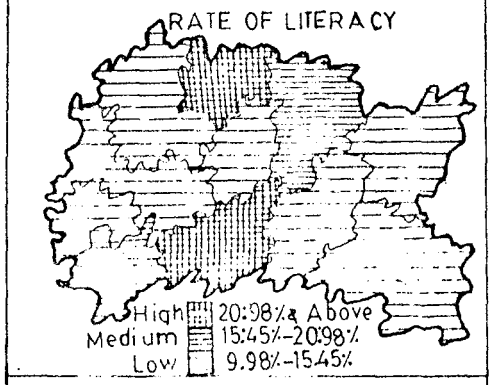
The Bhilwara district has an area of 10450 sq. kms with a population of 1054790 persons in 1971 census. The average density of population was 101 persons per sq. km. Tehsil Bhilwara contains the highest density of population i.e. 178 persons followed by Sahara tehsil with 112 persons per sq. km. The lowest density of population is found in Mandalgarh tehsil i.e. 73 persons per sq. km. Figure 4 shows that from south to north the density of population decreases. The tehsil-wise distribution of population reveals that the maximum proportion of population is concentrated in Bhilwara tehsil, which is 16.95 per cent of total population followed by Asind tehsil with 11.62 per cent. The lowest percentage of population is found in Raipur tehsil. In case of rural and urban populations, Asind tehsil has the highest proportion of rural population

BHILWARA DISTRICT

MAJOR POPULATION CHARACTERISTICS 1971







REFERENCES

A ASIND	M MANDALGARH
B BANERA	R RAIPUR
B' BHILWARA	S SAHARA
H HURDA	S SHAHPURA
J JAHAZPUR	BD BHILWARA DISTRICT
K KOTRI	
M MANDAL	RJ RAJASTHAN

T TOTAL U URBAN R RURAL

NOTE

I PERCENTAGE TO TOTAL POPULATION OF DISTRICT

II PERCENTAGE TO TOTAL POPULATION OF TEHSIL

KMS. 10 0 10 20 30 40 50 KMS.

FIG-4

(13.06 per cent of total rural population in Bhilwara district) while Bhilwara tehsil has maximum share of urban population (70.64 per cent of total urban population in Bhilwara district). (Fig. No. 4).

From the point of view of sex composition, males outnumbered females, the sex ratio being 910 females per thousand males. In the rural and urban areas of the district, it is 915 and 870 females per thousand males respectively.

The tehsil-wise distribution shows that Banera had highest sex ratio in the district i.e. 985 females per thousand males, followed by Raipur (933 females per thousand males) and Asind (930 females per thousand males). On the other hand, the tehsils which are relatively more developed like Bhilwara (887 females per thousand males) and Jahazpur (888 females per thousand males) had low sex ratios. It is because developed areas attract male workers both from within as well as from outside the region.

The population more than doubled during the first six decades of the present century as compared to an overall increase of 95.8 per cent for Rajasthan. The very low decadal variation during 1911-21, i.e. 6.22 per cent was due to epidemics and drought in Bhilwara, a phenomena observed all over India during that period.

The absolute growth rate of population was around 22 per cent over the decade 1961 to 1971. (Table 2.2).

TABLE 2.2

DECADAL VARIATION IN POPULATION OF BHILWARA DISTRICT 1901-1971

Year	Persons	Decadal Variation	% Decadal Variation
1901	352627	-	-
1911	436110	83483	23.69
1921	463154	27044	6.22
1931	530025	66871	14.44
1941	632128	102103	19.26
1951	728522	96394	15.85
1961	865997	137275	18.84
1971	1054890	189093	21.84

Source: Census of India, 1971.

2.4.2 Literacy

The literacy rate of Bhilwara district is very low i.e. 15.10 per cent compared to other well-developed districts of Rajasthan;- Jaipur and Ajmer have 23.73 per cent and 30.30 per cent literates of total population

respectively. There are only 15.10% persons literate. In rural and urban areas literacy ratio is about 11.83 and 41.46 per cent respectively. It has been observed that literacy among male population in urban areas is higher than the rural areas. It is about 19.21 per cent in rural areas and about 54.36 per cent in urban areas. The higher literacy rate in the urban population compared to rural may be explained in terms of greater consciousness and educational opportunities available in urban areas.

2.4.3 The Economic Set Up

On the basis of the main economic activity, the population of the district is divided into workers and non-workers, about 39 per cent of the total population are workers and about 61 per cent are non workers. In respect of female population, 84.49 per cent and 15.51 per cent of the total female population is economically active. (Table 2.3). A large variation in distribution pattern of workers and non-workers is observed in rural urban areas of the district Bhilwara.

TABLE 2.3

SECTOR-WISE DISTRIBUTION OF WORK-FORCE IN BHILWARA DISTRICT - 1971

	TOTAL		RURAL		URBAN	
	M	F	M	F	M	F
Primary Sector	81.91	94.03	87.93	95.94	11.55	17.31
Secondary Sector	7.54	2.58	5.04	1.87	54.40	52.54
Tertiary Sector	10.55	3.49	7.03	2.19	33.15	30.15
Workers	60.90	15.51	62.11	16.52	64.25	48.65
Non-workers	39.10	84.49	37.89	83.48	35.75	52.35

Source: Census of India, 1971

(i) Primary Sector

The primary sector is the most dominant one in Bhilwara district. It accounts for 81.91 per cent and 94.03 per cent of the total male workers and total female workers respectively. The proportion of workers and non-workers male population is about 60 per cent and 40 per cent of total male population of district respectively. In rural areas about 88 per cent of male workers and about 95.94 per cent of female workers are engaged in primary sector. However, the percentage distribution of urban population in primary occupations is quite low; in case of

male and female i.e. 11.55 and 17.31 per cent respectively.

(ii) Secondary Sector:

Secondary occupations are unevenly distributed in the district of Bhilwara. About 7.54 per cent of total male workers and 2.58 per cent of female workers are engaged in this sector. The percentage distribution in rural areas (Table 2.3) shows that only 5.04 per cent of male workers are found in secondary sector compared to 1.87 per cent of total female workers in this sector.

In urban areas proportion of male and female population are about 54 per cent and 53 per cent of total male and female population in secondary sector respectively.

(iii) Tertiary Sector:

Services are the most prominent constituents of the tertiary group. About 10.55 per cent of total male workers are engaged in them whereas in urban areas it is 33.15 per cent. The percentage distribution of tertiary occupations is quite low in rural areas and only 7.03 per cent of the total male workers are engaged in such occupations. It has been observed that female participation in urban area is high, i.e. 30.15 per cent and in the rural areas it is only 2.19 per cent.

2.3 Distribution of Settlements According to Population Size

2.3.1 Distribution of Rural Settlements by Size Class:

According to 1961 census there were 1500 inhabited villages of all size classes having 865797 persons in Bhilwara district. The identification of need of making provision for social facilities is very closely linked with the pattern of the distribution and size of settlements. It is observed that the percentage of population and also settlement of less than 500 persons have decreased in 1971 in comparison to 1961. About 29.66 per cent of the villages come under the category of below 200 persons inhabited by 6.12 per cent of the total rural population. The size class of 200-499 persons included 38.20 per cent of the total villages having 23.60 per cent population. About 19.03 per cent villages fall in the size of 500-999 inhabited by 25.92 per cent, which have the highest percentage of the total population. About 24.17 per cent rural persons lives in villages of 1000-1999 size group. The size class of 2000-4999 persons consist of 2.78 villages and is inhabited by 14.84 per cent population. It shows the highest percentage of population concentration in high size class groups of rural settlements.

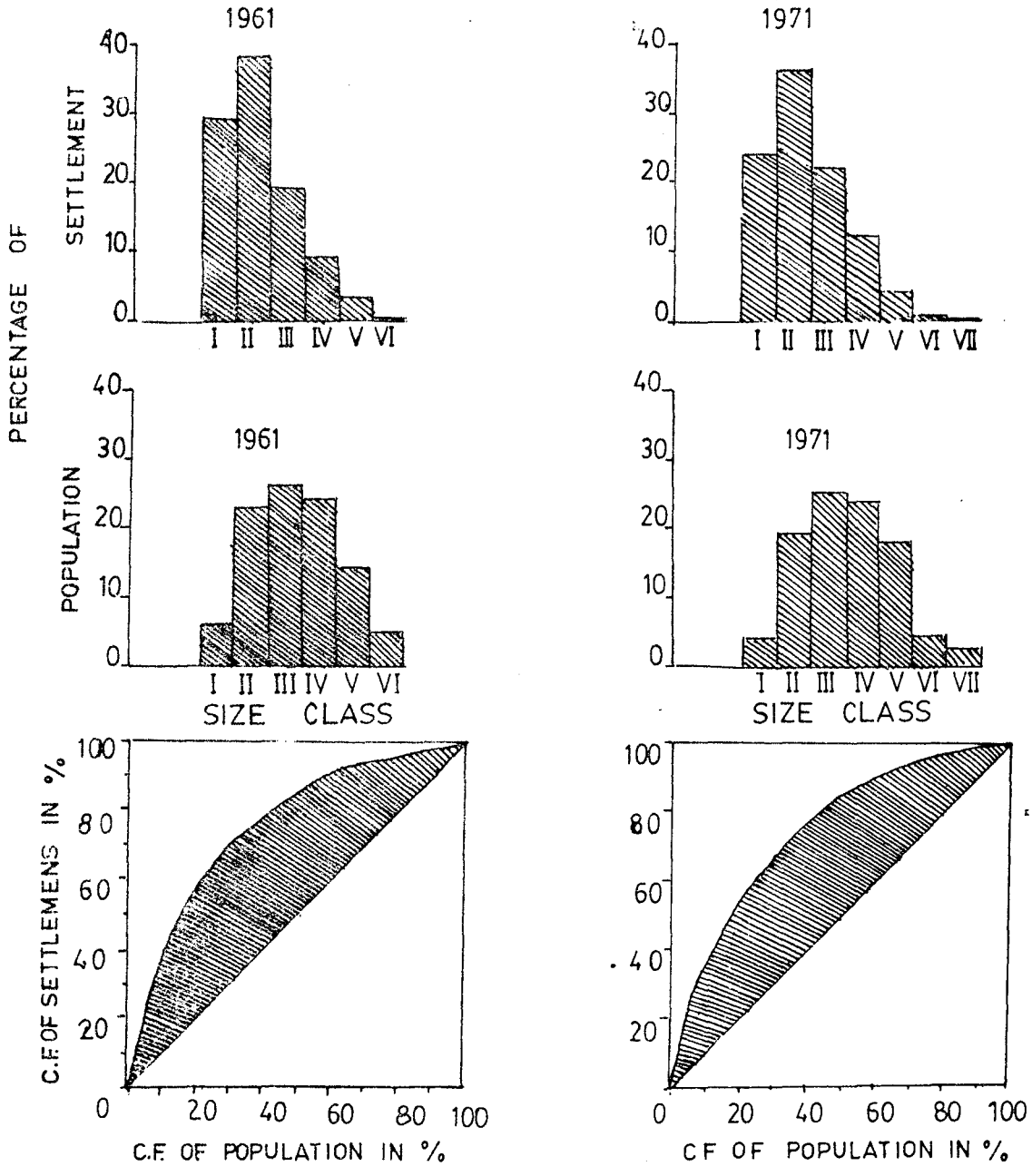
Lastly 0.40 per cent villages are inhabited by 5.35 per cent population in the class of above 5000 persons (Table 2.5).

According to 1971 census, there were 1568 villages and four towns of all size classes having about 1054890 persons in Bhilwara district. About 24.80 per cent villages are under size class of less than 200 persons, these are inhabited by only 4.68 per cent of the rural population. The size class of 500-999 included 15.05 per cent of villages having 25.56 per cent of rural population. This is the highest percentage of the rural population. The size class of 1000-1999 persons consists 11.67 per cent villages inhabited by 25.31 per cent population. About 22.64 per cent population lives in villages belonging to population size class of 2000-4999 persons. Such size class villages make up for 3.98 per cent of total villages. About 0.47 per cent villages are inhabited by 4.35 per cent population in the size class of 5000-9999 persons. It is noted that in 1961, there were no villages in the category of above 10,000 population, while in 1971 census, there were 2 villages in the same size class. They are Mandal and Hurda (includes Gulabpura), both tehsil centres. About 2.29 per cent of rural population belongs to these two large size villages which emerge in the 1971 census.

BHILWARA DISTRICT

SIZE AND DISTRIBUTION PATTERN OF SETTLEMENTS

1961-71



REFERENCES

	Population Size Of Settlemnts				
I	200 & below		V	2000	4999
II	200	499	VI	5000	10000
III	500	999	VII	above	10000
IV	1000	1999			

C.F=CUMULATIVE FREQUANCY

FIG. 5

TABLE 2.4

CHANGES IN THE PERCENTAGE OF TOTAL NUMBER OF SETTLEMENTS ACCORDING TO POPULATION SIZE CLASS IN BHILWARA DISTRICT 1961-71

Population size class	1961		1971		Growth rate
	No. of villages	Percentage	No. of villages	Percentage	
< 200	439	29.26	374	24.80	−14.80
200-499	573	38.20	545	36.14	− 4.80
500-999	299	19.03	344	22.81	+15.05
1000-1999	142	9.46	176	11.67	+23.94
2000-4999	41	2.73	60	3.98	+46.34
5000-9999	6	0.40	7	0.47	+16.66
> 1000	-	-	2	0.13	-

Source: Census of India, 1971.

TABLE 2.5

CUMULATIVE FREQUENCY DISTRIBUTION OF SETTLEMENTS ACCORDING TO POPULATION SIZE CLASS IN IN BHILWARA DISTRICT, 1961-71

Population size class	1961			1971		
	No. of settlement	Percentage	Cumulative Frequency	No. of settlement	Percentage	Cumulative Frequency
< 200	439	29.97	29.27	374	24.80	24.80
200-499	573	38.20	67.47	545	36.14	60.94
500-999	299	17.93	87.40	344	22.81	83.75
1000-1999	142	9.47	96.87	176	11.67	95.42
2000-4999	41	2.73	99.60	60	3.98	99.40
5000-9999	6	0.40	100	7	0.47	99.87
> 10000	-	-	-	2	0.13	100

Source: Census of India, 1971

TABLE 2.6

CHANGES IN THE PERCENTAGE OF RURAL POPULATION ACCORDING TO POPULATION SIZE CLASS IN BHILWARA DISTRICT 1961-71

Population size group	1961		1971		Growth Rate
	Population	Percentage	Population	Percentage	
< 200	49104	6.12	43921	4.68	- 10.57
200-499	189364	23.60	184047	19.61	- 2.80
500-999	207986	25.92	239870	25.56	+ 15.33
1000-1999	193917	24.17	237576	25.31	+ 22.51
2000-4999	119070	14.84	170825	18.20	+ 43.46
5000=9999	42926	5.35	40865	4.35	- 4.80
>10000	-	-	21480	2.29	-

Source: Census of India, 1971

TABLE 2.7

CUMULATIVE FREQUENCY DISTRIBUTION OF POPULATION ACCORDING TO POPULATION SIZE CLASS IN BHILWARA DISTRICT, 1961-71

Settlement size group	1961			1971		
	Population	Percentage	Cumulative Frequency	Population	Percentage	Cumulative Frequency
< 200	49104	6.12	6.12	43921	4.68	4.68
200-499	189364	23.60	29.72	184047	19.61	24.29
500-999	207986	25.92	55.64	239870	25.56	49.85
1000-1999	193917	24.17	79.81	237576	24.31	75.16
2000-4999	119070	14.84	94.65	170825	18.20	93.36
5000-9999	42926	5.35	100	40865	4.35	97.71
> 10000	-	-	-	21480	2.29	100

Source: Census of India, 1971.

During 1961-71 decade the growth rate of rural settlements has increased with 500-4999 persons size classes of population. (Table 2.4). The cumulative percentage of the variable upto certain points are plotted on a graph (Fig. 5). The value of Gini-coefficient variation in 1961 and in 1971, i.e. 0.499 and 0.490 respectively (Table 2.7). The proportion of population accommodated by the settlement with below 500 persons and 5000-9999 persons has decreased, on the other hand their respective percentages have gone up. This is also clear (Table 2.6 and 2.7) from the fact that 36.14 per cent of the settlements in the size class 200-500 persons accommodated 19.61 per cent of the total population.

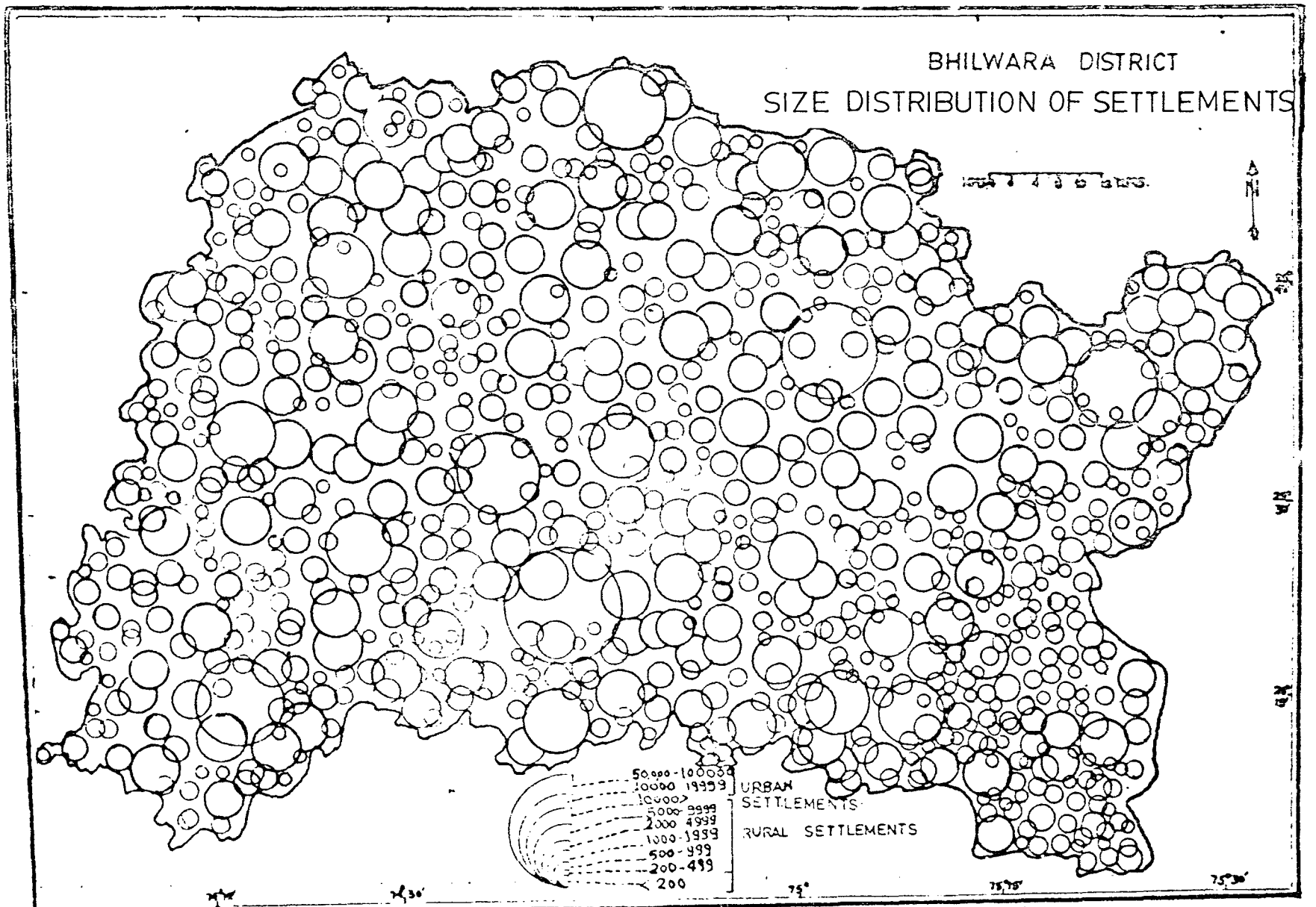

BHILWARA DISTRICT
SIZE DISTRIBUTION OF SETTLEMENTS
N
50,000-100000
10000 19999
10000>
5000 9999
2000 4999
1000-1999
500-999
200-499
< 200
URBAN SETTLEMENTS
RURAL SETTLEMENTS
75°
75°30'

FIG. 6

So far as the growth rate of settlement and population in different size groups is concerned, it is the large size class which has experienced high positive growth rate (Fig. 5.).

