

Housing and Household Amenities: A District Level Analysis, West Bengal, 1981.

Dissertation submitted to Jawaharlal Nehru University
in partial fulfilment of the requirements
for the award of the Degree of
MASTER OF PHILOSOPHY

ISHANI BANERJEE

**CENTRE FOR THE STUDY OF REGIONAL DEVELOPMENT
SCHOOL OF SOCIAL SCIENCES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI - 110067
1989**



जवाहरलाल नेहरु विश्वविद्यालय
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI 110067

SCHOOL OF SOCIAL SCIENCE
CENTRE FOR THE STUDY OF
REGIONAL DEVELOPMENT

21st July, 1989.

CERTIFICATE

This is to certify that this dissertation entitled
"HOUSING AND HOUSEHOLD AMENITIES : A DISTRICT LEVEL
ANALYSIS, WEST BENGAL 1981" submitted by Miss ISHANI
BANERJEE, in partial fulfilment of the requirements
for the award of the degree of MASTER OF PHILOSOPHY,
is a bonafide work to the best of my knowledge and
may be placed before the examiners for evaluation.

Shangia
Supervisor

Kulsum Chopra
Chairperson
21-7-89

C O N T E N T S

PAGE NO

Acknowledgement

List of Tables

List of Figures

CHAPTER-I	-	INTRODUCTION	1-46
1.1		Introduction	1
1.2		Objective	5
1.3		The Study area	5
1.4		Methodology and data base	23
1.5		A Survey of literature	36
1.6		Hypothesis	45
1.7		Chapter scheme	45
CHAPTER-II	-	BUILDING MATERIALS	47-62
2.1		Introduction	47
2.2		Kutch house type	50
2.3		Semi-pucca house type	55
2.4		Pucca house type	58
2.5		Summary.	61
CHAPTER-III	-	BASIC AMENITIES	63-84
3.1		Introduction	63
3.2		Drinking water	64
3.3		Electricity	75
3.4		Toilet	80
3.5		Summary	84

C O N T E N T S

(contd)

PAGE NO

CHAPTER-IV:	-	INTENSITY OF USE	85-102
4.1		Introduction	85
4.2		The average household size	88
4.3		The spatial pattern of crowding and its extent.	86
4.4		Privacy condition of the household	97
4.5		Summary	102
CHAPTER-V:	-	THE QUALITY OF HOUSING	103-120
5.1		Introduction	103
5.2		Spatial pattern of housing quality and its relation with levels of economic development.	104
5.3		Summary	120
CHAPTER-VI:	-	SUMMARY AND CONCLUSIONS	121-124

APPENDICES

BIBLIOGRAPHY

ACKNOWLEDGEMENT

This dissertation is the result of my study carried out during the period 1987-89 under the guidance of Professor Sudesh Nangia, Centre for the Study of Regional Development, Jawaharlal Nehru University. I am deeply indebted to Dr. Nangia and express my gratitude for her constant help, guidance and encouragement in completing this work.

I owe a special gratitude to Professor M.K.Premi, Centre for the Study of Regional Development, for his help and valuable advice. I am also greatly indebted to Professors Amitava Kundu and Aslam Mahmood for their valuable suggestions. My thanks are also due to all other Professors of that Centre.

I am greatly thankful to my friends, Ballari Bagchi, Nandini Chackravarty, Subha Roy, and Sobha Krishnan for their constant help in preparing this study.

I am also thankful to Mr. Narang for his help in typing. My thanks is also due to Sri Muralidhar for helping me in computer work.

Finally I must express my gratefulness to my parents for their constant inspiration, throughout the period of my research work.

Ishani Banerjee
- Ishani Banerjee

Date: 21.7.89

LIST OF TABLES

		<u>PAGE NO</u>
1.1	Administrative division of West Bengal.	6
1.2	Distributional pattern of economic characteristics, (Total,1981).	11
1.3	Levels of economic development (total,1981)	12
1.4	Distributional pattern of economic characteristics (rural,1981).	14
1.5	Levels of economic development (rural,1981)	16
1.6	Distributional pattern of economic characteristics (Urban 1981)	19
1.7	Levels of economic development (Urban,1981)	20
1.8	Distribution of field weightages.	35
2.1	Distribution of households in different category of houses (total)	48
2.2	Distribution of rural households in different category of houses.	51
2.3	Distribution of urban households in different category of houses.	53
3.1	Distribution of households with drinking water facility (total)	65
3.2	Distribution of rural households with drinking water facility.	70

3.3	Distribution of households with different source of drinking water (Urban)	74
3.4	Distribution of households having electricity.	77
3.5	Distribution of toilet facility in urban households.	81
4.1	Distribution of persons per household	87
4.2	Occupation density of the households (total)	89
4.3	Spatial pattern of crowding (total)	90
4.4	Occupation density of the rural households.	92
4.5	Distribution of households having density of persons more than three per room.	93
4.6	Occupation density of urban households.	94
4.7	Distribution of households having density of persons more than three per room.	95
4.8	Distribution of couples per household.	98
4.9	Distribution of households where 2 or more couple share one room.	100
5.1	Distribution of index of housing quality.	106
5.2	Levels of housing quality (total)	107

5.3	Relationship between levels of economic development and housing quality (total)	109 110
5.4	Distribution of index of housing quality (Rural)	112
5.5	Levels of housing quality (rural)	112
5.6	Relationship between levels of economic development and housing quality.	113
5.7	Distribution of index of housing quality (urban)	113
5.8	Levels of housing quality (Urban)	113
5.9	Relationship between levels of economic development and housing quality.	118

<u>List of figures:</u>	<u>Page</u>
Fig: 1 The study area	7
Fig: 2 Classification of households based on building materials	49
Fig: 3 Distribution of households in kutcha and pucca houses and levels of economic development .	52
Fig: 4 Rural-urban distribution of households in kutcha houses and levels of economic development	53
Fig:5 Desitribution of households in semi-pucca houses and levels of economic development	54
Fig: 6 Rural - Urban distribution of households in semi-pucca houses and levels of economic development.	58
Fig: 7 Rural - Urban distribution of households in pucca houses and levels of economic development.	59
Fig: 8 Distribution of rural households with different sources of drinking water.	69
Fig: 9 Distribution of households with different source of drinking water (Urban)	73
Fig: 10 Distribution of households with electricity.	78
Fig: 11 Distribution of urban households with toilet facility.	82
Fig: 12 Quality of housing and levels of economic development	108

	<i>Page No.</i>
Fig: 13 Quality of housing and levels of economic development (Rural)	114
Fig: 14 Quality of housing and levels of economic development (Urban)	119.

CHAPTER-I

INTRODUCTION

1.1 INTRODUCTION

In contemporary society housing is explicitly accepted as a basic need and a fundamental necessity of life. There appears to be consensus on the fact, that housing constitutes an important element of the total environment in which an Individual nurtures, grows and matures to realise the full measure of his potential. Therefore, it stands to reason that the nature of housing can immensely influence the bearing and personality of an individual either in a positive or a negative direction.