TABLE 2.8

CHANGES IN THE SIZE OF URBAN SETTLEMENT IN BHILWARA DISTRICT, 1961-71

Size class* of urban settlement	1961			1971			Growth Rate
	No. of settlement	Population	Percentage	No. of settlement	Population	Percentage	
< 5000	-	-	-	-	-	-	-
5000-9999	1	7769	12.25	2	18817	16.18	+ 242.20
10000-19999	1	12165	19.17	1	15334	13.18	+ 26.05
20000-49999	1	43499	68.58	-	-	-	-
50000-99999	-	-	-	1	82155	70.64	-
> 100000							

* Size class of Urban settlement has been taken from Census of India, 1971.

Source: Census of India, 1971.

2.52 Distribution of Urban Settlement

According to 1971 census there were four towns in this district. The Bhilwara town has the highest population (82155 persons). It accommodates about 71 per cent of total urban population of the district. In 1961 there were 3 towns

Bhilwara (Class III town), Shahpur (Class IV town) and Gangapur (Class V town). Jahazpur has come under this category only in 1971 census. The growth rate shows that population in the size class 5000-9999 persons has the high positive growth rate i.e. about 242 per cent. (Table 2.8). It is due to newly emerged Jahazpur town. In size class 10000 - 19999 persons has 26.05 per cent growth rate of population. Bhilwara has crossed size class of population, shown in Table 2.8. Growth rate of Bhilwara town is 88.86 per cent, due to including Pur village in Bhilwara town during 1961-71.

Bhilwara district is the part of upper "Banas Plain" drained by Banas and its tributries. The climatic conditions in north eastern part of the district vary from the eastern to south-eastern hilly tracks of the district.

According to 1971 census population of district was 10,54790 persons and density of population was 101 persons per sq. km. In case of economic activities primary sector is the most dominant, and accounts for about 82 per cent of male workers. In 1971 there were 1868 villages and 4 towns and population of all size classes was 10,54,890 persons.

The maximum percentage of rural settlements comes under the population size class of 200-499 persons. Whereas maximum percentage of total rural population is accommodated in population size class of 500-999 persons i.e. 25.56 per cent of total population.

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CHAPTER III

CHAPTER III

DISTRIBUTION OF SOCIAL AMENITIES

The nature of infrastructural facilities required for social well-being in a given region varies according to the general development of the region. An appraisal of social amenities as observed in the district of Bhilwara, therefore, is in order. Accordingly, a classification of social amenities of the rural areas enlisted in this study is presented in the following Table No. 3.1. The succeeding paragraphs attempt to analyse the distribution.

TABLE 3.1

CLASSIFICATION OF SOCIAL AMENITIES OF THE AREA UNDER STUDY DISTRICT BHILWARA - 1971

S. No.	Major category Name	Symbol	S. No.	Symbol	Amenity
1.	2.	3.	4.	5.	6.
1.	Educational	E	1	P.S.	Primary school
2			2.	M.S.	Middle School
			3.	H.S./ S.S.	Higher Secondary and Secondary School
			4.	C	College
2.	Medical	M	5.	Disp.	Dispensary
			6.	H.C.	Health Centre
			7.	M.C.ht	Maternity & child Welfare Centre

1	2	3	4	5	6
			8	F.P.C.	Family Planning Centre
			9.	Hosp.	Hospital
3.	Communication (a) Transport)	C	10.	K.R.	Katcha road
			11.	P.R.	Pucca Road (Metalled)
			12.	R.S.	Railway Station
	(b) Postal and Telegraphic	PT	13.	P.O.	Post Office
			14.	P&T	Postal and Telegraphic
			15.	T.C.	Telephone Centre
4.	Electricity	EL	16.	P.SP.	Power Supply
5.	Drinking Water	DW	17.	Tap	Tap Water Supply

In this classification, all the existing seventeen social amenities have been grouped into five broad categories. They have been further classified on the basis of (a) size of settlements and (b) per one hundred settlements in a tehsil.

The following discussion is on the cumulative frequency distribution of amenities according to population size class of settlements.

3.1 Distribution of Social Amenities According to Population Size Class

3.1.1 Educational Amenities

The educational facilities in the district includes primary schools, middle schools, higher secondary and secondary schools and degree and post-graduate colleges.

(i) Primary Schools

The total number of settlements having primary schools is 711 out of 1568 villages. The maximum number of primary schools have been observed in size group of 500-999 persons. They make up for 38.54 per cent of total primary schools in the district. Fig. 3.2 shows that about 70 per cent of primary schools are available in settlements with less than 1000 persons. It has also been observed that there are 374 settlements in the population size group of below 200 persons, but among them only 30 villages are having primary schools. On the other hand , settlements with population above 1000 persons have one or more primary schools within one settlement.

(ii) Middle Schools:

There are 94 settlements with middle school facilities. Table 3.2 shows that villages with population below 500 persons, have no middle schools. The highest percentage of middle schools is observed in settlements belong to population

TABLE 3.2

DISTRIBUTION OF SETTLEMENTS BY POPULATION SIZE CLASS HAVING EDUCATIONAL AMENITIES DURING - 1971

Amenity	P*	Number of Settlement by Size Group (Persons)							
		Below 200	200 to 499	500 to 999	1000 to 1999	2000 to 4999	5000 to 9999	10000 and above	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Villages	No.	374	545	344	176	60	7	2	1568
	%	24.80	36.14	22.81	11.68	3.98	0.46	0.13	
	C.F.	24.80	60.94	83.75	95.43	99.41	99.87	100	
P.S.	No.	30	192	274	137	60	11	7	
	%	4.22	27.00	38.54	19.27	8.30	1.69	0.98	
	C.F.	4.22	31.22	69.76	89.03	97.33	99.02	100	
M.S.	No.	0	0	4	43	40	4	3	
	%	0.00	0.00	4.26	45.74	42.55	4.26	3.19	
	C.F.	0.00	0.00	4.26	50.00	92.55	96.81	100	
H.S./ S.S.	No.	0	0	0	3	17	7	2	
	%	0.00	0.00	0.00	10.34	58.62	24.13	6.89	
	C.F.	0.00	0.00	0.00	10.34	68.96	93.11	100	
College	No.	0	0	0	0	0	0	1	
	%	0.00	0.00	0.00	0.00	0.00	0.00	100	
	C.F.	0.00	0.00	0.00	0.00	0.00	0.00	100	

* Particular
C.F. Cumulative Frequency
Source: Census of India, 1971.

size group of 1000 to 1999 persons accounting for about 46 per cent of total middle schools in the district. Villages in the population size group of 2000-4999 persons have 40 middle schools accounting for about 43 per cent of the total number of middle schools in the district. Thus, the distribution of middle schools is highly concentrated in villages with population ranging from 1000 to 5000 persons. As an additional observation, it is noted that wherever there are higher secondary and secondary schools, there would not be middle school particularly in rural areas (Table No. 3.2).

(iii) Secondary and Higher Secondary Schools:

There are only 29 rural settlements with facilities of secondary and higher secondary schools. Villages belonging to population size of below 1000 persons have no secondary schools. The highest share of secondary and higher secondary schools (about 59 per cent) is found in villages with population ranging from 2000-4999 persons. All the villages with population 5000 and above have secondary and higher secondary schools.

(iv) Degree and Post-graduate College

There is only one college which is established in the village Gulabpura (B.Ed. College) in Hurda tehsil. On the

other hand, two Post-graduate Colleges are located in the urban areas i.e. Bhilwara and Shahpura.

3.1.2 Medical Amenities:

Health care is one of the most important indicators to measure the state of social well-being of a region. Therefore, the present study includes the distribution of dispensaries, health centres, family planning centres, maternity and child welfare centres and hospitals.

(i) Dispensaries

There are 112 settlements having independent dispensaries. This is making up for about 7.14 per cent of the total settlements of Bhilwara district. Among the smallest of the settlement sizes having population 212 persons (Chandpura in Mandalgarh tehsil, which comes in the size of 200-499 persons. The maximum number of dispensaries have been found in population size of 1000-1999 persons fallowed by size of 2000-4999 persons accounts for 40.17 per cent and 35.72 per cent of total number of villages respectively.

(ii) Health Centres

The distribution of health centres in villages having different size population is given in the Table No. 3.3. It

TABLE 3.3

DISTRIBUTION OF SETTLEMENT BY POPULATION SIZE CLASS HAVING MEDICAL AMENITIES DURING - 1971

Amenity (1)	P* (2)	Below 200 (3)	200 to 499 (4)	500 to 999 (5)	1000 to 1999 (6)	2000 to 4999 (7)	5000 to 9999 (8)	10000 and above (9)	Total (10)
Villages	No.	374	545	344	176	60	7	2	1568
	%	24.80	36.14	22.81	11.68	3.98	0.46	0.13	
	C.F.	24.80	60.94	83.75	95.43	99.41	99.87	100	
Disp.	No.	0	5	13	45	40	7	2	112
	%	0	4.46	11.60	40.17	35.72	6.27	1.78	
	C.F.	0.00	4.46	16.06	56.23	91.95	98.22	100	
M.C.	No.	0	1	1	3	8	6	2	21
	%	0.00	4.76	4.76	14.29	38.10	28.57	9.52	
	C.F.	0.00	4.76	9.92	23.81	61.91	90.48	100	
F.P.C.	No.	0	0	0	9	17	7	2	35
	%	0.00	0.00	0.00	20.00	48.57	25.71	5.72	
	C.F.	0.00	0.00	0.00	20.00	68.57	94.28	100	
M.C.W.	No.	0	0	1	3	4	2	1	11
	%	0.00	0.00	9.09	27.27	36.36	18.19	9.09	
	C.F.	0.00	0.00	9.09	36.36	72.72	90.91	100	
Hosp.	No.	0	0	1	4	12	6	2	25
	%	0.00	0.00	4.00	16.00	48.00	24.00	8.00	
	C.F.	0.00	0.00	4.00	20.00	68.00	92.00	100	

* Particular
C.F. Cumulative Frequency
Source: Census of India, 1971.

is observed that maximum number i.e. 38.10 per cent of settlements having health centres comes in the size of 2000-4999 persons and minimum number of health centres (4.76 per cent) comes in both settlement sizes of 200-499 persons and 500-999 persons categories. Fig. 7 shows that the distribution of health amenities does not correspond with frequency distribution of settlement size. For example, about 36.14 per cent settlements comes under the category of 200-499 persons but it accounts for only 4.76 per cent of settlements having health centres.

(iii) Family Planning Centres

There are thirty-five family planning centres in the district. The maximum number of centres are found in settlement size of 2000-4999 persons. It accounts for about 49 per cent of total settlement, having family planning centres. About 20 per cent settlement falls in the category of 1000-1999 persons having this facility. Fig. 3.01 shows that the frequency distribution patterns of settlements in various size classes with family planning centres do not have equal distribution.

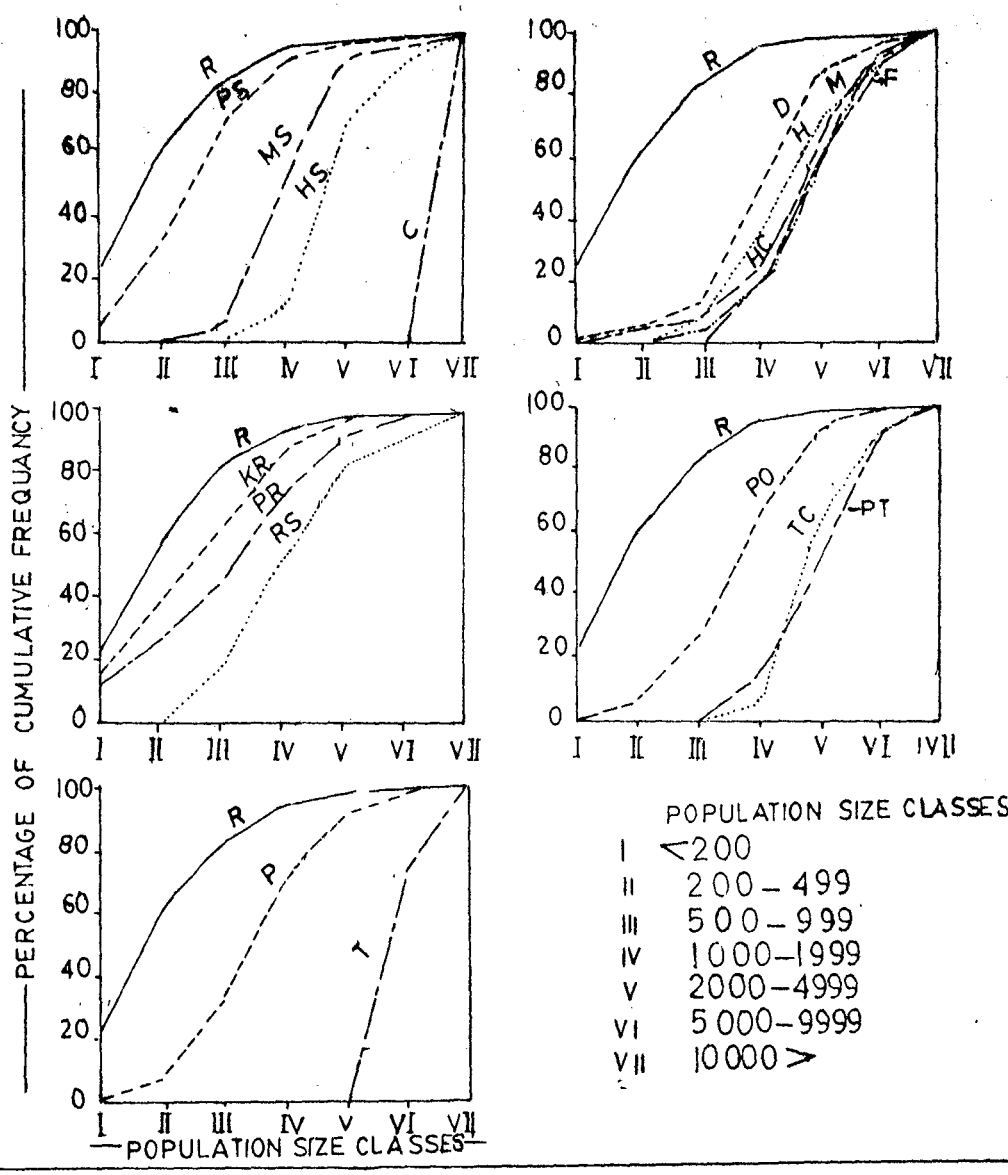
(iv) Maternity and Child Welfare Centres:

The total number of maternity and child welfare centres are situated in eleven settlements. There is no

BHILWARA DISTRICT

CUMULATIVE FREQUENCY CURVES

OF THE RURAL SETTLEMENTS AND SOCIAL AMENITIES 1971



POPULATION SIZE CLASSES

I	<200
II	200 – 499
III	500 – 999
IV	1000–1999
V	2000–4999
VI	5000–9999
VII	10000 >

REFERENCES

R = RURAL SETTLEMENT, PS=PRIMARY SCHOOLS, MS= MIDDLE SCHOOLS, HS=HIGHER SECONDARY & SECONDARY SCHOOLS, D=DISPENSARIES, H=HOSPITLS, HC=HEALTH CENTRES, F=FAMILY PLANNING CENTRES, M=MATERNITY & CHILD WELFARE CENTRES, KR=KACHHA ROAD, PR=PUCCA ROAD, RS=RAILWAY STATIONS, PO=POST OFFICES, PT= POSTAL TELEGRAPH OFFICES, TC=TELEPHONE CENTRES, P=POWER SUPPLY, T=TAPS COLLEGE.

FIG.7

maternity and child welfare centre in settlements with population below 500 persons. There is only one village which belongs to the settlement size of 500-999 persons and has these facilities. The maximum number of welfare centres are situated in settlement size of 2000-4999 persons category. The settlement in population size of 5000-9999 and above are having three maternity and child welfare centres.

It has been observed that the smallest (Basenra in Asind tehsil) settlement which has maternity and child welfare centre, falls under settlement size of 500-999 persons. Fig. 7 shows that there is no uniformity in distribution of social amenities.

(v) Hospitals:

Public health systems is one of the most significant producers of changes.[1] In Bhilwara district there are 25 hospitals, located in rural areas (the hospital service is high order service because it is multi-functional medical care unit). The villages having a population size of less than 500 persons do not have hospital facility. The maximum number of hospitals comes in the category of 2000-4999 persons of settlement size. On the other hand, only one

hospital is located in settlement size of 500 to 999 persons.

3.1.3 Communicational Amenities

The development of an efficient transport system and provision of such facilities is of crucial importance for overall development of an area. In Bhilwara district only a small number of villages in the district are served by pucca roads and negligible number of them have railway station. The transport net work in the district includes kachha (unmetalled) roads, pucca (metalled) roads and railway line.

3.1.3.1 Transport

(i) Kachha Road

There are 378 villages which have kachha road facility accounting for about 24 per cent of total number of villages in the district. The maximum number of villages having kachha road facility comes in the population size of 1000-1999 persons which accounts for 25 per cent of total settlements having facility, while villages in population size group of 200-499 persons account for only 21.93 per cent of settlements. Frequency distribution shown in Fig. 7 indicates that about 88 per cent availability comes in population group of rural settlement which has less than 2000 persons.