Apart from its impact on the development of an individual, housing plays a (multiple role in creating or retarding a employment, in maintaining health and social stability and in preserving the values of a decent life' (Abrams 1964)¹.) Whether it be in rural areas or in urban centers. Thus, the quality of housing has usually been regarded as the phenomenon associated with the process of development.

1. Abrams C.(1964), 'Housing in the modern world', London. Faber and Faber.

The concept of quality of housing includes various aspects. Thus, in order to identify the concept clearly, some definitions of housing given by various expert committee have been classified below.

1. According to the 'Expert Committee on the public health, aspects of housing', W.H.O.², 'housing is the residential environment, neighbourhood or the physical structure that mankind uses for shelter, and the environs of that structure, including all necessary services, facilities, equipment and devices needed for the physical health and social well being of the family and individual'.
2. (An ad-hoc³ Expert Group convened in 1962 by the Secretary General at the request of the Economic and Social Council stated the concept of housing. According to them 'housing is not 'shelter' or 'household facilities' alone, but comprises a number of facilities, services and utilities which link the individual and his family to the community and the community to the region in which it grows and progress

2. Technical report series No.225, 1961.

3. Report of the Adhoc Group of experts on housing & urban development, U.N.O. 1962.

3. In 1970 , another Adhoc Expert Group on social programming of housing⁴ in urban areas concluded that, in the fulfilment of social needs, housing plays both a direct and indirect role and both roles are decisive. In its direct role housing serves as the area where the individual becomes capable of experiencing community and privacy, social well being and shelter protection against hostile physical forces and disturbances. In its indirect role housing serves as the area where an abundant supply of social relationship and services are accessible, such places for social intercourse, education recreation, sports, social welfare, health protecting services shopping and transportation.

From all these above mentioned definitions, the importance of housing can be easily understood. Therefore, adequate housing is must for the physical, mental and social development of human beings. It has been remarked that a civilisation can be judged, at least to some extent, by the minimum housing conditions.

But inspite of the progress in industry, technology, education, housing has remained as a great problem for the whole world. Inadequate low quality of housing appears to be a world wide phenomenon, specially in the developing countries.

4. 'Social Programming of housing in urban areas' U.N.O. 1976.

(Of the fundamental needs of food, clothing, health, & shelter the last item has traditionally ranked lowest in the priorities of most developing countries. Thus, the living conditions of the thousand of million who live in those developing countries are poor; housing structures are inadequate and over crowded, light and water supplies are adequate only for small proportions of their urban populations. The major responsible factor for this poor situation is the existing low level of economic development of those developing countries.)

Being a developing country of the world, India is also suffering from poor quality of housing. According to the survey, conducted by N.B.O. in 1980⁵, 76% of households live in tiled and thatched roof houses, and 80% of the rural households and 59% of urban households are without basic amenities like water taps, latrins etc. This shows the intensity of housing problem both in rural and urban areas.

Hence considering this important problem, the present study has been formulated to analyse the housing quality in relation to economic development in one of the state of India.

5. N.V.Rajeswari, D.Usha Rani, M.Hari - 'Towards a new housing policy in India'- Social Change Dec.1981, Vol.17, No.4.

1.2 OBJECTIVE:

Regarding the importance of housing the present study has been formulated with some definite objectives which are as follows:

- 1) To find out the quality of housing in different districts of the study area.
- 2) To analyse the regional and rural urban variation of housing quality.
- 3) To analyse the housing quality of rural and urban areas of each district in relation to the level of economic development.

1.3 THE STUDY AREA:

(The state of the West Bengal has been selected as the study area. This is one of the populated, industrialised, urbanised state of the country, with having a metropolis. Calcutta. It has great regional diversity in physical, climatic social & economic characteristics. For this reason, this state has been selected to analyse the housing quality in a so called developed state.)

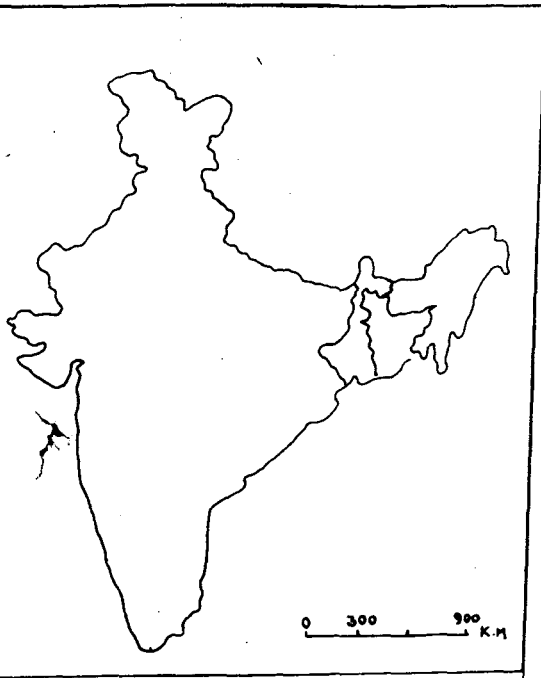
1.3.1 (Location: Situated in the eastern part of the country, West Bengal is bounded by the state of Bihar in the West Orissa in south west. Sikkim in the north and Bangladesh in the east, with having total land area of 87,675,91 sq.km, West Bengal occupies only 2.67% sq.k. of the total land area of the country.)

WEST BENGAL

THE STUDY AREA

1981

LOCATION OF THE STUDY AREA



1.3.2 Administrative divisions:

According to 1981 census, the state of West Bengal is divided into 16 districts which are as follows:

Table No. 1-1.

Administrative Division of West Bengal, 1931

Sl.No.	Name of the Districts
1.	Bankura
2.	Birlhum
3.	Burdwan
4.	Calcutta
5.	Darjiling
6.	Haora
7.	Hugli
8.	Jalpaiguri
9.	Kochnlihar
10.	Malda
11.	Midnapur
12.	Murshidabad
13.	Nadia
14.	Puruliya
15.	24 Parganas
16.	W.Dinajpur

The location of these districts is seen from the map no.1.

1.3.3 Geographical Profile:

Geographically located within the great Himalayan range on the north, Bay of Bengal on the south and the Chotanagpur plateau in the west, the state has great regional diversity in respect of geo-physical features. The land area within the boundaries of the state may be classified into three broad physical geographic divisions.

1. The mountaneous northern zone - this region comprises parts of Darjiling Jalpaiguri and Cochlihar districts.
2. The Gangetic plain - this region consists of the districts Malda, Nadia, Munishdabad, Haora, Hoogly, Calcutta, and 24-Parganas. This region is the most fertile zone for the rich allumial soil.
3. The plataeu region - the extension of the chota-nagpur plateau includes the West bulge of the state, which comprises the districts of Puruliya and contiguous parts of Midnapur, Burdwan, Birlhum. and Bankura districts.

1.3.4 Climate:

Climatically West Bengal is a high rainfall area. The annual average rainfall ranges from 140 cm to 180 cm. The northern parts receives more rainfall than the rest of the parts.

The average annual rainfall is 180 cm in northern parts, 145 cm in the western part and 157 cm in rest of the region.

1.3.5 Population:

West Bengal is one of the densely populated state of the country. The total population size of the state is 54,580,647 , according to the 1981 census. The state ranks fourth in population size among the states of India, with 7.97% of the country's total population. The population growth rates are 26.87% and 22.96% for 1961-71 and 1971-81 respectively. The density of population is medium to high in the various districts of West Bengal. The average density of the state is 615 persons per km². This density varies from 296 /km² in Puruliya to 31779 /km² in Calcutta. As the other states of India, the preparation of rural population is higher than the urban population . In this state, 73.51% population is rural whereas only 26.49% is urban population. The total number of the households are 9,728,975, out of which 7,008,600 are rural and 2,720,375 are urban. Among these households the number of houseless households are 38,075 for total and 13,835 & 24,240 for rural and urban areas respectively.

1.3.6 The Broad Economic Profile of the State:

All the aspects of regional development of any region, significantly depend on the economic base of that particular area.

A. Levels of Economic Development (Total)

The level of economic development in a district depends both on its agricultural and industrial activity. Regarding this fact, the following indicators have been selected to analyse the levels of economic development in the districts of West Bengal.

1. Percentage of urban population to total population.
2. Percentage of industrial worker to total work force.
3. Percentage of working factories to total factory of the state.
4. Male work participation rate.
5. Index of agricultural productivity ,
6. Agricultural labour and cultivator ratios. Table

1.2 shows district wise distribution of these indicators.

This table shows the regional variation in respect of all the indicators. Thus, to get the actual level of development a composite index has been prepared by including all the indicators together. The Table No.1.2 also shows district wise distribution of index of economic development. On the basis of those composite score the districts have been classified in the following table.

TABLE 1.2
WEST BENGAL

DISTRIBUTIONAL PATTERN OF ECONOMIC CHARACTERISTICS

(TOTAL, 1981)

Sl. Districts No.	1	2	3	4	5	6	7
1. Bankura	76.72	1.00	7.63	46.93	4.24	.77	8.19
2. Birbhum	94.41	.98	8.27	49.83	3.52	1.27	7.63
3. Burdwan	108.79	.76	29.39	47.91	12.15	5.27	7.12
4. Calcutta	0	1.13	100	55.31	28.19	9.25	6.48
5. Darjiling	116.96	2.95	27.54	48.65	5.95	2.58	6.30
6. Haora	81.80	.70	45.12	47.35	35.30	21.71	6.22
7. Hugli	120.27	.86	29.53	49.07	20.17	3.44	6.64
8. Jalpaiguri	102.02	2.04	14.04	50.53	4.37	3.95	6.58
9. Kochbihar	89.61	1.90	6.90	52.90	3.91	.20	6.98
10. Malda	130.30	1.16	4.78	47.65	5.43	.12	7.29
11. Midnapur	86.98	1.39	8.49	46.02	4.26	1.43	7.98
12. Murshidabad	113.86	1.05	9.46	48.80	8.44	.21	7.45
13. Nadia	140.99	1.09	21.58	48.93	10.09	1.41	6.97
14. Puruliya	95.70	2.03	8.95	47.70	4.29	1.02	7.30
15. 24-Pargana	96.67	.98	38.32	47.26	21.91	46.39	5.70
16. W. Dinajpur	88.31	1.36	11.17	52.60	3.02	.46	7.14

1. Index of agricultural productivity.
2. Agricultural worker and cultivator ratio
3. Percentage of urban population.
4. Male work participation rate.
5. Percentage of industrial worker to total worker.
6. Percentage of working factories to total factories of the state.
7. Composite scores of economic development (For the procedure see methodology section).

SOURCE: i) Computed from census of India, 1981, series 23, West Bengal, part II B(ii), Economic Tables.
ii) Economic Review, 1981, Govt. of West Bengal.

TABLE 1-3

WEST BENGAL

LEVELS OF ECONOMIC DEVELOPMENT (TOTAL, 1981)

Range	Level of economic development.	Districts
5.5-6.5	High	Darjiling, Calcutta, Haora 24-Pargana.
6.5 - 7.5	Moderate	Hugli, Malda, W.Dinajpur, Kochlihar, Jalpaiguri, Murshidabad, Nadia, Puruliya, Burdwan.
>7.5	less Low	Midnapur, Bankura, Birlhum.

This table indicates clearly the pattern of regional disparity. The position of Calcutta is not needed any explanation. For Haora, & 24 Pargana, the favourable climatic factors and presence of Calcutta metropolis have acted a major role to improve the level of economic development. On the contrary, in Midnapur, Bankura, and Birlhum the unfavourable climate factors, lack of industrialisation, distance from Calcutta, etc. together have influenced to make the level of economic development poorer. Far rest of the regions the level of economic development is moderate. This regional variation in

levels of economic development is, expected to have an impact on the existing housing quality.

(The nature of economic development depends on the different characteristic features of rural and urban areas. In West Bengal also, the rural and urban areas have their own characteristic features which influence their levels of economic development. For this purpose, it is important to study the levels of economic development separately for rural and urban areas.

B. The level of economic development in rural areas:

In the agricultural country like India, agriculture is the backbone of the economy mainly for rural parts. The rural areas of West Bengal, also greatly depends on the agricultural activity.

TABLE 1.4 ✓

WEST BENGAL

DISTRIBUTIONAL PATTERN OF ECONOMIC CHARACTERISTICS (RURAL, 1981)

Sl. Districts No.	1	2	3	4	5	6	7
1. Bankura	76.72	52.18	1.03	47.09	4.15	74.02	5.78
2. Birbhum	94.41	74.52	.99	50.26	3.57	81.48	4.14
3. Burdwan	108.79	66.97	.76	49.29	3.03	71.7	4.33
4. Darjiling	116.96	54.31	2.98	48.78	.92	45.68	5.38
5. Haora	81.80	65.19	.73	44.72	2.82	47.7	6.26
6. Hugli	120.27	73.86	.87	49.17	4.04	71.23	3.62
7. Jalpaiguri	102.02	51.87	2.07	50.97	1.05	54.68	5.18
8. Kochlihar	89.61	76.96	1.91	53.58	1.95	84.22	4.31
9. Malda	130.20	77.82	1.16	47.86	4.2	77.44	2.92
10. Midnapur	86.98	63.02	1.42	46.24	4.47	79.2	5.06
11. Murshidabad	113.86	79.04	1.06	49.30	5.51	74.81	3.08
12. Nadia	140.99	81.80	1.11	49.77	6.75	73.78	2.33
13. Puruliya	95.70	46.09	2.05	48.07	3.14	80.35	5.22
14. 24-Pargana	96.67	47.00	1.01	47.70	4.09	70.68	5.27
15. W.Dinajpur	88.31	87.13	1.38	53.74	1.82	88.6	4.48

Source: i) Computed from census of India, 1981 series 23, West Bengal, Part IIB(ii) General Economic Table.

ii) Economic review, 1981, Govt. of West Bengal.

1. Index of agricultural productivity.
2. Percentage of net sown area to total area.
3. Agricultural labourer and cultivator ratio
4. Male work participation rate.
5. Percentage of industrial workers to total workers.
6. Percentage of worker engaged in agricultural activity to total worker.
7. Composite index of economic development.