(ii) Pucca Road:

The availability of communication as shown in Table 3.4 indicates that the maximum number of settlements which have pucca road facility comes under the population category of 1000-1999 persons, which accounts for about 30 per cent of total settlements. Frequency distribution in Fig. 7.6 indicates that about 19 per cent settlements with pucca road comes under the population size of 2000-4999 persons. It is clear from Table 3.4 that 23 per cent settlements served by pucca road belong to population size of above 2000 persons.

(iii) Railway Stations

The Ajmer-Khandwa metre gauge railway line enters the district from Ajmer side at Gulabpura and leaves the district at Hamirgarh. The eleven railway stations which it passes through are Gulapbura, Rupaheli, Sareri, Raila, Lambia Kaliyas, Dhuwala, Mandal, Bhilwara, Mandpiya and Hamirgarh. The total railway length of the track in the district is 81 kms. The spatial distribution of the settlements having the railway stations in the district is quite irregular. Hurda tehsil has the maximum number of railway stations. The maximum number of settlement having

TABLE 3.4

DISTRIBUTION OF SETTLEMENTS BY POPULATION SIZE CLASS HAVING COMMUNICATION AMENITIES DURING - 1971

Amenity (1)	P* (2)	Below 200 (3)	200 to 499 (4)	500 to 999 (5)	1000 to 1999 (6)	2000 to 4999 (7)	5000 to 9999 (8)	10000 and above (9)	Total (10)
Villages	No.	374	545	344	176	60	7	2	1568
	%	24.80	36.14	22.81	11.68	3.98	0.46	0.13	
	C.F.	24.80	60.94	83.75	95.43	99.41	99.87	100	
K.R.	No.	65	82	89	94	36	6	2	374
	%	17.38	21.93	23.80	25.13	9.63	1.60	0.53	
	C.F.	17.38	39.31	63.11	88.24	97.87	99.47	100	
P.R.	No.	25	27	38	58	36	6	2	192
	%	13.02	14.06	19.79	30.21	18.75	3.13	1.04	
	C.F.	13.02	27.08	46.87	77.08	95.83	98.96	100	
R.S.	No.	0	0	1	4	3	1	2	11
	%	0.00	0.00	9.09	36.36	27.28	9.09	18.18	
	C.F.	0.00	0.00	9.09	45.45	72.73	81.82	100	
P.O.	No.	2	15	45	96	67	9	2	236
	%	0.85	6.36	19.07	40.68	28.38	3.81	0.85	
	C.F.	0.85	7.21	26.28	66.96	95.34	99.51	100	

Contd...

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
P.T.	No.	0	0	0	3	8	7	2	20
	%	0.00	0.00	0.00	15.00	40.00	35.00	10.00	
	C.F.	0.00	0.00	0.00	15.00	55.00	90.00	100.00	
T.C.	No.	0	0	0	2	18	7	2	29
	%	0.00	0.00	0.00	6.90	62.07	24.13	6.90	
	C.F.	0.00	0.00	0.00	6.90	68.97	93.10	100.00	

* Particulars
C.F. Cumulative Frequency
Source: Census of India, 1971

railway station facility comes under in population size of 1000-1999 persons (Table 3.4 and Fig. 7).

3.1.3.2 Postal and Telegraphic

(i) Post Offices:

There are 236 settlements that have post offices. About 67 per cent settlements with post offices, falls in population size below 2000 persons. The highest percentage , falls under the population size of 1000 to 1999 persons i.e. 40.68 per cent followed by population size class of 2000-4999 persons with 28.38 per cent.

(ii) Post and Telegraph Offices

The district has twenty post and telegraph offices that is to say, there is one post and telegraph office per 78 settlements. The Table No. 3.4 shows that the maximum number of settlements having post and telegraph offices fall in the size class of 2000-4999 persons, which accounts for about 40.00 per cent of total settlements having post and telegraph offices. The illustration further shows that there is much scope to increase the number of post and telegraph offices to an optimal stages.

(iii) Telephone Centres

The cumulative frequency distribution of telephone

centres is given in Fig. 7. There are 29 settlements having telephones and all belong to population size above 1000 persons. Only 7 per cent of settlements with telephone centres falls in the category of less than 2000 persons. The cumulative frequency distribution shows (Fig. 7) that the higher size of settlements achieving high number of telephone centres.

3.1.4 Electricity

Electric power is an important item of modern infrastructure and the consumption of power. It is often suggested as an indicator of general economic development.[2] The electrification programme in the rural areas has a double pattern of impact since it affects both agricultural technology and domestic life within the village itself. There are only 102 villages having the supply of electricity accounting for 6.5 per cent of total settlements (1568 villages) in Bhilwara district. However, every category of population size class has power supply. Maximum settlements have been electrified in population size class of 1000-2000 persons. (Table 3.5).

TABLE 3.5

DISTRIBUTION OF SETTLEMENTS BY POPULATION SIZE CLASS HAVING POWER SUPPLY AND DRINKING WATER AMENITIES DURING 1971

Amenity	P*	Below 200	200 to 499	500 to 999	1000 to 1999	2000 to 4999	5000 to 9999	10000 and above	Total
Villages	No.	374	545	344	176	60	7	2	1568
	%	24.80	36.14	22.81	11.68	3.98	0.46	0.13	
	C.F.	24.80	60.94	83.75	95.43	99.41	99.87	100	
Electri-city	No.	2	7	25	38	21	7	2	102
	%	1.96	6.86	24.51	37.25	20.60	6.86	1.96	
	C.F.	1.96	8.82	33.33	70.58	91.18	98.04	100	
Tap	No.	0	0	0	0	0	6	2	8
	%	0.00	0.00	0.00	0.00	0.00	75.00	25.00	
	C.F.	0.00	0.00	0.00	0.00	0.00	75.00	100.00	

P* Particulars
C.F. Cumulative Frequency
Source: Census of India, 1971

3.1.5 Drinking Water Amenities

It is very interesting to note that there are only eight villages which have tap water facility. All settlements which have taps are either tehsil centres or with population size above 5000 persons. Table 3.5 shows that villages with population less than 5000 persons do not have taps for drinking water.

3.2 Tehsil-wise Distribution of Social Amenities

The tehsil-wise spatial distribution of social amenities have been categorised at three level* viz. high, medium and low level on the basis of availability of social amenities. In the following paragraphs, tehsil-wise distribution have been discussed with a view to examine the concentration of social amenities. The distribution takes into account, availability of social amenities per one hundred settlements.

3.2.1 Educational Amenities

The distribution of primary schools have been grouped in three categories. Shahpura measures high in terms of levels c

---

* $X = \frac{\text{Number of villages having social amenities}}{\text{Total number of villages in tehsil}} \times 100$

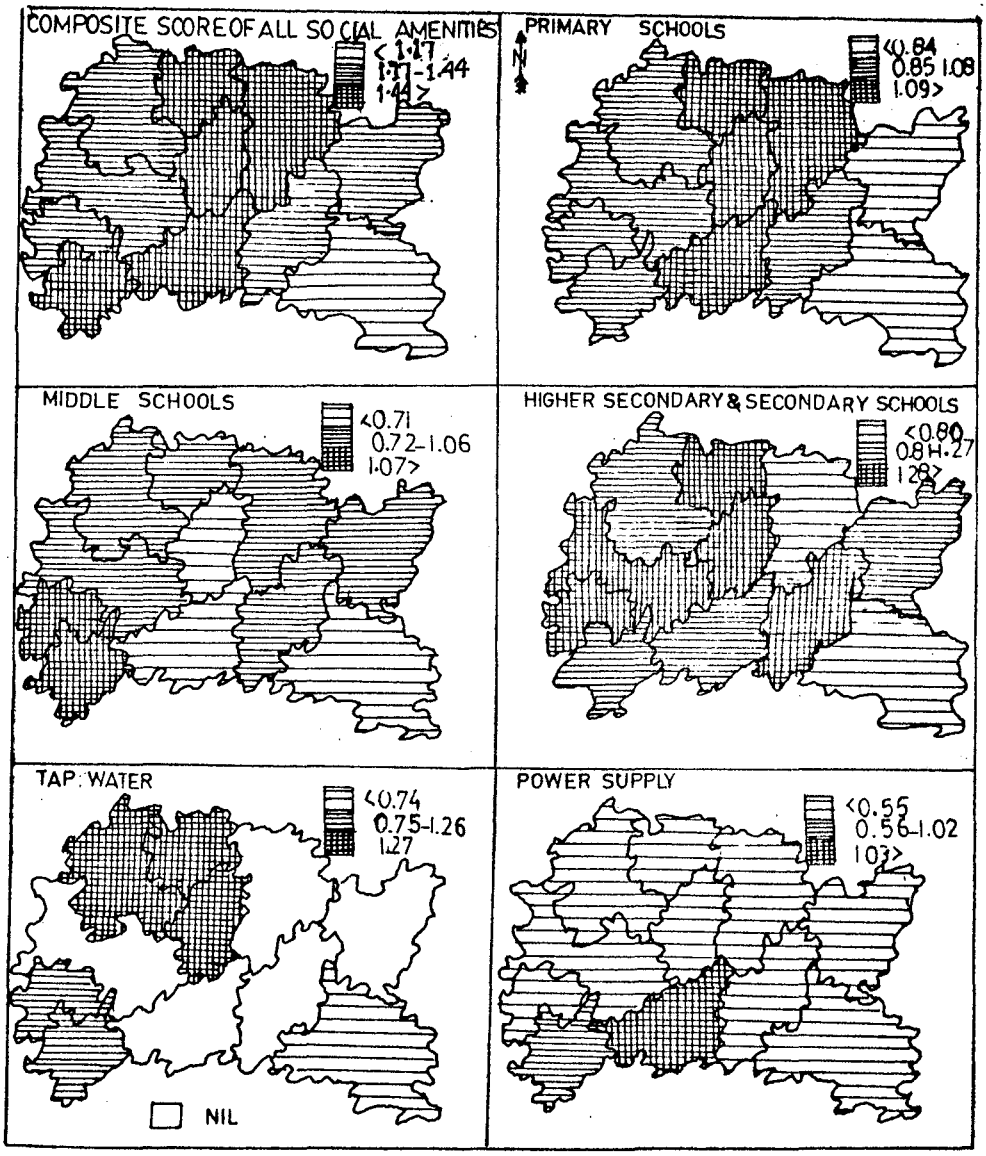
$\text{Level} = \frac{X}{\bar{X}}$

BHILWARA DISTRICT

LEVELS OF DEVELOPMENT .1971.

BASED ON SOCIAL AMENITIES

TEHSIL WISE



INDEX :

LEVELS: HIGH MEDIUM LOW

KMS. 10 0 10 20 30 40 50 KMS.

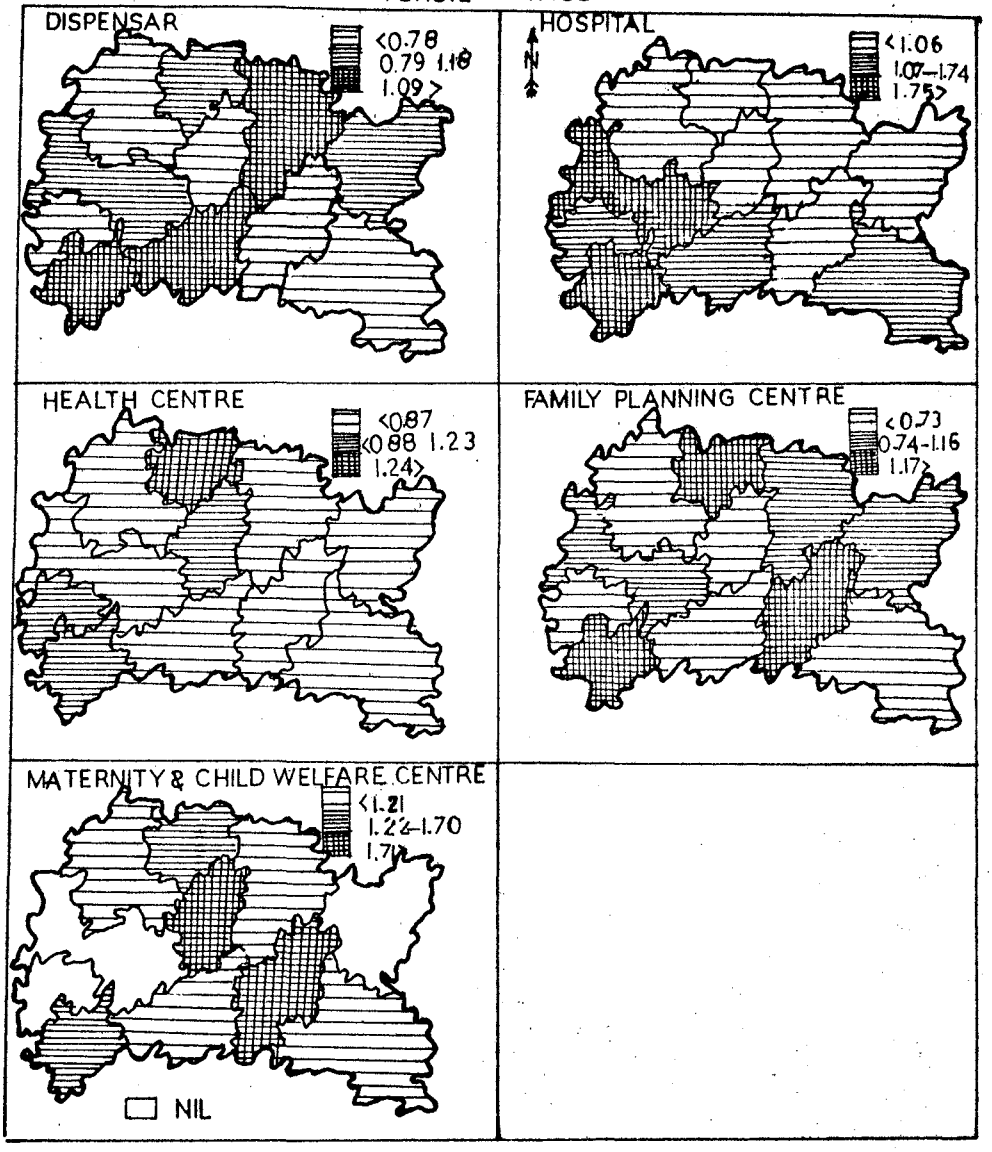
FIG. 8a

BHILWARA DISTRICT

LEVELS OF DEVELOPMENT.1971.

BASED ON SOCIAL AMENITIES

TEHSIL WISE



INDEX :

LEVELS : HIGH MEDIUM LOW

KMS. 10 0 10 20 30 40 50 KMS.

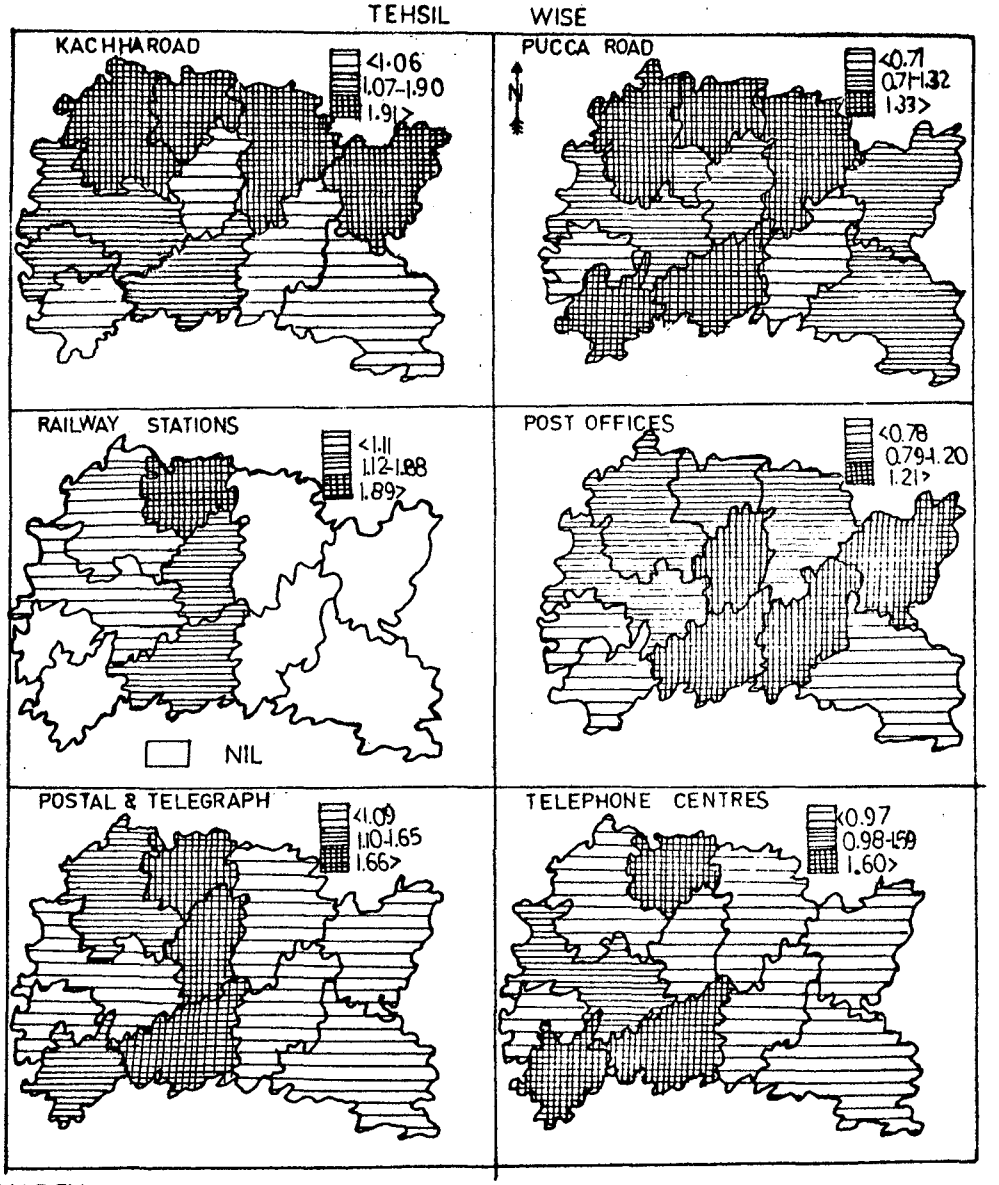
FIG. 8b

BHILWARA DISTRICT

LEVELS OF DEVELOPMENT.1971.

BASED ON SOCIAL AMENITIES

TEHSIL WISE



INDEX :

LEVELS HIGH MEDIUM LOW

KMS. 10 0 10 20 30 40 50 KMS.

FIG- 8c

primary schools. There are sixty-eight primary schools per 100 villages. On the other hand, Mandalgarh has minimum number of primary schools i.e. only twenty-four per 100 villages.