✓

Since, the state has favourable geographical conditions for this activity. Thus, the agricultural activity is expected to have a prominent role to determine the levels of economic development.

Besides, industrialisation is also have some influence on the existing levels o of economic development.

Therefore, regarding all the facts the following indicators have been selected far measuring levels of economic development.

1. Index of agricultural productivity.
2. Percentage of net sown area to total area.
3. Agricultural laboures /cultivator ratio.
4. Male work participation rate.
5. Percentage of industrial workers to total workers.

Table No.1.4 shows all these characteristics, and composite scores of economic development.

TABLE 1-5

WEST BENGAL

LEVELS OF ECONOMIC DEVELOPMENT

(RURAL, 1981)

Level of economic development.	Range	Districts
High	2-3.5	Malda, Nadia, Murshidabad.
Medium	3.5-5.0	Hugli, Kochlihar, W.Dinajpur, Burdwan, & Birlhum.
Low	5.0-6.5	Jalpaiguri, Darjiling, 24-Pargana Haora, Puruliya, Midnapur, Bankura

On the basis of this table, one can group the districts in several ranges according to the level of economic development.

The physical, climatic and socio-economic character of these districts can explain the reason for this disparity. The districts of Malda, Murshidabad and Nadia have favourable physical and climatic conditions, which help their agricultural activity greatly. Besides, in Malda and Murshidabad rearing of silk worms & collecting of cocoons and weaving of silk cloth at handlooms are characteristic village - level industries in the rural landscape of this region. Murshidabad is a river port. on the left bank of the Bhagirathi and also famous for brocades, fine inories, utensils & silk industry. On the other hand Malda is one of the biggest raw silk producing

✓

centres of India. Nadia also has many small scale village level industries. All these factors with agricultural activity, have influenced to raise the level of economic development in those districts.

In the next category, Hugli and Burdwan have favourable agricultural activity. But inspite of high productivity, higher net sown area the presence of higher proportion of agricultural labourer makes the over all situation poorer. In rest of the districts, low productivity, with lack of rural industrialisation make their economy poorer than the first category.

In the third category, except 24-Pargana, Haora, Jalpaiguri, Darjiling other three districts have unfavourable geographical condition for agricultural activity. Jalpaiguri and Darjiling ^{are} / less industrialised districts. In Haora, & 24-Parganas the heavy population pressure dominates the possibility of agricultural development . All these factors can be considered as the most possible responsible factors for low economic development of these region. From the above mentioned table it is observed that, most of the districts are in middle or low level of economic development which indicates poor economic situation of the people in most of the parts.

C. The level of economic development in urban areas:

Urbanisation is closely related with the industrialisation of that region. For this reason, the base of economic

TABLE 1.6

WEST BENGALDISTRIBUTIONAL PATTERN OF ECONOMIC CHARACTERISTICS (URBAN, 1981)

Sl.No. Districts

1.	Bankura	44.10	17.37	44.55	.77	4.65
2.	Birhum	45.15	16.49	33.60	1.27	4.69
3.	Burdwan	44.79	34.77	22.18	5.27	4.77
4.	Calcutta	55.31	30.87	41.15	9.25	1.90
5.	Darjiling	48.47	18.92	43.62	2.58	3.58
6.	Haora	50.29	48.80	23.33	21.71	2.74
7.	Hugli	48.86	51.78	23.50	3.44	3.55
8.	Jalpaiguri	47.86	17.20	43.50	3.95	3.82
9.	Kochlihar	44.50	17.25	35.27	.20	4.74
10.	Malda	42.95	17.72	35.40	.12	5.64
11.	Midnapur	43.69	21.56	32.79	1.43	4.83
12.	Murshidabad	44.08	30.64	24.01	.21	4.73
13.	Nadia	45.88	28.19	26.60	1.41	4.48
14.	Puruliya	45.04	20.01	31.05	1.02	4.66
15.	24-Pargana	46.66	45.30	25.52	46.39	3.83
16.	W.Dinajpur	47.71	14.54	40.28	.46	4.94

Source: i) Computed from Census of India, 1981, Series 23, West Bengal, Part II B(ii) Economic tables.

ii) Economic review, 1981, Govt. of West Bengal.

1. Make work participation rate.
2. Percentage of industrial workers to total workers.
3. Percentage of workers engaged in tertiary activities to total workers.
4. Percentage of working factories to total working factories of the state.
5. Composite scores of economic development.

development in urban areas mainly depends on the level of industrialisation. Thus, considering this fact some indicators have been selected for analysing the level of economic development. Besides, the economic condition also depends on the male work participation rate.

For analysing the economic development the following indicators have been selected.

1. Male work participation rate.
2. Percentage of industrial workers.
3. Percentage of working factories.
4. Percentage of territory workers.

On the basis of these indicators, the composite scores have been prepared for analysing the level of economic development of the urban areas. Table 1.6 shows the composite scores for the different districts.

From that table, the districts have been grouped in some ranges for finding out the regional pattern.

TABLE 1-7

WEST BENGAL

LEVELS OF ECONOMIC DEVELOPMENT (URBAN, 1981)

Level of economic development.	Range	Districts
High	1.5 - 3.0	Calcutta, Haora.
Medium	3.0 - 4.5	Hugli, 24-Pargana Darjiling, Jalpaiguri, Nadia.
Low	4.5 & above	Kochlihar, W.Dinajpur, Malda, Murshidabad, Midnapur, Puruliya, Bankura, Burdwan, Birlhum.



There are various reasons for this regional disparity in the level of economic development.

It is interesting to note that, Calcutta & Haora are the only district in the category of high level of economic development. As being a metropolis Calcutta has become a centre of all kind of development. Thus, the process of centralised development is reflecting from this pattern.

Except the Calcutta district, Hugli, 24-Parganas, Darjiling and Jalpaiguri have quite better economic situation. Among them, Higli & 24-Pargana is highly industrialised districts with having a large number of industries, like jute mills, textile industry, paper & chemical industry, handlooms, small scale engineering industries, glass ware, potteries, metal products etc. More than 76% of the total number of registered factories of West Bengal are situated in those three districts. These three districts around in potential entrepreneurs with ability to invest and appear to have a favourable industrial climate for further development. Proximity to port, supply of skilled labour, better transportation system and banking service stimulate industrialisation. Another factor conducive to growth is the nearness of Calcutta, a potential market.

TH-328

In case of Darjiling districts the tourism and tea industry greatly influence to stimulate its economic activity .



On the other hand Jalpaiguri is the centre of industrial activity of the whole region of North Bengal. The presence of Siliguri town largely helps the economic activity of this region. This town serves the whole region as the business center, market centre and it connects the whole northern eastern region. with the Calcutta metropolis. For all these reasons, Jalpaiguri region has become capable to acquire higher level of economic development.