There are ninety-four middle schools in rural areas. The maximum middle schools are found in Sahara Tehsil. It has ten middle schools per 100 villages while district average is 6 per 100 villages. Only two tehsils come in high level category (Sahara and Raipur).

It is observed that those tehsils have come under high level which have less number of villages and tehsils having maximum number of villages, have come under low level category. There are six tehsils belong to medium category. The lowest level have been observed again in Mandalgarh, it is very low i.e. 0.51 per cent).

There are 29 settlements having higher secondary and secondary schools. In this category five tehsils namely Hurda, Mandal, Banera, Kotri and Rajpur, come under the high level of amenity; levels varies between 1.48 for Hurda to 1.13 for Raipur tehsil.

It has been observed that higher secondary schools and secondary schools are situated in size group of population above 2000 persons. There are as many as four tehsils

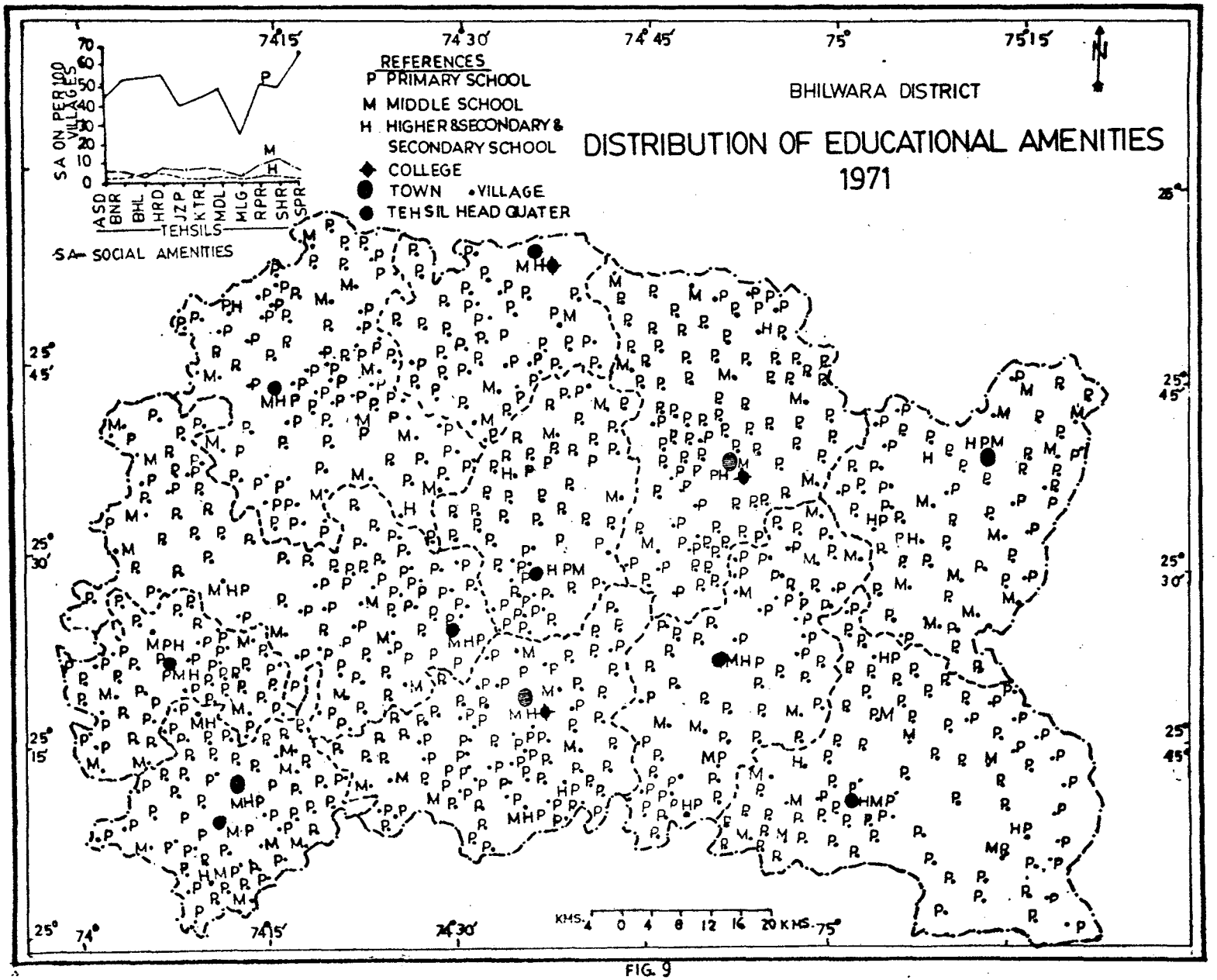

BHILWARA DISTRICT
DISTRIBUTION OF EDUCATIONAL AMENITIES
1971
REFERENCES
P PRIMARY SCHOOL
M MIDDLE SCHOOL
H HIGHER &SECONDARY &
SECONDARY SCHOOL
COLLEGE
TOWN
VILLAGE
TEHSIL HEAD QUATER
SA ON PER 100 VILLAGES
TEHSILS
ASD BNR BHL HRD JZP KTR MDL MLG RPR SHR SPR
SA- SOCIAL AMENITIES
74°15'
74°30'
74°45'
75°
75°15'
25°45'
25°30'
25°15'
25°
74°
KMS. 4 0 4 8 12 16 20 KMS.
N

FIG. 9

in medium level category. These are ranging from Sahara with 2.08 to Bhilwara with 1.61 H.S.S. per 100 villages. The lowest level had been found in Mandalgarh (0.67) and Shahpura tehsil (0.57).

There is only one institution of higher education which is situated at Gulabpura village. Though two colleges are also set up in the district but both belong to urban areas i.e. Bhilwara and Shahpura.

3.2.2 Medical Amenities

The spatial distribution among tehsils have been categorised under three levels which include dispensaries, hospitals, maternity and child welfare centres, family planning centres and health centres. There are 112 villages having 114 dispensaries. Two tehsils are included in high level category. The maximum dispansaries are set up in Bhilwara with 10 dispensaries and Sahara tehsil has 9 dispensaries per 100 villages. It is higher than district average which is 7 dispensaries per 100 villages.

There are three tehsils under medium level (Mandal, Jahazpur and Hurda). These vary in between is 0.96 to 1.06 value of level. The lowest level has been observed in five tehsils. These are, Asind, Kotri, Bnera, Mandalgarh and Sahara, except Banera all others are along the outer boundary of the district. The value of low level category is less than 0.78.

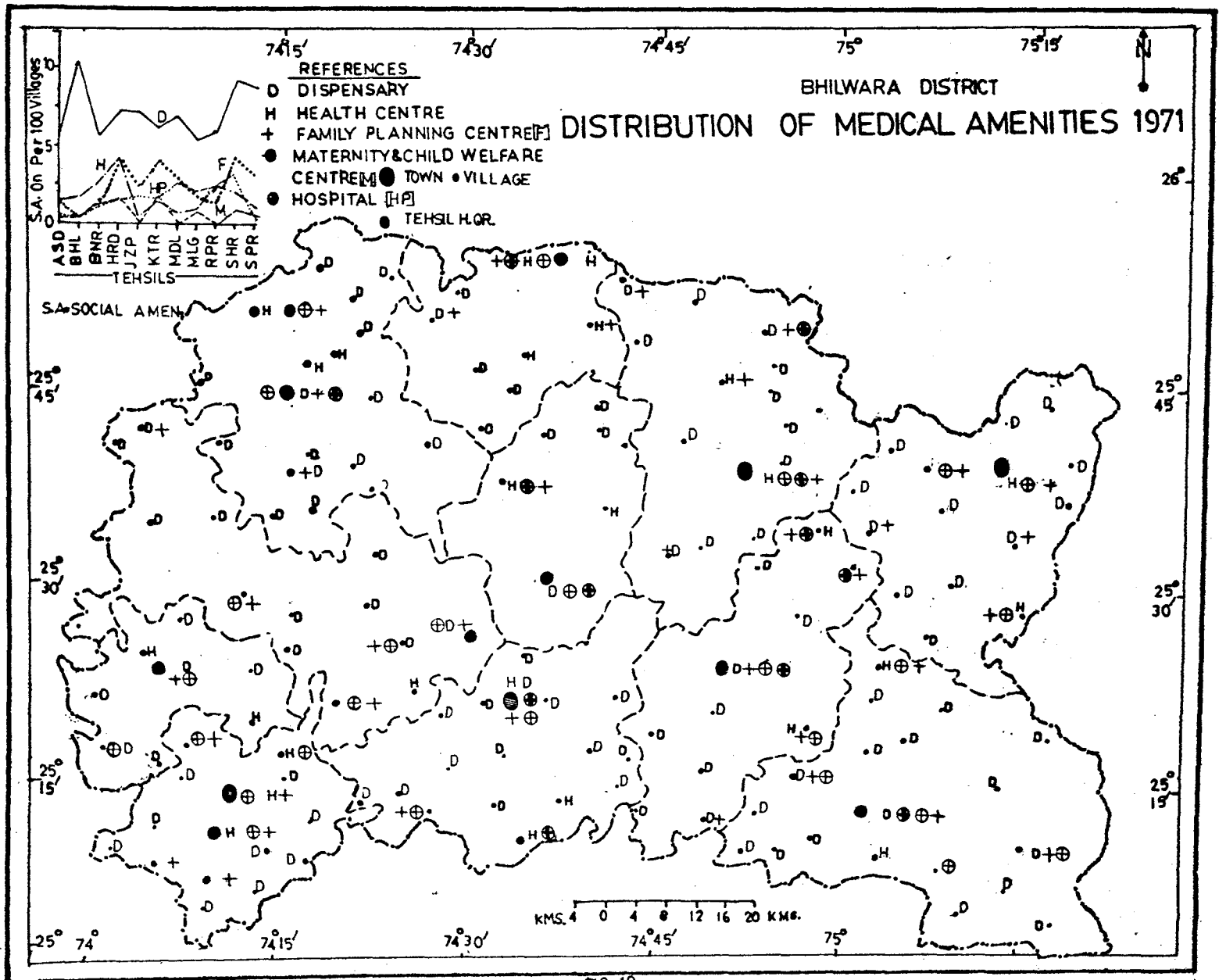

BHILWARA DISTRICT
DISTRIBUTION OF MEDICAL AMENITIES 1971
REFERENCES
D DISPENSARY
H HEALTH CENTRE
+ FAMILY PLANNING CENTRE [F]
MATERNITY & CHILD WELFARE CENTRE [M]
TOWN
VILLAGE
HOSPITAL [HP]
TEHSIL H.QR.
S.A. On Per 100 Villages
ASD BHL BNR HRD JZP KTR MDL MLG RPR SHR SPR
TEHSILS
S.A.=SOCIAL AMEN.
KMS. 4 0 4 8 12 16 20 KMS.
7415'
7430'
7445'
75°
7515'
25° 74°
25° 45'
25° 30'
25° 15'
N

FIG-10

Medium value of amenity have been found in three tehsils, namely, Banera, Raipur and Sahara. It is clear from Fig. 8b that the majority of the tehsils i.e. seven tehsils fall in the category of low level. These levels range from 0.33 (Jahazpur) to 0.87 (Bhilwara). It shows Jahazpur has 0.60 health centres per 100 villages.

Other medical amenities which have been included in this study are maternity and child welfare centres. There are 11 centres in the rural areas of the district. Three tehsils have not such centres. Kotri tehsil has highest number of maternity and child welfare centres, followed by Bnera i.e. 2.36 and 2.35 per 100 villages respectively. Hurda and Shahpura come in medium level of development of this facility. Mandalgarh tehsil has lowest value i.e. 0.77. (Fig. 8b).

There are four tehsils which have been included under high level of development in terms of hospital facilitie. Sahara tehsil (1.97) and Mandal tehsil (1.53) have the highest value. Only two tehsils (Raipur & Mandalgarh) fall in medium level of development. Remainingsix tehsils Asind, Hurda, Jahazpur, Banera, Kotri and Shahpura are included in low level category.

TABLE 3.6

TEHSIL WISE DISTRIBUTION OF SOCIAL AMENITIES - 1971 (PER 100 VILLAGES)

Sl. No.	Tehsil	Total No. of inhabitted villages	1. EDUCATIONAL				2. MEDICAL				
			P.S.	M.S.	H.S./ S.S.	College	Disp.	Hosp.	H.C.	M.C.W.	F.P.C.
1.	Bhilwara Distt.	1568	45.34	5.99	1.84	0.06	7.14	1.59	1.33	0.70	2.23
2.	Asind	197	43.65	6.09	2.03	0.00	6.09	1.02	1.52	0.50	1.52
3.	Bhilwara	123	56.45	5.64	1.61	0.00	10.48	0.80	1.61	0.80	0.80
4.	Banara	81	57.64	3.52	2.35	0.00	5.88	1.18	2.35	2.35	1.18
5.	Hurda	66	58.83	7.35	2.94	1.47	7.35	1.47	4.41	1.47	4.41
6.	Jahazpur	168	38.46	6.04	1.65	0.00	7.14	1.64	0.55	0.00	2.19
7.	Kotri	127	44.88	7.08	2.36	0.00	6.29	1.57	1.57	2.36	3.93
8.	Mandal	162	48.48	6.66	2.42	0.00	7.88	2.44	0.60	0.00	3.03
9.	Mandalgarh	274	24.58	3.32	1.33	0.00	5.31	1.99	0.66	0.33	1.32
10.	Raipur	88	51.68	8.98	2.24	0.00	6.74	2.24	2.24	0.00	1.12
11.	Sahara	92	50.00	10.42	2.08	0.00	9.37	3.12	2.08	1.04	4.16
12.	Shahpura	130	67.91	5.97	0.75	0.00	5.31	0.76	0.66	0.33	1.32

Contd....

Contd...

Sl. No.	Tehsil	Total No. of inhabitted villages	3. COMMUNICATIONAL						4. POWER SUPPLY	5. DRINKING WATER
			a. Postal			b. Transport				
			P.O	P.T.	T.C.	K.R.	P.R.	R.S.	Elect.	Tap
1.	Bhilwara Distt.	1568	15.05	1.27	1.84	23.85	12.24	0.70	6.50	0.51
2.	Asind	197	16.75	1.52	1.52	47.20	17.26	0.50	2.54	1.52
3.	Bhilwara	123	18.55	3.22	4.03	28.03	16.93	0.80	29.03	0.00
4.	Banera	81	21.18	2.35	1.18	20.00	14.92	2.35	21.18	1.17
5.	Hurda	66	16.18	2.94	4.41	36.76	20.59	6.06	5.83	0.00
6.	Jahazpur	168	18.68	0.55	1.10	47.16	14.92	0.00	6.04	0.00
7.	Kotri	127	20.47	0.78	0.78	14.96	7.87	0.00	21.57	0.00
8.	Mandal	162	14.54	1.21	1.81	27.27	9.09	0.60	7.87	0.00
9.	Mandalgarh	274	10.29	0.33	1.32	17.94	9.30	0.00	3.32	0.33
10.	Raipur	88	8.98	1.12	1.12	32.58	2.24	0.00	1.20	1.12
11.	Sahara	92	9.37	2.08	4.16	8.33	20.83	0.00	15.62	0.00
12.	Shahpura	130	14.18	0.14	1.49	47.16	20.59	0.00	3.73	1.47

In 1971 there were about 35 family planning centres in the district. It can be noted that number of family planning centres is high (35) than hospitals (25) in the rural areas of district. There are three tehsils which enjoy maximum number of family planning centres. The maximum availability of amenity have been found in Hurda i.e. 4.41 family planning centre per 100 villages. Sahara tehsil with 1.71 and Kotri tehsil has 1.61 value of level. There are three tehsils again which are included in the medium category. Remaining four tehsils come under low level of amenity. The level of family planning centre varies from 1.82 (Hurda) to 0.33 (Bhilwara).

3.2.3 Communicational Amenities

The spread of modernisation in a rural peasant society is clearly related to communications between places within the system.[1] Quite obviously the increased contact of peasant societies with more modern urban economic systems promotes a flow of new information and ideas from one group to another.

(i) Transport

The transport system in Bhilwara district is yet another major handicap to the balanced development of region.

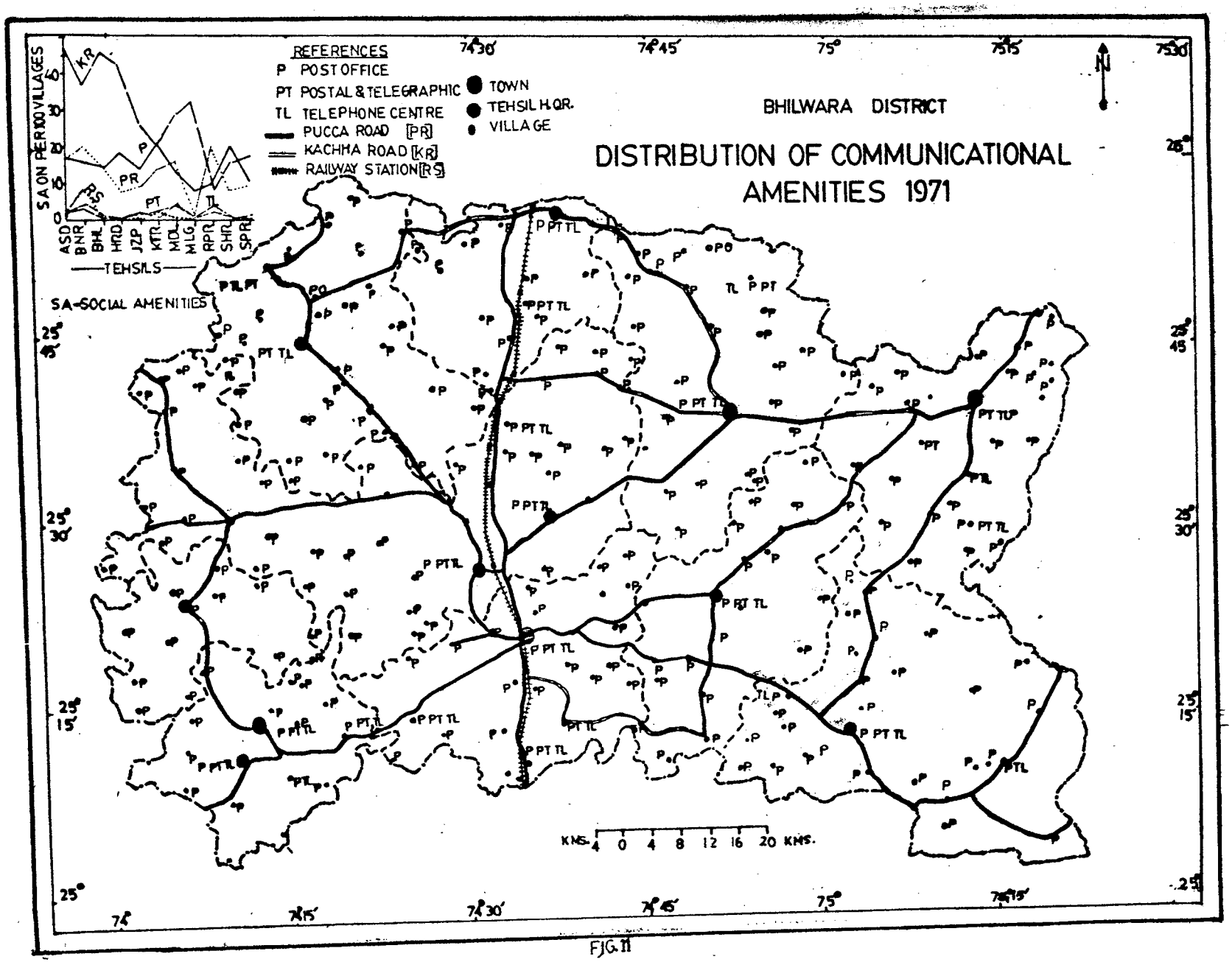

BHILWARA DISTRICT
DISTRIBUTION OF COMMUNICATIONAL AMENITIES 1971
REFERENCES
P POST OFFICE
PT POSTAL & TELEGRAPHIC
TL TELEPHONE CENTRE
PUCCA ROAD [PR]
KACHHA ROAD [KR]
RAILWAY STATION [RS]
TOWN
TEHSIL H.QR.
VILLAGE
SA ON PER 100 VILLAGES
KR
PR
RS
P
PT
TL
ASD BNR BHL HRD JZP KTR MDL MLG RPR SHL SPR
TEHSILS
SA-SOCIAL AMENITIES
KMS. 4 0 4 8 12 16 20 KMS.
N
74°30'
74°45'
75°
75°15'
75°30'
25°
25°15'
25°30'
25°45'
74°
74°15'

FIG. 11

There are 24 villages having kachha road facility per 100 villages in the Bhilwara district. The maximum score of kachha road facility have been observed in Asind tehsil with 47 villages per 100 villages. Asind and Shahpura both have the highest level i.e. 1.97. Fig. 8C shows the development of kachha road facility, accumulated in the northern part of the district, where Asind, Hurda, Shahpura and Jahazpur continuously making one belt. There are three tehsils come under medium level namely, Bhilwara, Mandal and Raipur. Remaining four tehsils have been included in the low level category, which varies from 0.34 (Sahara) to 1.06 (Bnera).