Rest of the districts are in the lowest level of economic development, for their low level of industrial activity. Among them, the situation is more poor in Midnapur, Bankura, Puruliya and Birbhum. Most of the industries in those districts, are of the traditional variety, like, brass, bell metal, pottery, etc. Among the new industries, cycle repairing, tailoring, lathe machine shops, food processing, cutlery etc. are the principal industries which are mostly small scale industries. In spite of the close proximity to some industrial town like Durgapur, Khragapur, Tatanagar these districts continue to be backward. The shortage of raw materials, virtual absence of marketing arrangements, difficulties in communication and transportation of finished products are the main constraints in the spread of industrialisation. For this factors, those districts are still in lower level of economic development.

The lack of proper industrialisation, also the major cause for low economic conditions prevail in the districts of Kochlihar, Malda Murshidabad, Nadia, & Burdwan. All the small and medium towns of these districts, are surrounded by agricultural hinterland, and for this most of the workers are engaged in low productive agricultural activity. As these districts are agriculturally prosperous they have great potentiality to improve their industrial ~~at~~ activity.

All the above mentioned tables show that, most of the districts are either in moderate or in low level of economic development. Thus, it can be said that, the process of development in West Bengal has been concentrated only in some pockets. The presence of Calcutta metropolis creates obstacle in the path of proper development.

Thus, this over all poor level of economic development is expected to have an effect on the living condition of the people in the districts of West Bengal. As this present study mainly concern about housing condition of peoples of West Bengal, the following chapters will deal with the effect of these poor economic situation on the quality of housing condition.

1.4 METHODOLOGY AND DATA BASE:

This section deals with selection of variables, techniques used for analysis and data base.

1.5.1 Selection of the Variables:

To fulfill the objectives of this present study, two sets of indicators have been taken for the analysis.

The first set of indicators includes the housing indicators, under three different variables.

1) The Building Materials

In the census of West Bengal, Part VII A&B (i) The households are classified according to the building material of their roof, wall and floor. All those types of building materials are as follows:

A. Materials of roof

1. Grass, leaves, reeds, thatch, wood mud, unburnt brick or bamboo.
2. Tiles state, shingle.
3. Corrograted iron, zink or other metal sheets.
4. Abbestos, cement sheets.
5. Brick, stone and lime.
6. Stone
7. Concrete; RBC or RCC
8. All other materials & materials not stated.

B. Materials of Wall

1. Grass, leaves, reeds, bamboo.
2. Mud.

- 3) Unburnt bricks
- 4) Wood.
- 5) Burnt bricks
- 6) G.I. sheets or other metal sheets.
- 7) Stone
- 8) Cement concrete
- 9) All other materials & material not stated.

C) Materials of Floor

- 1) Mud
- 2) Wood/Planks
- 3) Bamboo or logs
- 4) Brick, stone & lime
- 5) Cement
- 6) Mosaic/tiles
- 7) Others & materials not stated.

After consulting with some experts, these materials have been classified into three categories on the basis of their difference in durability.

A. Materials for roof

1. Kutchha (least durable)

Grass, leaves, reeds, mud, thatch wood, unburnt bricks or bamboo.

2. Semi-pacca (semi-durable)

- i) Corrograted iron sheets, or other metal sheets.
- ii) Asbestos, cement sheets.

3. Pacca (most durable)

- i) tiles, state, shingle
- ii) brick, stone & lime
- iii) stone
- iv) Cement, RBC /RCC

B. Materials for wall

1) Kutchra

Grass, leaves, reeds, bamboo, mud.

2) Semi-pacca

- i) Wood, unburnt brick
- ii) G.I.sheets, other metal sheets.

3) Pacca

i) Stone. ii) burnt brick iii) cement concrete

C. Materials for floor

1. Kutchra

i) Mud

2. Semi-pacca

- i) bamboo or log
- ii) wood/planks.

3. Pacca

- i) brick, stone & lime
- ii) cement
- iii) masaic or tiles.

According to those experts' opinion roof is the most important part of any house. The durability and quality of any house depends on the durability of the roof. Thus on the basis of this the houses have been classified into five categories.

1. Kutchha the houses consist of kutchha roof, wall and floor materials.
2. Semi-pacca-i: the houses consist of kutchha roof materials with other types of wall & floor materials.
3. Semi-pacca-ii: the houses constructed with semi-pacca roof materials and other kinds of wall & floor materials.
4. Semi-pacca (iii): the houses with pacca roof & other all types floor and wall.
5. Pacca - house type with pacca roof, wall and floor.

On the basis of these classification the following indicators have been selected for the variable of building materials.

1. Percentage of household living in kutchha house.
2. Percentage of household living in semi-pacca house.
3. Percentage of household living in semi-pacca (ii) house.
4. Percentage of households living in semi-pacca (iii) house.
5. Percentage of households living in pacca house.

Data required for these indicators have been taken from Census of India, 1981, Series 23, West Bengal, Part VII A&B (1) household tables.

2. Household amenities:

1981 .Census publications contains information about the household amenities like, electricity, toilet and drinking water. In that census volume for West Bengal the household are being classified according to the different source of drinking water within and outside the premises. Thus for this present study those source of drinking water have been classified into two groups.

1. Protected source, which include pump, tube-well and well.
2. Unprotected source which include tank, river, canal, stream & others.

On the ~~other~~ basis of this classification for drinking water and census data on electricity and toilet facility the following indicators have been selected:

1. Percentage of households with protected drinking water source within the premise.
2. Percentage of households with unprotected source of drinking water outside the premises.
3. Percentage of households having unprotected drinking water supply within the premises.

4. Percentage of households having unprotected drinking water outside the premises.
5. Percentage of households with electricity.
6. Percentage of households without electricity.
7. Percentage of households with toilet.
8. Percentage of households without toilet.

The required data have been collected from census of India, 1981, series 23, West Bengal, Part VIII A&B (ii) household tables.

3. Intensity of Crowding:

The extent of crowding in the house, is analysed from two different directions, density and privacy of persons, For measuring the extent of crowding the following indicators, have been selected.

A. Density Indicators:

1. Average size of the household.
2. No. of room per household.
3. Percentage of households having one room.
4. Percentage of household where etc. room density is less than one person /room.
5. Percentage of household where room density is 1-2 person per room.
6. Percentage of households ~~where~~ who has room density 2-3 persons per room.

7. Percentage of households who has room density

3-4.

8. Percentage of households having room density above
4 persons/room.

B. Privacy indicators:

1. No.of married couples per household.

2. Percentage of households where 2 or more
couples share one room.

3. Percentage of households where 2 or more
couples share more than one room.

The data required for this, have been collected from
Census of India,1981, series 23, West Bengal, Part VIII
A&B (i) household tables.

The second set of variables includes the indicators for
economic development in rural & urban areas seperately.

1) Indicators of economic development (total)

For analysing the levels of economic development of the
district as a whole, the indicators selected are as follows:

1. Index of agricultural productivity.

2. Agricultural labourer and cultivator ratio.

3. Percentage of urban population to total.

4. Percentage of industrial workers to total work force.
5. Percentage of working factories to the total working factories of the state.
6. Male work participation rate.

Data of indicator no.1 and 5 are collected from economic review, 1981, Govt. of West Bengal. The required data for indicator no.2, 3,4 and 6 have been taken from census of India, 1981, series 23, West Bengal, part II B(II) General Economic tables.