There are 12 villages with pucca road facility per 100 villages in the district. In the pyramid of development the high level category includes five tehsils namely, Sahara, Asind, Shahpura, Hurda and Bhilwara. The level of development in high level category varies from 1.38 (Bhilwara) to 1.70 (Sahara). The maximum villages with pucca road facility have been observed in Sahara tehsil.

On the basis of levels of development four tehsils have been included under medium level category (Mandal, Bnera, Mandalgarh and Jahazpur). The levels varies from

0.74 (Mandal) to 1.21 (Bnera). Remaining two tehsils are observed in low level category (Kotri and Raipur). The lowest value have been found in Raipur tehsil i.e. (0.18), there are 2 villages with pucca road facility per 100 villages. It shows high disparities in distribution of pucca road facility, for example, in Shara tehsil 20 villages have pucca roads, on the other hand in Raipur tehsil only two villages have pucca roads per 100 villages. There is one railway route that runs through the district from Gulabpura (Hurda tehsil) to Hamirgarh (Bhilwara tehsil). It cross five tehsils boundaries with eleven railway stations. Remaining six tehsils have no railway station facilities. In Hurda tehsil there are maximum number of railway stations (five railway stations) followed by Bnera and Bhilwara with two railway stations each. Remaining two tehsils are having one railway station each. Fig. 8C shows that in the high level only one tehsil (Hurda) and Bhilwara and Bnera come under medium level. The lowest level have been observed in Asind tehsil with 0.71 value. (Table 3.6).

(ii) Postal and Telegraphic Amenities

Postal and telegraphic amenities have a strong positive correlation with transport facilities. It is observed (Fig. 8C) that where the transport facilities are well developed there will also be postal and telegraphic amenities available.

There are four tehsils which come under high level namely, Bnera, Kotri, Bhilwara and Jahazpur. The maximum post offices have been found in Bnera tehsil i.e. 21 villages with post offices per 100 villages. Four tehsils belong to medium level category namely Asind, Hurda, Mandal and Shahpura. Remaining three tehsils come under low level category. The minimum number of post offices have been found in Raipur tehsil i.e. 9 villages with post offices per 100 villages.

There are three tehsils which have been included in high level with post and telegraph office. The value of high level ~~are~~ varies from 1.85 (Bnera) to 2.53 (Bhilwara). Two tehsils have been included in medium level category (Asind and Sahara). The maximum number of tehsils have been recognised under level, on the basis of value of levels, i.e. six tehsils. The lowest value (0.11) have been calculated in Mandalgarh tehsils, there is only one telegraph centre. Telephone centres ~~are~~ exist only in 29 villages in the Bhilwara district. There are three tehsils namely Bhilwara, Hurda and Sahara which have been included in high level. The highest value of level ~~have~~ been observed in Hurda tehsil, i.e. 2.39. There is only one tehsil belongs to medium level is 0.98 (Fig. 8c). The lowest level have been calculated i.e. 0.42 for Kotri tehsil.

3.2.4 Electricity

The levels of development of power supply in the Bhilwara district is shown in Fig. 8a. Only one tehsil belongs to high level category. In this category Bhilwara tehsil is receiving high contribution of power supply where 29 villages electrified per 100 villages, while district average is about 7.67. It is quite clear that Bhilwara tehsil has the electrification facilities four times as the district average. It is due to urban influence. Sahara tehsil comes under the medium level category.

The maximum number of tehsils i.e. nine falls under low level category. The value of levels varies between 0.40 (Banera) to 0.89 (Raipur). It shows high disparities in the district and part of district is enjoying with 29 per cent electrified rural area, another part has 1.13 per cent (Raipur).

3.2.5 Drinking Water Amenities

There are only six tehsils with tap water amenity. Remaining five tehsils are not having tap water facility. Only eight villages have found to have tap water facility. There are three tehsils namely Asind, Hurda and Bnera under the high level category. The maximum number of villages with tap water comes in the Asind tehsil. Two tehsils,

Sahara and Raipur are in medium level. Mandalgarh has minimum number of villages with tap water and stands in low level category.(Fig. 7).

The above discussion leads to the conclusion that the basic social amenities have not been provided properly. The main reason is that the population criterion adopted by the Government for allocating the social amenities. However, this study shows that the number of social amenities are small in relation to existing inhabited settlements and also it needs some spatial planning for equal distribution particularly in rural areas.

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CHAPTER IV

CHAPTER IV

COMPOSITE SCORE OF SOCIAL AMENITIES AND HIERARCHY OF SETTLEMENTS

The present chapter deals with the hierarchic order of settlements and the levels of development in Bhilwara district on the basis of distribution of social amenities. The chapter is divided into two sections. The first part discusses the hierarchic order of settlements on the basis of composite score of social amenities. These scores are subsequently used to assess the overall levels of development in the district and the analysis is presented in the second section. This is followed by some applied issues regarding the planning of distribution of social amenities.

The hierarchy of service centres is defined as a functional classification of settlements in vertical succession (Fig.12). In an optimal state of spatial organisation it is expected that the service centres and their zones of influence should be economically viable and politically manageable. There are various methods for identifying the hierarchic orders of service centres. The sealogram method based on the weighted composite score of functions has been one of the most important methods in use. In the present study, this method is applied to find out the composite score of social amenities which

subsequently form the basis for identification of hierarchic order of settlements.

The method which has been used for the composit score, is dependent upon the concept of Median Population Threshold (MPT). For this, one can simply count the existing functions in a settlement without weighing them. The counting can also be done by weighing of the functions. But this way one can not assess the relative importance of the variety of functions. For example, whether a hospital is more important than a post-office in a settlement? In some of the studies ranking is given to the sub-functions rather than the parent functions as different parent functions may not differ in their importance to warrant such a ranking.[1] However, these methods do not measure relative importance of different functions. Therefore, to overcome the theoritical difficulty of measuring the relative value of varaity of functions, an endeavour has been made to apply the Median Population Threshold Indices (MPTI) in the present study.[2]

The MPT indices cover almost all these factors which have so far been included as a measure of centrality like population of the centre, degree of functional complexity of each centre and the population served by each centre. This method is very suitable for empirical studies as well

as for the studies based on the secondary statistics. M.P.T.I. composite score gravity's method will be explained in the following paragraphs.

4.1 Concept of Median Population Threshold

The logic of central place theory[3] and the high correlation values between the size and functional range of settlements in empirical studies[4] has helped in defining the concept of population threshold. The minimum population which is necessary for the establishment of particular amenities is known as the threshold size of that services. It is general increase in the number of functions with increase in the size of a settlement.

The exact form of the relationship between size of settlement and the number of establishments of each function differs from region to region.[5] In the study of threshold size of service functions by Berry and Garrison, it was found that some services require more population than others for their support. Their study, for the first time, could suggest rather more precisely just how many people were, on average, required before a particular service could be provided in a settlement.[6]

The concept states that there is a range of population size for each function, at the lower limits of which all settlements lack that function. While at the upper limits all settlements possess it. The median point of the range of population threshold is taken into account and this point is known as the median population threshold (MPT). The concept of MPT helps in not only knowing the number of people required to sustain any particular function or a sub-function but also strengthens the system model.

4.1.1 Determination of MPT'S, Indices of Social Amenities

On the basis of the modified Reed-Munech Method as developed by Haffett and Gunawardena (Appendix X) the value of median population threshold (MPT) for each of seventeen social amenities is found in Bhilwara district, which one can calculated that the value of primary school is 494 persons. It shows that in the existing conditions on an average, a settlement with a population of 494 inhabitants is being served by a primary school. The computed values of median population threhold for all the amenities have shown in Table 4.2 and example is given below:

Computation of Median Population Threshold

(A) MPT (or PT_{50}) $MR_1 \left(\frac{50-A}{B-A}\right) (MR_2 - MR_1)$

where,

MR_1 = Mid point of the class (Range) preceding 50 per cent (PT50) PS to the value of PS Ag.

MR_2 = Mid point of the class (Range) succeeding the class of MR_1

A = P value of the class preceding the PT50 value.

A = P value of the class preceding the PT50 value.

B = P value of the class succeeding the PT50 value.

Here, MPT for primary school:

$$= 350 \left(\frac{50-32.08}{80.91-32.08}\right) (750-350)$$

$$= 350 \left(\frac{17.92}{48.83}\right) (400)$$

$$= 350 (0.36)\ 400$$

$$= 350 + 144 = 494$$

= 494 Persons

(B) 'P' Value Computation Rule

$$P = \frac{PS \cdot 100}{PS + Ag}$$

Where,

P = Proportion of settlements with function fi present

PS = This function Fi absent at this and greater level.

Ag = With function Fi absent at this and greater levels.

Fi = Without function

On the basis of primary school as the unit of measure the relative value of MPT of which amenity have been worked out and is termed as median population threshold index (MPTI) for that particular social amenity. In this way the indices are represented in the forms of population, threshold which can be considered as relative weight. In this way, relative importance of all other social amenities with each other can be assessed.

4.1.2 Determination of composite score of MPT Indices of Social amenities

The composite score has been obtained by adding the MPT Index of all the social amenities. All the social

TABLE 4.1

DISTRIBUTION OF PRIMARY SCHOOLS BY SIZE CLASS OF SETTLEMENTS DURING 1971

S. No.	Particulars	0 to 199	200 to 499	500 to 999	1000 to 1999	2000 to 4999	5000 to 9999	10000 and above
1.	Total No. of Settlements	374	545	344	176	60	7	6
2.	With function Primary School	30	192	274	137	52	7	6
3.	Without function (Fi)	344	353	70	39	8	0	0
4.	With Function Fi absent at this and greater level (Ag)	814	470	117	47	8	0	0
5.	With function Fi present at this and smaller levels (PS)	30	222	496	633	685	692	698
6.	Proportion of settlements with function Fi Present (P)	3.5	32.8	80.91	93.08	98.84	100.00	100.00

TABLE 4.2

COMPUTED VALUES OF MEDIAN POPULATION THRESHOLDS (MPTS) AND MPT INDICES FOR SETTLEMENT FUNCTIONS (SOCIAL AMENITIES) IN BHILWARA DISTRICT - 1971

S. No.	Social Amenities	MPT	MPT Index
1.	A. Education		
2.	1. Primary School	494	1.00
3.	2. Middle School	2370	4.80
4.	3. Higher Secondary and Secondary School	4700	9.50
5.	4. College	15000	30.40
6.	B. Medical		
7.	5. Dispensary	1824	3.6
8.	6. Family Planning Centre	4233	8.20
9.	7. Hospital	5540	11.2
10.	8. Health Centre	6718	13.6
11.	9. Maternity and Child Welfare Centre	12912	26.1
12.	C. Communication		
13.	(a) Transport		
14.	10. Kutcha Road	824	1.7
15.	11. Pucca Road	2197	4.4
16.	12. Railway Station	11060	22.4
17.	(b) Postal		
18.	13. Post Office	1265	2.6
19.	14. Telephone Centre	6029	12.2
20.	15. Postal and Telegraphic Centre	6770	13.7
21.	D. Electricity		
22.	16. Power Supply	2670	5.40
23.	E. Drinking Water		
24.	17. Tap	6060	12.3

Note: The value of Median Population Threshold have been computed by the method based on Modified Reed Muench Technique.

amenities found in a settlement are added together. The composite score thus obtained is termed as the total mass or composite score of MPTI of that settlement. On this criterion total mass value for each of the settlement of Bhilwara district, has been worked out. The Table 4.2 shows the salient facts regarding the relative importance of social amenities of the area under study.

The classification of amenities have been shown in Table 4.2 on the basis of their composite scores. It is quite clear from Table 4.3 that two out of all the amenities in the district come under lowest level i.e. the sixth order. These amenities are primary schools and post offices. On the other hand, college, maternity and child welfare centres, and railway station, have come under the first order category.

4.2 Classification of Settlements by Hierarchic order

The classification of settlements of Bhilwara district is based on the composite scores of median population threshold indices of social amenities.

TABLE 4.3

CLASSIFICATION OF FUNCTIONS BY THEIR RELATIVE IMPORTANCE BASED ON THEIR COMPOSITE SCORES OF MPT INDICES IN BHILWARA DISTRICT - 1971

Functional Order No.	CSMPT* Indices	No. of Functions	Percent to total	Functions (Amenities)**
6th	0-30	2	11.8	P.S. P.O.
5th	3.1-6.0	5	29.4	M.S., K.R., Elect (P.S.) Disp. P.R.
4th	6.1-9.0	1	5.8	F.P.C.
3rd	9.1-12.0	2	11.8	H.S., Hosp.
2nd	12.1-15.0	4	23.6	T.C., P.T. Tap H.C.
1st	15.1 & above	3	17.6	College, MCW & R.S.

* CSMPT - Composit score of Median Population Threshold Indices of social facilities.

** Abbreviation for amenities have been used on the basis of functions given in Table No. 3.1

It is clear from Table 4.4 that 649 settlements are with no amenities whatsoever about. There are 59 per cent settlements and four towns which have social amenities. The composite score ranges between zero to 29.0 in seventh order of hierarchy of settlements. The vertical hierarchical classification of settlements is based on composite scores in relation to their distribution in Bhilwara district (Fig. 10, Table 4.4).

4.2.1 First Order Settlements

Bhilwara district headquarter is designated as Class II town in the census of 1971. The composite score of Bhilwara town is 339.5, as the first ranking settlement.

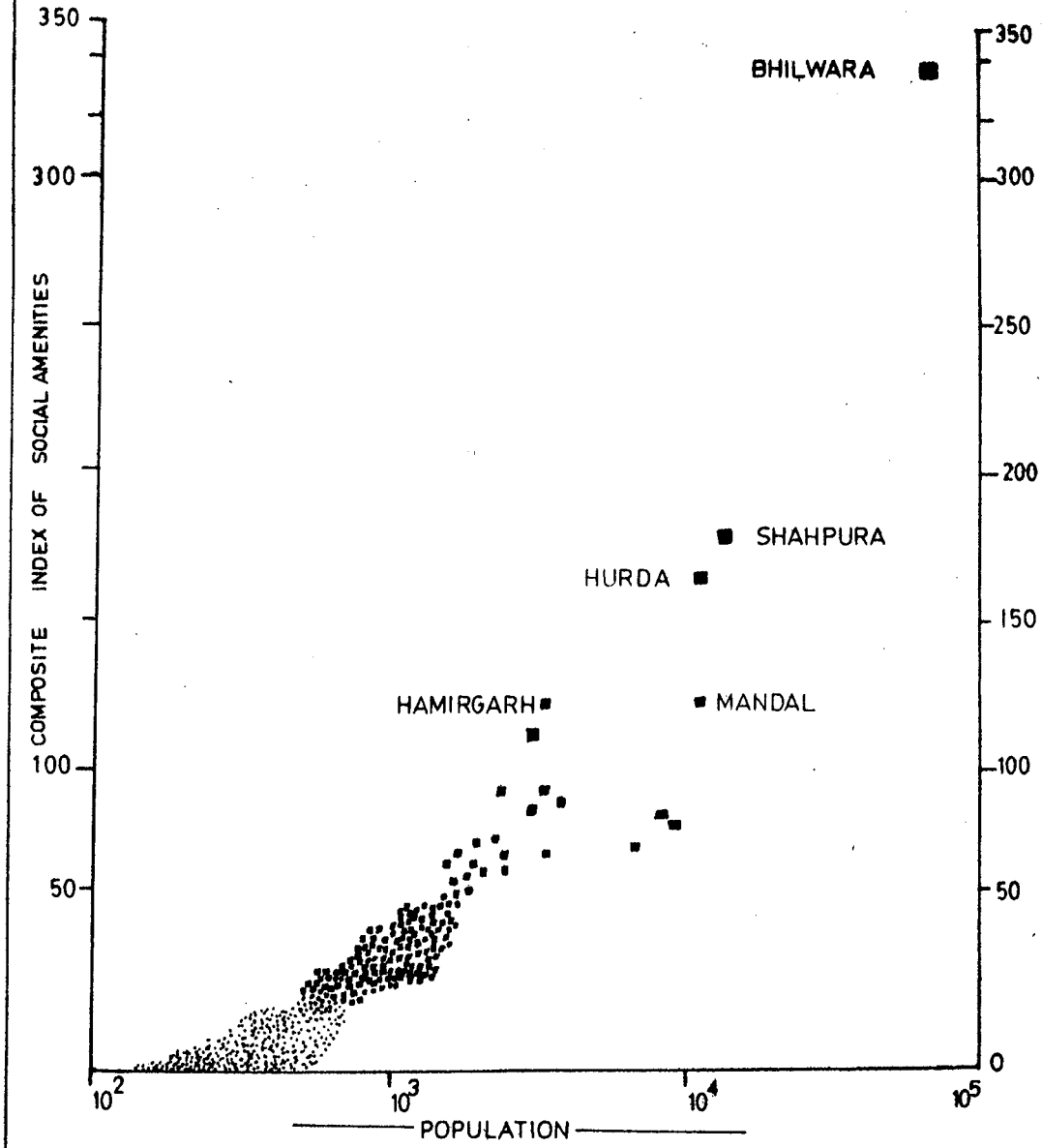
4.2.2 Second Order Settlements

There are two settlements in second order. One is town Shahpura and another one is Hurda. This village is the largest settlement. It has population above 10000. Both these settlements lag far behind Bhilwara in terms of composite scores. Shahpura is a better developed town because it is prominent educational and commercial town. Hurda village is comparatively small than Shahpura town. According to census of 1971, Gulabpura village has been included in Hurda Tehsil headquarter. Consequently, it

BHILWARA DISTRICT

CLASSIFICATION OF SETTLEMENTS

BASED ON COMPOSITE INDEX OF SOCIAL AMENITIES



NUMBER	1	2	3	6	11	79	821
RANK	I	II	III	IV	V	VI	VII

FIG. 12

TABLE 4.4

HIERARCHIC ORDER OF SETTLEMENTS IN BHILWARA DISTRICT

Hierarichic Orders	Range the level of C.S.	No. of settlements	% of Settlements	Name of settlement of the first to five order
VII B	Zero	649	41.28	
VII A	0.0-29	1470	93.51	
VII	0.1-29.0	821	52.23	
VI	29.1-58.0	79	5.03	
V	58.1-87.0	11	0.70	Badnore, Bagore, Asind, Shahra, Koshithal, Nandrai, Fulhiya, Mangrop, Shakargarh, Petlan, Kareda
IV	87.1-116.0	7	0.44	Jahazpur, Gangapur, Mandalgarh, Kotri, Raila, Banera, Raipur.
III	116.1-145.0	2	0.13	Hamirgarh, Mandal,
II	145.1-174.0	2	0.13	Shahpura, Hurda
I	174 and above	1	0.06	Bhilwara

has high composite score of social amenities. Gulabpura village is situated a railway line from Ajmer to Udaipur. In addition to railway transport facility it has also bagged maximum social amenities. Two main characteristics is observed i.e. there is one college and one railway station. Since both these facilities have high weightages, Gulabpura falls within the second order of settlement in terms of hierarchy. On the other hand, Shahpura is a town. There is one college and maximum number of amenities.

4.2.3 Third Order Settlements

There are two settlements in the third order of hierarchy. The maximum amenities have been observed in Hamirgarh village followed by Mandal village. Hamirgarh village is also included in this category. It can be noted that Hamirgarh is not tehsil centre, but it has maximum number of amenities. All are having first order of amenities shown in Table 4.3 like railway station and maternity and child welfare centre. By virtue of presence of railway stations, Mandal and Hamirgarh fall within higher MPT indices. (Table 4.4, Fig. 8).

4.2.4 Fourth Order Settlements

There are six settlements included in this category. One of them is town Jahazpur and another four are tehsil

headquarters. There is only one village Raila found in this order of settlement hierarchy. The tehsil centres are namely Mandalgarh, Raipur, Kotri and Banera, may be noted that no one has Railway Station and College amenities. The existing amenities belongs to high order of amenities. (Table 4.3).

4.2.5 Fifth Order Settlements

It includes eleven villages. All these villages have large variation in population ranging from 1000 to 10,000 persons. These villages are having social amenities of Hospital, Higher Secondary and Secondary Schools. All are located along pucca roads. Asind and Shahra also have been included in fifth order although both are tehsil centres.

4.2.6 Sixth Order Settlements

There are 79 villages in the sixth order of settlements of hierarchy. Mostly villages belong to population size of 1000 to 5000 persons. They have no medical or communicational amenities. However, kuccha road, dispensary, Middle School, Power Supply and pucca road facility are available.

4.2.7 Seventh Order Settlements

There are 1470 villages below the composite score of 29. All have been included in this category. It has been recorded that most of the villages are nill in social amenities i.e. 41.28 per cent of total settlement. The villages have primary schools, post offices, dispansaries and kaccha roads. Table 4.4 shows a detailed account of the distribution of social amenities in the villages belonging to this category. Roughly 23.5 per cent of the total villages fall under this category.

4.3 Levels of Development

Development is a multi-dimensional phenomena.[7] Social scientists define it in different ways stressing its various aspects. The levels of development based on social amenities manifest in itself the level of development. In the present study the levels of development have been identified at village and tehsil levels. Tehsil is one of the administrative units which is more or less stable. Hence it becomes very important for micro-level planning.

The values of composite scores as computed on the basis of Median Population threshold have been used to account for the levels of development. It is worked out on the basis of each major category of social amenities

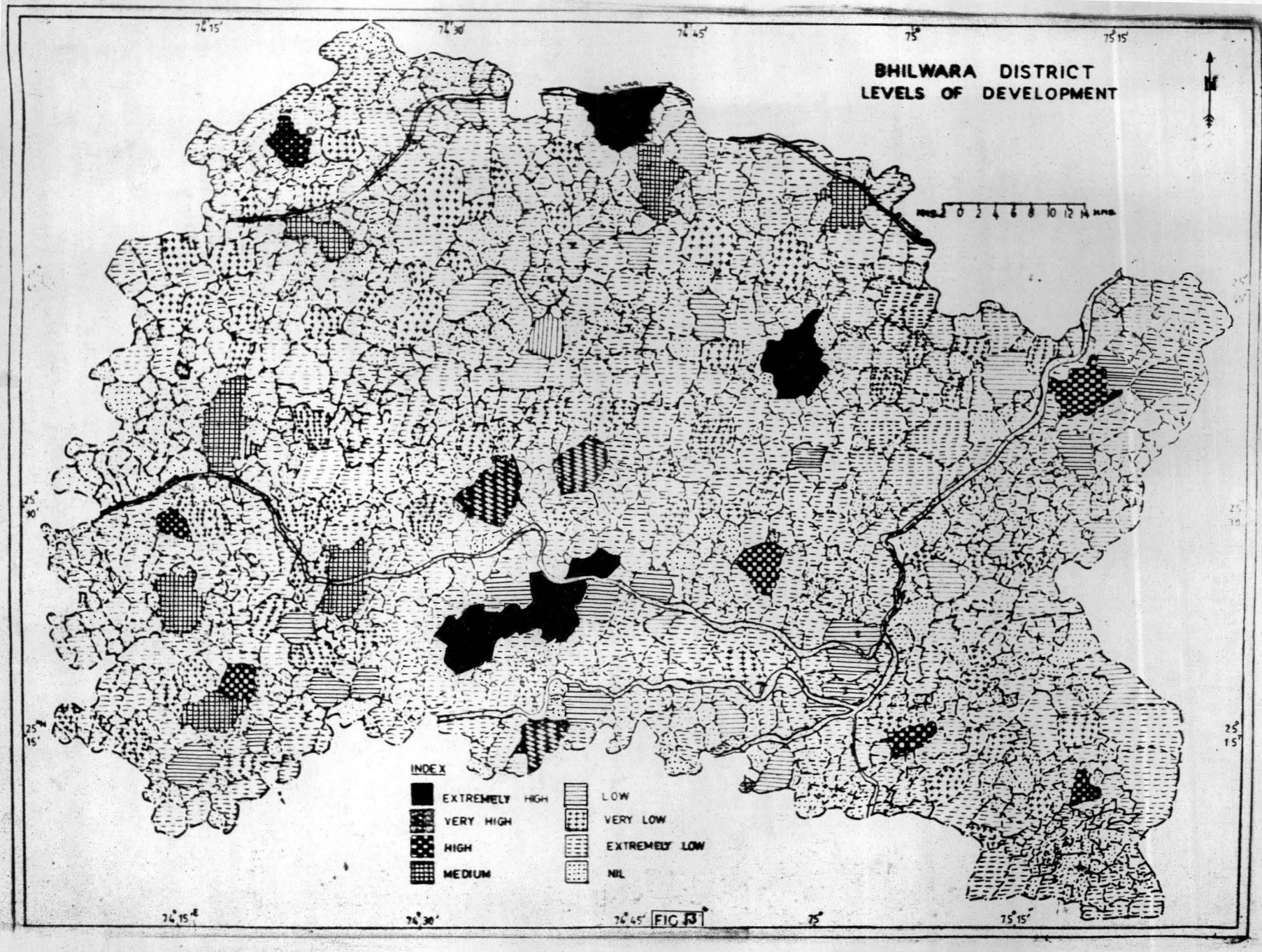

BHILWARA DISTRICT
LEVELS OF DEVELOPMENT
0 2 4 6 8 10 12 14 KMS
INDEX
EXTREMELY HIGH
VERY HIGH
HIGH
MEDIUM
LOW
VERY LOW
EXTREMELY LOW
NIL
74°15'
74°30'
74°45'
75°
75°15'
25°30'
25°15'

FIG 13

grouped in seven levels. In the following paragraphs these levels are discussed.

4.3.1 Extremely High Level of Development

Bhilwara indicates extremely high level of development of social amenities with a composite index value of 339.595. There are three settlements which are included in extremely high level of development. These settlements with their values of composite scores are Bhilwara 339.5, Shahpura 179.1 and Hurda 169.2. At present Bhilwara is the largest urban settlement in the district. The development of transport facility during colonial times provided easy accessibility and interaction. It also contributed in the development of educational, medical, communicational and above all administrative functions. As a result many amenities were set up at Bhilwara during colonial period. Although Shahpura has no railway facility but institutions for higher education i.e. college had been set up. That is why it occupies the second rank in terms of the development of social amenities. Hurda village is also included in this category. Although it belongs to rural community but there is a railway station and college situated in the village. The proposed zinc smelter under construction at Agoocha village will also have an impact on the further

TABLE 4.5

LEVELS OF DEVELOPMENT IN BHILWARA DISTRICT AS BASED ON COMPOSITE SCORE OF SOCIAL AMENITIES - 1971

Category (1)	Name of Settlement (2)	Tehsil (3)	Composite Score (4)	Code No (5)	
Extremely high level	1. Bhilwara (town)	Bhilwara	339.5	34a	III
	2. Shahpura (town)	Shahpura	179.1		I
	3. Hurda	Hurda	169.2	15	
Very high level	1. Mandal	Mandal	126.3	156	
	2. Hamirgarh	Bhilwara	123.7	89	
	3. Rayla	Bnera	100.2	16	
High level	1. Mandalgarh	Mandalgarh	97.5	111	
	2. Kotri	Kotri	96.6	55	
	3. Jahazpur (town)	Jahazpur	85.5	47	II
	4. Gangpur (town	Sahara	84.6		IV
	5. Bijoliyan	Mandalgarh	84.4	248	
	6. Raipur	Raipur	83.5	32	
Medium level	1. Badhore	Asind	80.0	38	
	2. Bnera	Bnera	76.9		
	3. Bagore	Mandal	72.6	138	
	4. Koshithal	Sahara	71.9	2	
	5. Asind	Asind	67.5	22	
	6. Phooliyan Kalan	Shahpura	66.3	36	
	7. Sahara	Sahara	62.0		
	8. Mangrope	Bhilwara	61.7		
Low Level	1. Rupaheli	Hurda	55.4	25	
	2. Bigod	Mandalgarh	52.8	75	
	3. Sreiri	Bnera	51.4	70	
	4. Nandrai	Kotri	50.8	126	
	5. Shakargarh	Jahazpur		121	
	6. Potlan	Sahara	46.0	64	
	7. Karai Kalan	Bhilwara	45.1	60	
	8. Lakhola	Sahara	44.8	84	
	9. Suwana	Bhilwara	44.5	26	
	10. Peeploond	Jahazpur	44.5	77	
	11. Paroli	Kotri	44.5	120	
	12. Gurla	Bhilwara	43.8	64	
	13. Kothiyan	Shahpura	41.4	2	
	14. Amli	Sahara	40.5	47	
	15. Kachola	Mandalgarh	40.4	2	
	16. Bhagwanpura	Mandal	40.4	87	

development of the village Hurda (Table 4.5).

4.3.2 Very High Level of Development

In the pyramid of development, the present set includes only three settlements namely, Mandal, Hamirgarh and Rayla with composite score of 123.7, 120.5 and 100.2 respectively. Mandal is the thehsil headquarter, and all have facility of railway station. Hamirgarh is one of the important rural settlements in Bhilwara tehsil, it has maternity and child welfare centre, secondary school and telephone centre. The village is located at the bank of the river Banas which is a permanent source of drinking water through taps. Mandal village has a higher secondary and secondary school, hospital, postal and telegraphic amenities and drinking water and it is also connected with a metalled road. Rayla village is important village in terms of population, after Bnera in Bnera tehsil . It has railway station, hospital, postal and telegraphic amenities

4.3.3 High Level of Development

This category consists of six settlements, namely Mandalgarh, Kotri, Mahazpur, Gangapur, Bijaligan and Raipur. The range of composite score varies from Raipur

with 83.5 to Mandulgarh with 97.5 . Two of them Gangapur and Bijoliyan are not tehsil headquarter. Although Gangapur and Jahazpur both are urban settlements and Mandal, Hamirgarh, Rayla and Mandalgarh all rural settlements, the later have high composite scores of social amenities.

4.3.4 Medium Level of Development

There are only 8 settlements in the category of Median level of development. The range of composite score varies from Mangrope with 61.7 to Badnore with 80.0. The settlements are Badmore (Asind) Bnera (Bnera), Bagore (Mandal), Koshithal (Sahara), Asind (Asind), Phooliyan Kalan (Shahpura), Sahara (Sahara) and Mangrope (Bhilwara). Asind, Bnera and Sahara are tehsil headquarters. It is interesting to note that although Sahara and Asind are tehsil headquarter, they do not have maximum amenities. (Table 4.5).

4.3.5 Low Level of Development

There are 16 settlements in this category. The range of composite score varies from Bhagwanpura with 40.0 to Rupaheli with 55.4. Existing amenities in these settlements are middle schools, post offices and dispansaries.

Fig. 13 and Table 4.5 shows uneven distribution of social amenities. Suwana, Piploond and Paroll have uniform scores i.e. 44.5. There are secondary schools, post and telegraph and hospitals situated in these villages.

4.3.6 Very Low Level of Development

In the fifth category of development, there are 43 villages. The range of composite scores of social amenities in these settlements varies from Upreda with 20.0 to Jalindri with 37.4. Most of the villages are situated in Shahpura (six) tehsil. On the other hand, in Kotri tehsil there is only one village Barllyas which has a composite score above 20.0 It is clear from Fig. 13 that some tehsils have maximum number of villages in category of high development, and less numbers in low level of development , Bhilwara tehsil and Sahara tehsil are such examples.

4.3.7 Extremely Low Level of Development

It is interesting to note that there are 844 settlements under extremely low level of development. It is observed that they either have only one primary school (1.00 composite score) or one post office. The following

TABLE 4.6

LEVELS OF DEVELOPMENT IN BHILWARA DISTRICT IN VERY LOW CATEGORY DURING 1971

Category (1)	Sl. No. (2)	Name of Settlement (3)	Tehsil (4)	Composite score (5)	Code No (6)
Very Low Level	1.	Jalindri	Mandalgarh	37.4	148
	2.	Meian	Mandal	34.8	163
	3.	Pander	Jahazpur	34.8	48
	4.	Agoocha	Hurda	33.2	19
	5.	Dabla	Bnera	33.2	3
	6.	Ropan	Jahazpur	33.2	39
	7.	Mokhunda	Raipur	31.4	67
	8.	Nimbahera	Asind	31.4	192
	9.	Lambiya	Bnera	30.6	34
	10.	Krera	Mandal	30.2	40
	11.	Applyas	Hurda	30.2	59
	12.	Borana	Raipur	30.2	73
	13.	Jarol	Raipur	28.4	18
	14.	Mahendragarh	Sahara	28.4	48
	15.	Basenara	Shahpura	27.9	44
	16.	Sanodiya	Hurda	27.8	54
	17.	Dhosar	Sahara	26.6	51
	18.	Amargarh	Mandalgarh	25.9	153
	19.	Knechan Kalan	Shahpura	24.8	37
	20.	Amarwas	Jahazpur	24.5	30
	21.	Sorar	Hurda	24.5	41
	22.	Yamoli	Jahazpur	24.0	63
	23.	Bhukonipura	Hurda	23.7	53
	24.	Gyangarh	Mandal	23.7	9
	25.	Majhawas	Sahara	23.7	71
	26.	Sankhla	Sahara	23.7	29
	27.	Bhoonas	Bhilwara	23.7	50
	28.	Tharoda	Mandalgarh	23.6	162
	29.	Shyampur	Mandalgarh	22.7	137
	30.	Daultgarh	Asind	21.8	149
	31	Bemali	Mandal	21.6	69
	32.	Bhopalgarh	Bhilwara	21.0	76
	33.	Mindliya	Shahpura	20.9	32
	34.	Barliyas	Kotri	20.9	108

Contd...

(1)	(2)	(3)	(4)	(5)	(6)
	35.	Kamor	Shahpura	20.3	
	36.	Baaroodni	Mandalgarh	20.0	87
	37.	Lunari Kalan	Jahazpur	20.0	36
	38.	Ariya	Bhilwara	20.0	14
	39.	Tilali	Asind	20.0	157
	40.	Sareri	Asind	20.0	173
	41	Upreda	Bnera	20.0	27
	42	Itariya	Shahpura	20.0	9
	43	Amlikalan	Shahpura	20.0	

reasons account for extremely low level of development in these settlements of Bhilwara district.

(i) Firstly, there are 87 per cent settlement in population size of less than 1000. It is a fact that they are not having minimum population which is necessary for the establishment of higher functional order of amenities.

(ii) Second reason is that, some villages are very far from urban centre, that is why they have no supply of electrification and pucca road facility and other communication facilities. For example, Rayla stands at the second order of hierarchy due to railway station facility. Asind stands on the other hand at the third order of hierarchy, although population is higher than Rayla.

The above discussion have been involved the composite score of social amenities for each settlements and find out the levels of development. The M.P.T.I. (Median of Population Threshold Index) Method have been used for the value of composite score. On the basis of composite score hierarchical order of settlements have been observed. The second part of the chapter deals with the levels of development based on composite score of social amenities in each settlement. All settlements have been categorised in seven

levels. Bhilwara, Shahpura and Hurda have been found in extremely high level on the basis of social amenities. The maximum villages have been observed in extremely low level. It shows inequality in development of social amenities.