2. Indicators of Economic Development (rural)

In the agricultural country like India agriculture is the backbone of rural economy. The level of economic development in rural areas mainly depends on its agricultural development. Considering this fact, the indicators selected are as follows:

1. Index of agricultural productivity.
2. Percentage of net sown area total cultivable area.
3. Agricultural labour and cultivator ratio.
4. Percentage of manufacturing workers/ to total work force.
5. Male work participation rate.

The data required for first two indicators have been collected from Economic review, 1981, Govt. of West Bengal. The data for indicator number 3,4,& 5 have been taken from Census of India, 1981, Series 23, West Bengal, Part II(B) (ii) General Economic Tables.

3) Indicators of Economic Development (Urban):

The following indicators have been taken into consideration for urban areas.

1. Percentage distribution of working factories to total working factories of the state.
2. Percentage of industrial workers (other than household industry) to total workers.
3. Percentage of trade and commerce worker to total worker.
4. Male work participation rate.

Data for first indicator have been obtained from economic review, 1981, fo Govt. of West Bengal. Data for all the other indicators have been collected from Census of India, 1981, series 23, West Bengal, Part II B(ii) General Economic Tables.

1.4.2 Statistical Methodology:

Different types of statistical techniques have been adopted for analysing these variables.

modified

1. The method of/principal component analysis has been used for constructing the composite index of housing quality for each district. The selected indicators are as follows:

- a) Percentage of households living in semi-pacca III house type.
- b) Percentage of households in pacca house.
- c) Percentage of households having protected water supply within the premise.
- d) Percentage of households having protected water supply outside the premise.
- e) Percentage of households with electricity.
- f) Percentage of households with total facility (urban).
- g) Percentage of households having room density less than one person per room.
- h) Percentage of households having room density 1-2 persons room.
- i) Percentage of households where 2 or more couples share more than one room.

2. The composite scores of economic development have been prepared by using taxonomic scheme with the help of indicators of economic development.

The following formula has been used to prepare the composite scores.

$$\text{Composite score} = \sqrt{\sum (A - A)^2}$$

where ,

A = individual standard score

A = highest standard score

The formula of A is as follows:

$$A = \frac{\text{Observation} - \text{mean}}{\text{standard deviation.}}$$

1.4.3 Methodology for Field Survey.

One small field work has been done for collecting the opinion of about housing quality seperately in rural & urban areas. For this purpose, ten students from each area seperately have been interviewed. Most of them are educated females only 3 are male student. They were asked to give weightage in percentage and to rank the variables according to their preference, about the importance of the variables for measuring quality of housing condition. After the survey, all the obtained weightages have been averaged. The average weightages are as follows:

TABLE 1-8
FIELD
DISTRIBUTION OF / WEIGHTAGES

Sl.No.	Materials	Rural	Urban
1.	Building materials	21.4	10.3
2.	Drinking water	29	26
3.	Electricity	19.8	19.8
4.	Toilet	--	28.4
5.	Density	12	5.9
6.	Privacy	16.8	10.1.

1. .4 Cartographic Methodology:

Some cartographic techniques have been used to represent the data properly.

1. The method of choropleth has been used for showing the regional variation in building materials, levels of economic development and housing quality.
2. Pie-diagrams and langrapas have been used for showing the distribution of households with various housing amenities, drinking water, electricity and toilet.
3. Both the methods of choropleth and chorometric have been used for analysing the relation between economic development and housing quality.

1.5 A SURVEY OF LITERATURE:

Regarding the importance of housing in the developing countries, several studies have been made on the housing problems and quality in those countries.

The United Nations has arranged several studies on the housing condition in the developing countries. Among their studies 'World housing survey, 1974'⁶ is one of the important one. This survey included housing conditions & requirements, land use & development, housing finance, housing construction & human resource. The Chapter V covers the study about housing conditions, on the basis of type of living quarters, no. of persons per room, the facilities related to housing like water supply toilet, lighting, cooking, & bathing facility. In this chapter, the housing condition has been reviewed by level of occupancy, availability of housing facilities rates of dwelling construction. It gives a clear picture about the housing condition in different countries of the world.

In one study on rural housing⁷, the housing condition of the rural areas of different countries have been discussed. For analysing the housing condition the information

6. World housing Survey, 1974-An overviews of the state of housing, building & planning within human settlements-U.N.

7. Rural housing, A review of world conditions - UN 1969.

about type of building materials, availability of housing facilities & amenities, the type of houses etc. have been collected. From this book, one can get a vast idea about the rural housing condition in different countries of the world.

In these studies more stress has been given on the housing condition & problems of the developing countries of the world.

There are some other studies in the context of developing countries. From the book 'Housing Asia's Million'; problems, Policies and Prospects for low cost housing in S.E.Asia⁸. a good picture about housing condition in some countries of S.E.Asia can be obtained. This book based on a low cost housing study in the early 1970's. It includes eight countries ranging from war-ravaged Laos, to the almost totally urban Singapore and Hongkong. It gives a total picture about land provision and policies housing design, administration, finance, urban and regional planning and problems of squatter and slum dwellers.

In the second chapter, the housing conditions & needs have been discussed. The authors have analysed housing

8. Stephen H.K, Veh and A.A. Laquian-Housing Asia's Million-problems, Policy & Prospects for low cost housing in S.E. Asia, International Development Research Centre, Ottawa, Canada.

condition on the basis of housing stock, the services levels and the extent of population densities. Among the services related to housing they included electricity, piped water & toilet facilities, sewerage system, garbage & disposal system, with these all valuable information, this chapter gives a clear picture about the housing condition both in rural and urban areas of those countries. In the another book, 'Housing in Latin America'⁹, the authors have analysed the housing condition, need and finance in the Latin American countries.

In the second chapter the authors have discussed about the housing condition and needs in the countries of Latin America. For analysing the housing condition they have collected information about sanitary equipment, area and facilities adequate to family size on the basis of the following indicators they have represented the picture of housing condition.

- a) No.of occupied dwellings.
- b) Average number of rooms per dwellings.
- c) Average number of persons per room
- d) Percentage of dwellings with piped water, toilet & bath facility, electricity and gas supply facility.

9. Marcia N.Kath, Julio G.Silva, Albert G.H.Pietz 'Housing in Latin America,' M.I.¹. Press,1965.

e) Percentage of dwellings by tenancy.

From all these indicators, one can get a proper picture about the housing condition in the different countries of Latin America.

Being a developing country, India is suffering from various problems. Of all the economic problem the country is faced with, housing is next in importance only to that of food. The problem of housing is very acute both in rural and urban areas.

To analyse this major problem of the country, several studies have been done on different aspects of housing

In ~~this~~ study S.C. Aggarwal¹⁰ has attempted to examine the housing situation of industrial workers. He included the origin and importance of this problem, effects of bad housing, position of housing- state wise and industry wise, housing policy etc. He analysed the housing condition of the industrial workers in different types of industries in each state, on the basis of number of rooms, tenancy pattern. In some cases, he has taken the facilities available in the house, like water, electricity etc.

10. S.C. Aggarwal, 'Industrial housing in India' 1952.

Thus, this gives a picture of housing condition of large section of our country's working population.