It means such settlements are lacking most of the essential social facilities for example, primary school, kachha road, dispensaries. Thus, it may be concluded that a large number of settlements lacking for essential required amenities.

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CHAPTER V

CHAPTER V

SOCIAL AMENITIES AND THEIR CORRELATES

The spatial distribution of social amenities in an area reflects its socio-economic development. Natural, environmental, technological and institutional factors play an important role in determining the provision for the location of social amenities. At times political decisions generally taken in respect of locational planning and amenities distort the pattern of excepted relationship. Some factors, however, are identifiable as major factors influencing the distribution of social amenities.

5.1 Choice of Variable

In this chapter an attempt has been made to analyse the relationship between the distribution of social amenities (the explained variable) and a set of five explanatory variables. The data has been computed at village level, where social amenities are available, for all the 923 inhabited settlements. (Table 5.1).

TABLE 5.1

THE SELECTED VARIABLES FOR THE STUDY

S.No.	Symbol	Variable	Abbreviation
1.	Y	Explained Variable	
		Composite score of social amenities (Dependent Variable	CS
2.	X_1	Explanatory Variable	
		Size of settlement	SZ_1
3.	X_2	Density of Population (per acre)	DP
4.	X_3	Literacy rate	Lit
5.	X_4	Distance from the nearest urban centre	DU
6.	X_5	Percentage of primary workforce to the total Workforce	PWF

5.1.1 Composite Score of Social Amenities: The Explained Variable

As many as 17 amenities have been taken into account for computing the value of the composite scores of social amenities. The computation of score of each facility is based on the 'Median Population Threshold Index' (MPTI) (Table 4.3) of that amenity as computed according to the modified Reed Munech Method.[1] This method provides an

index to determine the relative importance of functions or amenities with each other. Therefore, the value of the composite score of social amenities is computed by a non-arbitrary rule.

5.1.2 Explanatory Variables

The existence of infrastructural facilities is primarily a function of mutual interaction between men and men. It is the frame of society which constrains the proper rate of development based on technology and consequently, the development of infrastructural facilities is also affected by it. Thus, the regional variation in the spatial distribution of social amenities mirrors the magnitude and the nature of interplay among these sets of variables.

The following five variables have been chosen to examine their relationships with the spatial distribution of social amenities.

5.1.3 Size of Settlement

The first variable is population size of settlement. While the distribution of population in a region is influenced by its natural landscape, it's spatial patterns are determined by the existing spatial organisation of

social activities. It is assumed that an increase in the size of settlements would result in a considerable scope of development of social amenities. As such, the settlement size has been taken into account as an independent variable to explain its mode of relationship with social amenities.

The hypothesis is that the population size of settlement has a positive relationship with the magnitude of the social amenities. The larger size settlement has maximum number of amenities.

5.1.4 Density of Population

The density of population is an important indicator of population pressure on land. It is worthwhile to understand the relationship between the density of population and the distribution of social amenities.

The underlying hypothesis here is that the higher the density of population the higher is the degree of distribution of social amenities.

5.1.5 Literacy Rate

The rate of literacy determines the quality of population in a district. The literacy of population helps to bring the sense of awaking among people towards socio-

economic development of the society. The literacy rate has been taken as one of the important independent variables for examining its relationship with the distribution of social amenities.

The underlying hypothesis here is that higher the rate of literacy the higher is the level of distribution of social amenities in a given settlement.

5.1.6 Distance of Settlement from the Nearest Urban Centre

The rural settlements are dependent on the towns located nearest to them for a number of social amenities. If the distance of the urban centre from a rural settlement is not much, the villagers would have better interaction and would avail the facilities available there. On the other hand, if the distance is more of the lower order amenities will have to be made available within the village itself. In order to examine the nature of relationship between the distribution of social amenities and the distance factor of settlements, the distance of rural settlements from the nearest urban centre has been selected as one of the independent variable in the present analysis.

The hypothesis is that higher the distance from urban centre, lower the composite score of amenities and vice-versa.

5.1.7 Primary Work-force to Total Work-force

The level of socio-economic development of an area is not only reflected in the proportion of its working population but also through the relative distribution of its labour-force among different occupations. In agrarian economies the share of primary work-force in the total work-force determines the characteristics functional organisation of the area concerned. Consequently, the spatial organisation of social amenities is oriented to serve the needs of an agrarian economy. But the level of distribution of such facilities is generally low.

The hypothesis envisaged here is that the higher the share of primary work-force to the total work-force the lesser social amenities are available in the settlement.

The identification of the actual relationships among the variables has been worked out through two specific stages.

i) In the first stage, the contribution of each added variable in explaining the dependent variable i.e. composite score of social amenities has been found out with the help of value of R^2.

ii) In the second stage, observing the change in the value of R^2, the relevance of the inclusion of each added variable is tested.

TABLE 5.2

COMPUTED VALUE OF ARITHMETIC MEAN, STANDARD DEVIATION AND CO-EFFICIENTS OF VARIATION OF THE VARIABLES

S.No.	Variables Abbreviations Symbol	Mean Value	St. D.	C.V.
1.	Composite Score of Social Amenities (numbers) Y	81.24	187.07	230.26
2.	Size of Settlements (Persons) X_1	953.93	2904.27	304.45
3.	Density of Population (P/Acre) X_2	26.73	24.14	90.33
4.	Rate of Literacy (Per cent) X_3	7.60	5.96	78.40
5.	Distance from nearest Urban Centre (KM.) X_4	33.67	15.15	45.40
6.	Proportion of Primary Work-force (Per cent) X_5	83.96	22.69	27.03

5.2 General Characteristics of the Variables

The mean value of composite score of social amenities (X) is 81.24 which indicates a low value; because composite score of X ranges between 1.0 to 339.5 for all observations. Only larger size of settlements experienced the composite score above the calculated mean value. The variation among the observations as calculated by the standard deviation recorded about 187.07 which is higher than mean value. It shows that there is very high variation among the observations of the composite score values. Another measure of variation i.e. co-efficient of variation calculated about 230.3 per cent indicates that the standard deviation is about 230 per cent of the mean value, confirming the aforesaid statement.

The average size of settlement in the district is worked out to be 954 persons. However, it has been observed that urban settlement and larger size of rural settlements has maximum population. It is ranging from about 42 persons (Arjunpura, Asind Tehsil) to 82,155 persons (Bhilwara). That is why the maximum variation in the mean values, of all the variables, is found in the size of settlements. The co-efficient of variation in this variable is computed to be 304.46 which is quite high. The third variable which is used as independent variable is density of population. The mean

value of density of population (X_2) is 27 persons per acre. The variation among the observations as calculated by the standard deviation is 24.14 which is slightly lower than the mean value i.e. 26.73. It shows that there is a very high variation among the observations of the composite score values. Another measure of variation i.e. co-efficient of variation is 90.33 per cent which indicates the standard deviation is about 90 per cent of the mean value and confirms the aforesaid statement (Table 5.2). The arithmatic mean of literacy rate is worked out to be about 7.60. The larger size of settlements experienced the high literacy rate on the other hand, small size of settlements either have very negligible literacy rate or it is nil. The co-efficient of variation is 78 per cent.

The average distance of a village from its nearest urban centre is about 34 kilometres. The variation among the observations as calculated by the standard deviation is 15.16. It shows that there is high variation among the observations. The co-efficient of variation is calculated to be 45 per cent which indicates that the standard deviation is about 45 per cent of the mean value and it confirms the aforesaid statement (Table 5.2).

The arithmatic mean of a primary work-force stands at 83.96. Here the logic is that larger size of settlements will have low proportion of primary work-force and vice-versa. The variation among the observations as calculated by the standard deviation is 22.69. Another measure of variation i.e. co-efficient of variation is calculated about 27.03 per cent, which indicates that the standard deviation is about 27% of the mean value.

5.3 Statistical Methods

5.3.1 Regression Analysis

The computed results of step-wise regression analysis* shows that the size of settlement X_1 explains the maximum proportion of variation in the distribution of social amenities. The obtained R^2 value stands at 63.66 per cent which indicates that about 64 per cent of variation in

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* In a written expression, it takes the form as

$Y_i = a + b_1 x_1 i + b_2 x_2 i + b_3 x_3 i \ldots\ldots b_n x_n i$

where Y = dependent variable

x_1 to x_n = Independent Variables

a = intercept

$$t = \frac{r}{\sqrt{1 - r^2}} \sqrt{r - 2}$$

composite score of social amenities is explained by this variable only. The first step of the computed equation is as follows:

$$Y = 32.21 + \underset{(0.0013)}{0.051\ X_1}^{*} \qquad R^2 = 0.6366$$

* Significant at 9999 per cent level.

The correlation co-efficient between Y and X_1 is 0.797 which indicates a high degree of correlation (Table 5.2).

5.3.2 The Second Step

In the second step, taking the X_3 variable (rate of literacy) into account, the R^2 value increased by 0.0695 which indicates that about 70.6 per cent of the variation in composite score of social amenities is explained by X_1 and X_3 variables. The final computed equation is as follows:

$$Y = 30.28 + \underset{(0.0012)}{0.0425\ X_1}^{*} + \underset{(0.6325)}{9.33\ X_3}^{*} \qquad R^2 = 0.7061 \qquad F = 0.1105$$

* Significant at the 9999 per cent level.

The correlation co-efficient between Y and X_3 is 0.602 (Table 5.3), which indicates a high degree of correlation. The co-efficient of correlation between X_1 and X_3 is as high as 0.4623 (Table 5.3), which is less than the r value between

Y and X_1 as well as Y and X_2. The coefficient of correlation between X_1 and X_3 is as high as 0.4624 (Table 5.3).

It is clear from the step-wise regression analysis that the values of F ratio are significant in both steps of the analysis at 1.0 per cent level of significant. Thus, it is obvious that the relationship of independent variables given in the step second with the dependent variables (Y) may be identified as an optimal fit. The results given in two steps show that the size of settlement (X_1) and the rate of literacy (X_3) are the most significant variables.

5.3.3 Correlation Matrix

On the basis of the correlation coefficients one is led to accept five hypotheses. The Table 5.3 shows correlation between amenities and each variable recorded as accepted.

TABLE 5.3

CORRELATION MATRIX
(Correlation Co-efficient of the Variables)

Variables	Y	X_1	X_2	X_3	X_4	X_5
Y	1.000	0.797	0.667	0.602	-0.159	-0.335
X_1		1.000	0.684	0.462	-0.141	-0.274
X_2			1.000	0.703	-0.275	-0.547
X_3				1.000	-0.204	-0.52
X_4					1.000	0.186
X_5						1.000

The Table 5.3 shows that amenities have positive correlation with size of settlement (X_1) density of population (X_2) and rate of literacy (X_3), on the other hand remaining two variables have negative correlation with social amenities (Y). It is also noted that although the calculated values of correlation matrix are in accordance with the hypotheses led, some of them i.e. distance from nearest urban centre (X_4) and primary work force (X_5) are weak.

5.4 Required Population Threshold for Establishment of Social Amenities

On the basis of population threshold there are 158 villages which require the establishment of various amenities. It is observed that there are about 10 per cent settlements out of total settlements which have necessary population for amenities but they do not have amenities. In case of educational amenities there are 50 villages which are without primary schools, although they have sufficient population, for primary school (above 494 persons). There are four villages in a need of middle schools according to population threshold.

The maximum villages are in Mandalgarh tehsil with ten villages followed by Mandal tehsil with eight villages. In case of communicational amenities, there are 92 villages

having population for kachha road but they do not have such facility. In Jahazpur tehsil maximum villages are lacking in Kachha road facility (25 villages) followed by Shahpura and Bnera, both are having 14 villages in each tehsil. There are 26 villages having population threshold for pucca road (2197 persons) but all are lacking in this amenity. In case of medical amenities there are 18 villages for dispansaries and 15 villages for health centres. The above discussion shows that about 10% villages of total villages are in need of setting up of various social amenities.

5.5 Locational Planning for Regional Development

5.5.1 A Normative View:

Most of the planning decisions for the location of establishments of social amenities are usually taken on the basis of political considerations.

A district is a compact areal unit for micro-level planning. For community development, tehsil may be taken as yet another level for micro-level planning. There might be two approaches for micro-level planning.

1. Indicative planning, i.e. identification of the less developed area.

2. Locational Planning i.e. the exact location where the facility has to be established.

5.5.2 Indicative Planning

In the present study an endeavour has been made to indicate as to how a particular tehsil should be chosen for locating the facility. The tehsil arranged in decending order on the basis of the levels of development and amenities available. Thus, for the given amenity the tehsil of the last rank would be given first priority. If there are two or more such units then all of them in rank order are bracketed together and they all would be considered for equal priority. The Table 5.4 shows that in case of primary school establishments, Shahpura tehsil has maximum number of settlements having amenities (per 100 settlement) while Mandulgarh tehsil is the lowest in order. Therefore, Mandalgarh tehsil has to be given first priority in establishing more primary schools.

5.5.3 Locational Planning

The next problem of a district planners is that of a tehsil which has no settlements with required population threshold for a particular amenity. Then the next 4 tehsils in the list of priorities will become the first tehsil. For example, Shahpura gets first priority for having middle

schools. But there is no such settlement with 2148 persons for required population of middle school. Thus, Bnera which has a settlement named Sardarnagr (location code no. 73) with a population 2211 persons qualifies to get a middle school.

An attempt has been made to identify the settlements by tehsils requiring establishment of certain social amenities Table 5.4 recognises the district of Bhilwara which are in need of certain amenities.

The Table 5.4 shows that the first priority for primary school should be given to Mandalgarh and second Jahazpur. The priority for the establishment of middle school should be given first to again Mandalgarh and second to Bnera. The priority for higher secondary and secondary school has to be given Shahpura and second to Mandalgarh. For other amenities refer to Appendix 7.

The hypotheses have been examined in the light of the results of multiple regression analysis which indicate the type of relationship between the distribution of social amenities and their correlates. However, out of five validated hypotheses two size of settlement and rate of literacy is significance and remaining three variables

TABLE 5.4

TEHSIL-WISE DETERMINATION OF PRIORITY ORDERS TO PLAN FOR LOCATING EDUCATIONAL AMENITIES IN BHILWARA DISTRICT - 1971

Priority Order*	Tehsils by priority orders for the planning of Educational Amenities		
	Primary School	Middle School	Higher Secondary & Secondary School
1.	Mandalgarh	Mandalgarh	Shahpura
2.	Jahazpur	Banera	Mandalgarh
3.	Asind	Bhilwara	Bhilwara
4.	Kotri	Shahpura	Jahazpur
5.	Mandal	Jahazpur	Asind
6.	Sahara	Asind	Sahara
7.	Raipur	Mandal	Raipur
8.	Bhilwara	Kotri	Banera
9.	Banera	Hurda	Kotri
10.	Hurda	Raipur	Mandal
11.	Shahpura	Sahara	Hurda

* Priority orders are based on the tehsil-wise ranking of social amenities development.

have weak relation with social amenities. Finally, it is suggested that which tehsil should be given first priority and which would be in the last priority category. The priority of tehsils has been calculated on the basis of social amenities per hundred settlement and levels of social amenities development which has observed in each tehsil on the basis of this observation locational planning has been suggested.

CHAPTER VI

CHAPTER VI

CONCLUSION

This research identifies intra-district variation of social amenities at tehsil and village level. It has been observed that some areas enjoy maximum social amenities and some areas lack in development of amenities.

On the basis of existing social amenities levels of development have been ascertained and some areas which are lacking in certain amenities have been suggested for planning on priority basis. Admittedly, the study is theoretical and does not take into consideration various political and other interventions. However, it is hoped that an inventory of the social amenities and an explanatory exercise of deficient area is the first step towards effective planning.

The analysis reveals the levels of development, based on social amenities in Bhilwara district. The following main points have been observed in this research.

(i) The maximum number of settlements fall in the size class of 200-499 persons. According to the analysis of lorenz curve maximum number of population is accommodated in population size class of 500-999 persons. The maximum number of settlements having social amenities are concentrated in the population size class of 1000-1999 persons. The maximum number

of small size settlements are situated in Mandalgarh tehsil. Consequently, this tehsil has minimum social amenities.

(ii) The rural areas of the district are poor in educational amenities. This observation is based on the distribution of primary schools. There are 50 villages which have the threshold population required for setting up of primary schools but they do not have this facility. Even primary schools are located in only 45 per cent of total rural settlements.

(iii) The distribution of educational amenities per 100 settlements shows that there are 45 primary schools, 6 middle schools, 2 secondary and higher secondary schools and 0.06 colleges in Bhilwara district.

(iv) Second indicators, i.e., medical amenities shows that there are 7 dispansaries, 1.59 hospitals, 1.33 health centres, 0.70 maternity and child welfare centres and 2.23 family planning centres per 100 settlements.

(v) About 24 settlements are accessible by unmatalled roads (kachha road). On the other hand, 12 settlements are served by metalled roads and only 0.70 villages have railway station facility per 100 villages. It is also noted that in terms of communicational development, one town i.e. Bhilwara has railway station facility.

(vi) Every seventh settlement has one post office. The telephone centre facility is, however, confined to some of the large size of rural settlements.

The relative importance of the functions has been measured by population threshold method for each amenity. In the present study an effort has been made to identify the hierarchy of settlements and the levels of development on the basis of amenities. A technique of Median Population Threshold based on Modified Reed Muench Method has been employed and the MPT Indices of the Functional Mass (social amenities) of each settlement in the form of composite score of social amenities has been worked out. The conclusions are as follows:

(i) The higher order of social amenities have higher median population threshold. College, Maternity and Child Welfare Centre and railway station are some such examples. This shows that larger the size of the population of the settlement higher is the order of its functional hierarchy (Fig. 12).

(ii) On the basis of composite score of social amenities at village level, one can trace out the main trend of social development in rural areas of Bhilwara district. It is found that Hurda, Mandal and Hamirgarh are characterised by very high level of development.

(iii) Bhilwara town indicates extremely high level of development fallowed by Shahpura. The composite scores of social amenities for them being 339.5 and 179.1 respectively. It is a fact that high concentration of social amenities is generally set up in urban areas. Here situation is slightly different, it is that Jahazpur and Gangpur town stand behind Hurda Mandal, Rayla and Hamirgarh in terms of composite score of social amenities while Mandalgarh, Asind, Kotri and Raipur recorded high level. It has also been observed that Bnera, Sahara and Asind, (all three tehsil centres) come under medium level of development. (Table 4.5).

(iv) On the basis of the hierarchic order of settlements with composite score of social amenities at village level (Table 4.4) about 52 per cent of total settlements with amenities have been observed to fall under the seventh order i.e. the lowest in the hierarchic order.

(v) It is noted that about 41 per cent of settlements do not have social amenities. In other words, 649 villages have zero composite score of social amenities. This is an indication of potential requirement of

social amenities in rural areas. Another aspect is also included in the present study, which shows requirement of social amenities. About 50 villages have been identified on the basis of population threshold for primary schools which do not have primary schools although they have sufficient population. If in these villages required amenities are set up, it will decrease the disparities in the district.