In his study, V.Agnihotri¹¹ has tried to give a comprehensive picture about housing condition of the factory workers of Kanpur in 1954. This survey includes a sample of 900 families of labourers. He has analysed their housing condition in three different chapters.

In the first chapter, he has included types of dwellings in terms of room, dwelling with varandas & court-yards. The next chapter deals with housing amenities like water supply latrine, ventilation & sanitation, lighting & distance from the place of work. The third chapter has discussed the housing condition from the view point of density of occupation & overcrowding. It includes the size of the rooms, number of rooms, number of persons per dwellings room-wise density of occupancy & floor area. In the next chapter the author has analysed housing condition from the rent of houses and family income the has collected information about monthly rent for different types of dwellings, ratio between rent & family income. The rent factor gives a new idea about the housing condition. Apart from this, the author has tried to analyse the housing

11. V.Agnihotri, 'Housing condition of factory workers in Kanpur,' 1954. Maharaja Printers, Kanpur.

condition in relation with the family income. Thus, this analysis represents a more clear picture of the housing situation of these factory workers.

S.Chakravarty¹² has done his survey in Calcutta. This study of housing condition has been conducted from the data collected in course of socio-economic survey of Calcutta. In this study, family has taken as sample unit. This study has attempted to analyse the housing conditions from the point of occupancy rights, categories of rooms, room space, types of water taps, latrins, bathrooms, cooking arrangements, electricity facilities of those families. After that, the author examined this housing condition in relation to family income and rent pattern of houses. He discussed about different type of houses in different income groups, rent paid for those houses and analysed this data in relation with income & family size. From all these information one can get a detail-picture of housing & economic conditions of the people in different wards of Calcutta.

From the monograph¹³ on housing, one can get a broad view about the housing condition of the country on the basis surveyed 943 villages and 53 sample towns. This study has

12. S.Chakravarty-'Housing conditions in Calcutta', Bookland Publication, 1958.

13. Monograph on housing situation in India N.B.O. 1959.

taken into account the plinth type, wall type, roof type of house number of rooms, per capita floor space, for all rural and urban areas to analyse the housing condition. Apart from this, on the basis of some socio-economic surveys during 1954-56 conducted by the Universities, or research institute this monograph also analyse the housing ~~ex~~ situation for Calcutta, Hyderabad, Poona, Jamshedpur, Hubli & Bhopal. For analysing the housing situation of these cities, the family size, tennancy, number of rooms, per capita room space, source of drinking water toilet, kitchen etc. have been used. This study shows that, all the surveyed cities have overcrowding & poor housing condition. Inspite of old data this study will help to understand the intensity of housing problem in rural & urban areas of our country.

In another book on Greater Bombay¹⁴, the author analysed the housing situation for the purpose of developing a housing policy for the Bombay metropolaiton region. For this purpose he has taken some indicators of housing condition. Among variables he includes type of dwelling, total floor area of dwelling, number of rooms, facilities available in the dwellings, tennancy status & rent pattern. On the

14. P. Ramchandran, 'Housing Situation in Greater Bombay,' Somariya Publication, 1977.

basis of these variables, he has tried to analyse the cause of residential mobility within greater Bombay and preference of people about housing condition. Thus, this book is very useful to develop a housing policy for any region.

In their study Parvathamma & Satyanarayana¹⁵ have analysed the housing condition of only the rural poor in Karnataka. Their study refers to the problems of the houseless & their living condition & housing in general three in rural Karnataka. This study covers three groups of people, the houseless people, people living in Janata houses, People living in other types of houses. In the first two chapters, they have discussed housing of India & Karnataka from the view point of roof structure, materials used for wall & roof, housetype number of rooms per dwellings, & the tennure status. Apart from this, they have analysed also the socio-economic conditions of rural poor & houseless. All these factors together indicate how poor the living conditions of the rural people are. Though this study has been done only on rural Karnataka, it represents the situation of our country.

15. C. Parvathamma & Satyanarayana
'Housing rural people & their living conditions',
Gian Publications, New Delhi 1980.

Housing condition is treated as one of the component of level of living. For example Gupta & Ganguli¹⁶ have taken housing as one of the indicator of their study on level of living in different states of India. They have included housing in the primary components of level of living. For analysing housing conditions, three indicators number of persons per room, percentage of the number of dwelling units to the number of households & proportion of pucca houses have been used in this study. On the basis of these indicators they have prepared a composite index for housing and analysed it in different states. After that they also examined the relationship between the components of level of living and several economic demographic & social variables. As this study deals with various aspects, it gives a good state-wise picture about the living condition of people.

Most of these studies indicate the important relationship between economic condition and housing quality. In some of the studies, the authors have tried to show this relationship, by using the income structure of the households. Therefore, the economic condition can be recognised as fast and foremost determining factor for housing quality.

16. B.N.Ganguli, D.B.Gupta 'Levels of Living in India: An Inter-state Profile'. S.Chand ,1976.

But for the lacking of income data, the level of economic development has been used for the present study to analyse the housing quality. It is expected that, this will indirectly indicate the economic condition of the households.

1. HYPOTHESIS:

The study of literature has helped in framing a few hypothesis.

- a) The quality of housing will be high in the districts, which have high level of economic development and vice-versa.
- b) Quality of housing in rural areas is poorer than the urban counter-parts.

1. CHAPTER SCHEME:

The present study has been classified into the following chapters.

Chapter-I, Introduction, is divided into two section. First section brings a idea about the concept of housing, details picture of the study area, objective of the study, data base and methodology used for the study. The second section deals with literature study on housing, and hypothesis used for the study.

CHAPTER-II , Building Materials, gives a detailed picture about the use of various types of building materials in different districts. Besides, it also includes district-wise distribution of rural and urban households in different house type.

CHAPTER-III , Basic amenities, deals with housing quality in respect of housing amenities. The three major amenities, like drinking water, electricity and toilet have been discussed seperately.

CHAPTER-IV , Intensity of use, explains two other important aspects of housing: density and privacy of persons.

CHAPTER-V , The quality of housing, illustrates the variation in overall housing quality in relation to the level of economic development, both for rural and urban areas.

CHAPTER-VI , sums up the major findings obtained from the study, and attempts to draw some conclusions.

CHAPTER -II
BUILDING MATERIALS

2.1 INTRODUCTION

The structural quality of houses can be identified by the nature of building materials, used for constructing the houses. The nature of building materials largely depends on the economic condition of the households, and physiographic and climatic conditions of the region. West Bengal is a state with a great regional diversity in physical and socio-economic conditions, based on which, the nature and quality of building materials varies from region to region. Thus, the main thrust of this chapter, is to study the regional variation of building materials, and the housing quality in West Bengal.

The following indicators of building materials have been taken to analyse the quality of housing:

- 1) Percentage of households living in kutchha house.
- 2) Percentage of households living in semi-purca (1) house.
- 3) Percentage of households living in semi-pucca (2) house.
- 4) Percentage of households living in semi-pucca (3) house.
- 5) Percentage of households living in pucca house.

The reason for selecting these indicators has been discussed in the Chapter-I (page 24). The following sections will bring a idea about the spatial distribution of house types.