The correlation analysis of social amenities and a set of different variables reveals that:

(i) The composite score of social amenities (Y) is positively correlated with three explanatory variables i.e. the size of settlement (X_1), density of population (X_2) and rate of literacy (X_3).

(ii) The composite score of social amenities (Y) is inversely related with the distance of settlement from the nearest urban centre (X_4). The correlation between social amenities and X_4 is -0.159. The composite score (Y) has negative correlation with primary workforce X_5 (-0.355).

Further, the step-wise multiple regression analysis helps us in determining the equation showing optimal

relationship between the distribution of social amenities and selected explanatory variables. The analysis X shows that the size of settlement (X_1) and rate of literacy are most significant variables and have a linear relationship with the distribution of social amenities.

The dissertation deals with the infra-district disparities at the tehsil and village level. The study for research implications for planning for the future location of such amenities in space.

District planning in India continues to be arbitrary and investment decisions are mostly motivated by political agencies. An humble attempt is made in this research to furnish an empirical framework with regard to social infra-structure and thus lay down the basis for priority decisions in the location of proposed amenities.

A P P E N D I C E S

APPENDIX I

AVAILABILITY OF AMENITIES AND THEIR INDICES IN BHILWARA DISTRICT - 1971
(PER 100 SQ. KM)

Sl. No.	Tehsil	P.S.	M.S.	H.S.S.	Coll.	DISP.	HOSP.	H.C.	MCW	FPC	P.O.	P&T	T.C.
1.	Asind	8.02	1.06	0.44	0.00	1.06	0.18	0.26	0.09	0.26	2.91	0.26	0.26
2.	Bhilwara	8.72	0.84	0.24	0.00	1.55	0.12	0.24	0.12	0.12	2.75	0.48	0.60
3.	Banera	8.12	0.44	0.30	0.00	0.74	0.15	0.30	0.30	0.15	2.66	0.30	0.15
4.	Hurda	6.97	0.81	0.65	0.16	0.81	0.16	0.49	0.16	0.49	1.78	0.32	0.49
5.	Jahazpur	7.32	1.06	0.29	0.00	1.35	0.29	0.10	0.00	0.39	3.28	0.10	0.19
6.	Kotri	6.34	0.97	0.32	0.00	0.86	0.22	0.22	0.32	0.54	2.80	0.11	0.11
7.	Mandal	7.44	0.91	0.41	0.00	1.07	0.35	0.08	0.00	0.41	1.98	0.17	0.25
8.	Mandalgarh	5.31	0.65	0.26	0.00	1.10	0.39	0.13	0.06	0.26	2.01	0.06	0.26
9.	Raipur	9.07	1.54	0.39	0.00	1.16	0.39	0.39	0.00	0.19	1.54	0.19	0.19
10.	Sahara	8.02	1.57	0.31	0.00	1.42	0.47	0.31	0.16	0.63	1.42	0.31	0.63
11.	Shahpura	9.81	0.75	0.09	0.00	1.12	0.12	0.09	0.09	0.37	1.78	0.09	0.19

Source : Census of India, 1971.

APPENDIX II

MEANS OF COMMUNICATION (VILLAGES GROUPED IN TERMS OF DISTANCE FROM THE NEAREST TOWN)

Distance from the nearest town (in km.)	Total No. of Villages	Pucca Road	Katcha Road	Pucca Road and River	Pucca Road and Rail	Kutcha Road and Rail	Others
Less than 5	42	6	6	-	-	-	-
6-10	122	24	13	-	-	-	-
11-15	162	23	36	-	-	-	-
16-25	349	38	82	-	-	-	-
26-50	604	57	141	-	4	2	2
51-100	289	35	89	-	-	-	1
101-200	-	-	-	-	-	-	-
201 and above	-	-	-	-	-	-	-

Source : Census of India, 1971.

APPENDIX III

LORENZ CURVE AND THE GINI'S COEFFICIENT

Lorenz Curve

The curve, which has long been used to measure the inequality in the distribution of wealth or income, was first expounded by M.O. Lorenz in 1905 (In his article 'Method of Measuring the concentration of Wealth", quarterly publication of the American Statistical Association 9(70): pp. 209-19, June, 1905). It has also been used to measure depict the stable of concentration of settlements population and other demographic attributes.

It basically deals with cumulative percentage distribution of the two attributes at different points. The cumulative percentage of one variable upto certain points are plotted on a graph against the cumulative percentage of the other variable upto the same points. The different points so obtained are then joined by a smooth free-hand curve. For comparison a diagonal line is also drawn, joining the last point and the origin, showing the line of equal distribution. The deviations of any curve from this diagonal is proportion to the level of inequality in the distribution of one attribute in relation to the other.* For example, see figures No. 5 given in the text part of this dissertation.

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* A. Mahmood, Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi, 1977, p. 109.

Gini's Coefficient

The overall concentration found in any Lorenz Curve may be measured numerically in terms of the ratio of the area under the curve and the line of equal distribution to the area of triangle formed by the X-axis. The X-axis and the line of equal distribution. In case value of the given variable say population is uniformly distributed, the curve will fall on the line and the area between the curve and the line would be zero. Whereas the area of the tringle would be $\frac{100 \times 100}{2} = 50000$, the ratio in this case would be $\frac{0}{5000} = 0$. In case of highest concentration, i.e. when all the settlements are concentrated only at one place, the curve will move along the X axis and then along the Y axis, such that the area between the curve and the line would be very close to the area of the triangle and the ratio would be nearly unity. This ratio, hence varies between zero and one.**

The rate mentioned above is known as Gini's coefficient (G) and can be numerically worked out by the following formula:

$$G = \frac{1}{100 \times 100} \left| \sum_{i=1}^{n} Xi\ Yi + 1 - (Xi + 1Yi) \right|$$

Where:

Xi = The cumulative percentage distribution of attribute X.

Yi = The cumulative percentage distribution of attribute Y

n = The number of observations.

G = Gini's coefficient (The ratio is between area of the tringle formed between the line of equal distribution and the Y axis and the area lying between the curve and the line of equal distribution.

APPENDIX IV

DETERMINATION OF MEDIAN POPULATION THRESHOLDS (M.P.T.) FOR SETTLEMENT FUNCTION

(Based on the Reed-Muench Technique as used by Hagget and Gunawardena*)

As a result of the complexity of locational decisions the simple concept of an 'entry level' or population threshold for providing more logical results must be replaced by one of an 'entry zone': at the lower limits of the zone all settlements lack the function while at the upper limits of the zone all settlements possess the function being considered. The purpose of this consideration is to explore this zone and to suggest a simple method for locating its centre which is termed as median threshold population. A simple bioassay method known as the Reed-Muench method which was put forward in 1938** may be used in determing the median population threshold for a settlement function.

For a settlement analogy let us assume our problem is to determine the population threshold for a function (F_1) among a group of settlements of varied sizes. The given

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* P. Hagget and K.A. Gunawardena: 'Determination of Population thresholds for settlement function by the Reed-Muench Method', Professional Geographer, Vol. XVI, No. 4, July 1964, pp. 6-9.

** I.J. Reed and H. Muench: "A Simple Method of Estimating Fifty per cent Endpoints" American Journal of Hygiene, Vol. 27, May, 1938, pp. 493-97.

table illustrates such a simple situation. Fifty settlements are selected for study, ten being drawn at random from each of five population strata. For the lowest stratum (settlements with less than 200 inhabitants) all places are without the function F_1, for the highst stratum (settlements with more than 800 inhabitants) all places have the function F_1. Between these two extremes the proportion "without" declines as "with" increases. Eumulating summing of the two columns gives values for an index 'Ag' indicating absence of the function F_1 at this and greater levels and for an index P_s indicating presence of the function F at this and smaller levels. From these indices a final value P may be computed of the proportion of settlements with the function F_1 at each of the five population levels as per following expression $P = 100. P_s/P_S + Ag$. Values for this proportion P are given in final row of the following table.

TABLE

DETERMINATION OF MEDIAN POPULATION THRESHOLD PT_{50} for Function F_1

Population Level	STRATUM				
	0-199	200-399	400-599	600-799	800-999
(1)	(2)	(3)	(4)	(5)	(6)
Number of Settlements	10	10	10	10	10
With Function F_1	0	3	4	6	10

Contd...

(1)	(2)	(3)	(4)	(5)	(6)
Without Function F_1	10	7	6	4	0
With Function F_1 absent at this and greater levels (Ag)	27	17	10	4	0
With Function F_1 present at this and smaller levels (Ps)	0	3	7	13	23
Proportion of Settlements with function F_1 present (per cent)	0	15	41	76	100

From these five proportions the value of the median population threshold, PT_{50}, for the function F_1 may be simply derived. Inspection of Table shows that for settlements from the 3rd stratum (with population between 400 and 599) only 41 per cent had the function F_1 but that for the fourth stratum (with population between 600 and 799) the proportion has risen to 76 per cent. Clearly, the median value lies somewhere between these values. The exact position of the 50 per cent point can be estimated as (50-41)/(76-41) = 0.26 i.e. the median value lies 26 per cent of the distance between the mid-points of stratum 3 and stratum 4. With an inter-stratum distance of 200 inhabitants the media value is: 500+0.26 (200) = 522 = PT_{50}. The median population threshold for function F_1 is thus a settlement with about 550 inhabitants.

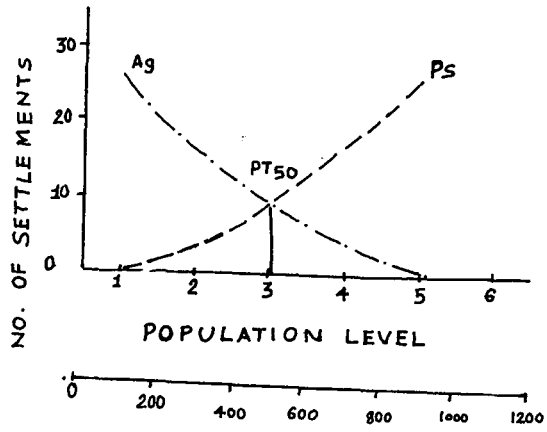

Figure: Determination of Median Threshold Population (PT_{50}) by graphical method.

The value for PT_{50} may b e obtained graphically by plotting the values of Ag and Ps from the given table on the same set of axes (given figure). The curves for the two parameters cross at a population value at which the number of settlements without the function F_1 at this and smaller sizes is equal to the number of settlements with that function at this and greater sizes. This is the 50 per cent population threshold; it yields a value for PT_{50} equalite that obtained by the algebraic method.

In using the Reed-Muench method it should be remembered that it was designed for use with cases where the observed fatality rates covered the entire range from nil to total mortality i.e. zero to 100 per cent. Therefore, estimates of

population thresholds should be designed to include cases of settlements in which no esttlements has a given function and a conversely cases in which all settlements have the function.

APPENDIX V

TEHSIL WISE DISTRIBUTION OF PRIORITY ORDERS TO PLAN FOR LOCATING SOCIAL AMENITIES IN BHILWARA DISTRICT - 1971

Priority Order*	MEDICAL AMENITIES				
	Disp.	H.C.	Hosp.	F.P.C.	M.C.W.
(1)	(2)	(3)	(4)	(5)	(6)
I	Mandalg.	Jahazp.	Shahpura	Bhilwara	Jahazpur
II	Banara	Mandal	Bhilwara	Raipur	Mandal
III	Asind	Shahpura	Asind	Banara	Raipur
IV	Kotri	Mandalg.	Banara	Mandalg.	Mandalg.
V	Raipur	Asind	Hurda	Asind	Asind
VI	Jahazp.	Kotri	Kotri	Jahazp.	Shahpura
VII	Hurda	Bhilwara	Jahazp.	Shahpura	Bhilwara
VIII	Mandal	Sahara	Mandalg.	Mandal	Sahara
IX	Shahpura	Raipur	Raipur	Kotri	Hurda
X	Sahara	Banara	Mandal	Sahara	Banara
XI	Bhilwara	Hurda	Sahara	Hurda	Kotri

* Priority orders are based on the tehsil-wise ranking of social amenities.

Contd...

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Priority* Order	COMMUNICATIONAL AMENITIES (a) Postal			(b) Transport		
	P.O.	P&T	T.C.	K.R.	P.R.	R.S.
(1)	(7)	(8)	(9)	(10)	(11)	(12)
I	Raipur	Mandalg.	Kotri	Sahara	Raipur	Mandalg.
II	Sahara	Jahazp.	Jahazp.	Kotri	Kotri	Kotri
III	Mandalg.	Shahpura	Banera	Mandalg.	Mandal	Sahara
IV	Bhilwara	Kotri	Raipur	Banera	Mandalg.	Raipur
V	Mandal	Raipur	Mandalg.	Mandal	Jahazp.	Jahazp.
VI	Shahpura	Mandal	Shahpura	Bhilwara	Banera	Shahpura
VII	Hurda	Asind	Asind	Raipur	Shahpura	Asind
VIII	Asind	Sahara	Mandal	Hurda	Bhilwara	Mandal
IX	Jahazp.	Hurda	Bhilwara	Jahazp.	Asind	Bhilwara
X	Kotri	Banera	Sahara	Asind	Hurda	Banera
XI	Banera	Bhilwara	Hurda	Shahpura	Sahara	Hurda

Contd....

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Priority Order	ELECTRICITY Power Supply	DRINKING WATER Tap	ALL SOCIAL AMENITIES
(1)	(13)	(14)	(15)
I	Raipur	Jahazpur	Mandalgarh
II	Banera	Mandal	Raipur
III	Kotri	Banera	Mandal
IV	Asind	Raipur	Kotri
V	Mandalgarh	Kotri	Jahazpur
VI	Shahpura	Mandalgarh	Asind
VII	Hurda	Kotri	Sahara
VIII	Jahazpur	Sahara	Banera
IX	Mandal	Bhilwara	Bhilwara
X	Sahara	Shahpura	Shahpura
XI	Bhilwara	Hurda	Hurda

APPENDIX VI

SETTLEMENTS WITH REQUIRED POPULATION THRESHOLD FOR ESTABLISHMENT OF SOCIAL AMENITIES IN 1971

Sl. No.	Amenity	Tehsil	Name of Settlements
(1)	(2)	(3)	(4)
1.	Primary School	Asind	Barla, Bhatkakhera, Bagnali, Kurachokakhera, Karangarh
		Shahpura	Bhojpura
		Jahazpur	Fathepura, Nalkakhera
		Mandal	Kartha, Alagwas, Gopalpura, Chhajwanakakhera, Govindpura, Kapadiyakakhera, Gajuna, Naveli
		Banera	Lasariya
		Bhilwara	Rajola, Bhasia Kundi, Mahuwa-kalan, Ludiki, Mokhupura,
		Sahara	Salera
		Kotri	Sangari, Jaswantpura, Kamti, Gander, Galundi, Lasariya, Jeetyas, Udaliyas, Deoriya
		Mandalgarh	Mangthala, Beekoran, Ralayta, Jaulamki Jopriya, Dhanwara, Amarpura, Nayangown, Ganeshpura, Dhamniya
2.	Middle School	Asind	Ambesar
		Bhilwara	Kodukota
		Mandalgarh	Manpura, Khatwara
3.	Dispen-sary	Asind	Tiloli, Ambesar
		Jahazpur	Luharikalan, Ropan

Contd....

Contd...

(1)	(2)	(3)	(4)
		Bhilwara	Pansal
		Kotri	Dantra
		Mandalgarh	Manpura, Nayanagar, Bigod, Shyampura
4.	Health Centre	Asind	Parasoli, Sambhogarh, Barsani, Nimbahera
		Shahpura	Phooliya Kalan
		Mandal	Bagore, Bemali
		Bhilwara	Sawana, Karaikalan
		Raipur	Borana
		Kotri	Barliyas, Akola
		Mandalgarh	Barudani
5.	Kachha Road	Asind	Makaliyas, Bhaktakakhera, Jodhras, Rampura, Motras, Mogan, Bojpura, Pura, Akarsada, Sangramgarh, Kanwalas
		Hurda	Borkhera, Baranitya, Bhojras,
		Shahpura	Roopura, Itmariya, Bhojpura, Mindoliya, Nairajyas, Taswariyabasa, Rahor, Borda, Lulas, Amiyarasa, Dhnop
		Jahazpur	Teetora, Dhuwanla, Phalasia, Bagoodar, Dhor, Khroona, Teethoda, Teetori, Bihara, Gangithala, Gadoli, Jamoli, Beeletha, Bharnikalan, Amalda, Sarsiya
		Mandal	Badhoo, Gorkhiya, Chawandiya, Baolas, Lesawa, Ghoras, Amargarh

Contd....

Contd....

(1)	(2)	(3)	(4)
		Bnera	Rakshi, Chamanpura, Babrana, Lapiya, Dabla, Gharta, Baldarka, Upreda, Megras, Lambiya, Roopaheli, Salriyakalan, Mahuwa, Kalsans, Kundiankalan
		Bhilwara	Jityakheri, Seedriya, Haled, Atoona, Gundli
		Raipur	Galyawari, Boriyapura, Ashaholi, Palran, Mokhunda, Jharol
		Sahara	Saruas, Amiya, Ullai, Salari, Kangi, Arsipura, Sheorati
		Kotri	Mansha, Dhokaliya, Chanwandiya, Hasariya, Jawal, Renwas, Suttpa, Gendaliya, Kishangarh, Birdholi, Raser, Borda, Bishniya, Kakloliya, Redwas, Dedriya, Barla
		Mandalgarh	Khachrol, Anwas, Genoli, Mohanpura, Dhanwara, Thalkalan, Dhamaniya, Seengoli, Jojwa, Shampura, Barudani, Kathwara, Mahuwa
6.	Pucca Road	Asind	Patan, Sambhupura, Barsani, Ambesar, Kaliyas, Daultgarh, Lachhura
		Shahpura	Sangariya, Dhnop, Phooliyankalan,
		Jahazpur	Luharikalan, Sarsiya,
		Bhilwara	Mangrope
		Raipur	Borana
		Sahara	Lakhola
		Kotri	Paroli, Barliyas, Akola, Nandrai

Contd.....

Contd....

(1)	(2)	(3)	(4)
		Mandalgarh	Barudani, Kachola
7.	Railway Station	Shahpura	Shahpura
8.	Post Office	Asind	Palri
		Hurda	Datra, Tonkarwara
		Shahpura	Taswariya, Tahnal, Kadisana
		Jahazpur	Koochalwara, Gadoli
		Mandal	Gajuna, Dhunwanla, Peethas, Suras
		Banera	Gharta
		Bhilwara	Seedriyas, Haled
		Raipur	Thala, Sagreo, Asaholi, Jharol, Deoriya
		Sahara	Ullai, Nandsa, Soniyana
		Mandalgarh	Dhamaniya, Shyampura

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