WEST BENGAL

CLASSIFICATION OF HOUSEHOLDS BASED ON BUILDING MATERIALS

1981

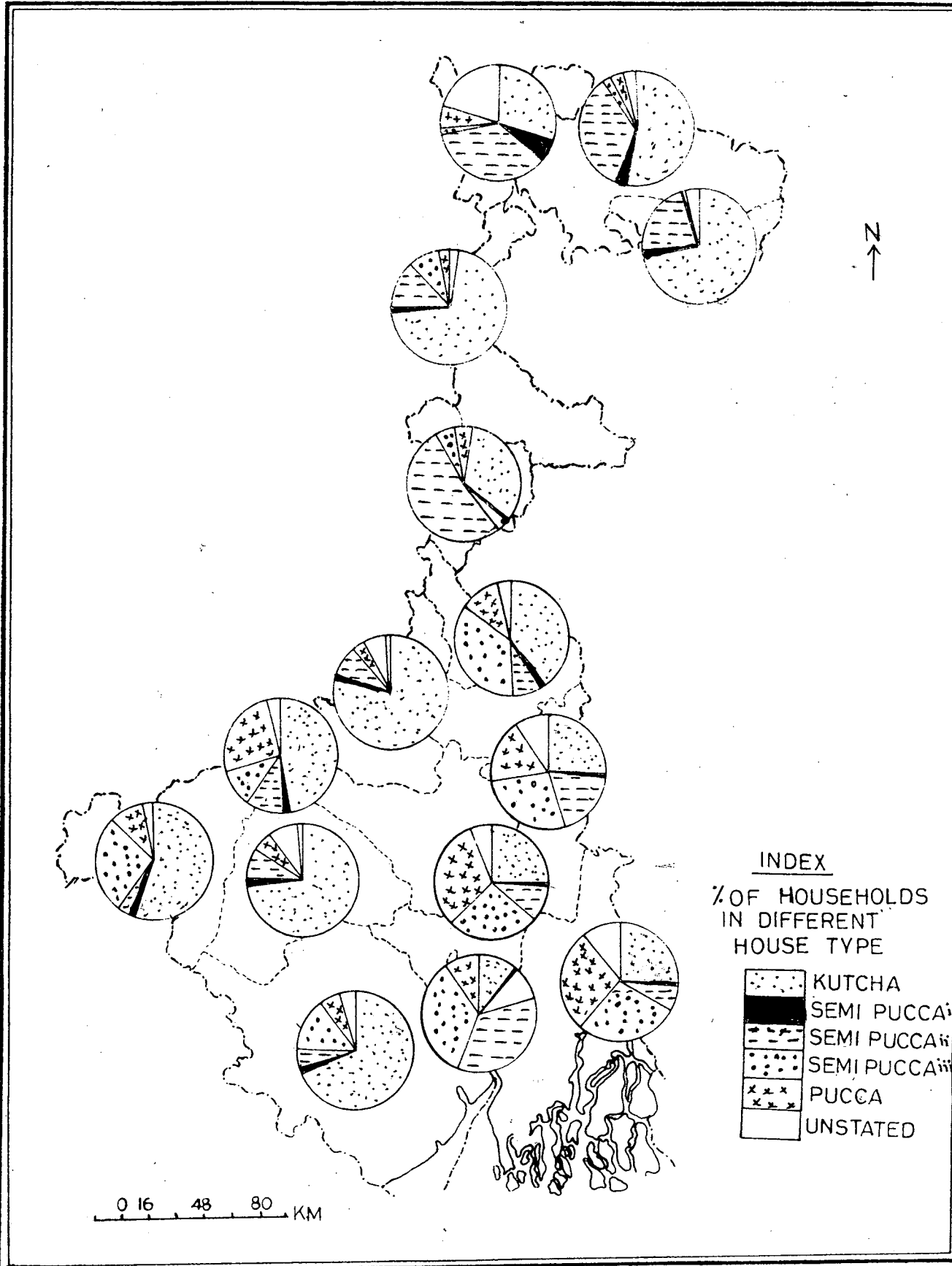


FIG: 2

2.2 KUTCHA HOUSE TYPE:

As kutcha house type includes all the least durable, cheap building materials, the presence of kutcha houses indicate poor housing quality, as well as economic condition.

2.2.1 District level analysis:

Table 2.1 shows district-wise distribution of households in kutcha houses for all the district total. From that table it is observed that, about 43% of the households live in kutcha houses for the state as a whole. Besides, this table shows a great regional disparity in this particular aspect. Except the surrounding districts of Calcutta, in Bankura, Birbhum, Jalpaigwi, Kochbihar, Puruliya, Midnapur and West Dinajpur this proportion has increased to 55% - 78%. In Haora, Hugli, 24 - Pargana, Nadia, 10% to 28% of the households live in kutcha houses. This pattern of regional variation is also brought out in Fig.no.3. This shows that, difference in levels of economic development, is partially responsible for this regional disparity. As discussed in the first chapter, all the neighbouring districts of Calcutta are industrially as well as agriculturally advanced than the others. Thus, in those districts, relatively better housing quality is observed. But poor level of economic development in rest of the regions has led a large section of population to live in kutcha house. Therefore, the data and map indicate poor housing quality and intensity of poverty in most of the districts of West Bengal.

TABLE 2-1WEST BENGAL

DISTRIBUTION OF HOUSEHOLDS IN DIFFERENT CATEGORY
OF HOUSES (DISTRICT WISE, TOTAL 1981)

Sl. Districts No.	Kutcha	Semi- Pucca-I	Semi Pucca-II	Semi Pucca-III	Pucca
1. Bankura	73.32	2.00	8.91	5.94	8.73
2. Birbhum	78.69	1.40	8.71	3.47	6.89
3. Burdwan	47.27	1.91	10.56	10.71	25.73
4. Calcutta	.72	.82	10.13	8.58	72.26
5. Darjiling	29.63	6.25	47.00	2.12	6.24
6. Haora	10.96	.60	9.17	35.37	34.33
7. Hugli	25.02	.82	10.24	26.40	31.47
8. Jalpaiguri	53.73	3.01	34.72	2.13	3.80
9. Kochbihar	72.21	1.58	22.08	.28	.65
10. Malda	33.34	.52	3.21	52.03	5.82
11. Midnapur	68.47	1.78	5.26	14.34	5.76
12. Murshidabad	40.11	.96	8.53	35.55	11.35
13. Nadia	25.92	.85	18.57	27.48	9.64
14. Puruliya	55.75	1.32	3.39	27.49	9.64
15. 24-Pargana	27.76	.66	7.11	28.09	27.42
16. W.Binajpur	71.12	1.03	13.26	8.90	3.29
17. West Bengal	42.11	1.32	10.98	19.93	20.08

Source: Computed from Census of India, 1981,
Series 23, West Bengal, Part VIII (A&B),
Household tables.

WEST BENGAL

DISTRIBUTION OF HOUSEHOLDS IN KUTCHA & PUCCA HOUSES
AND LEVELS OF ECONOMIC DEVELOPMENT
1981

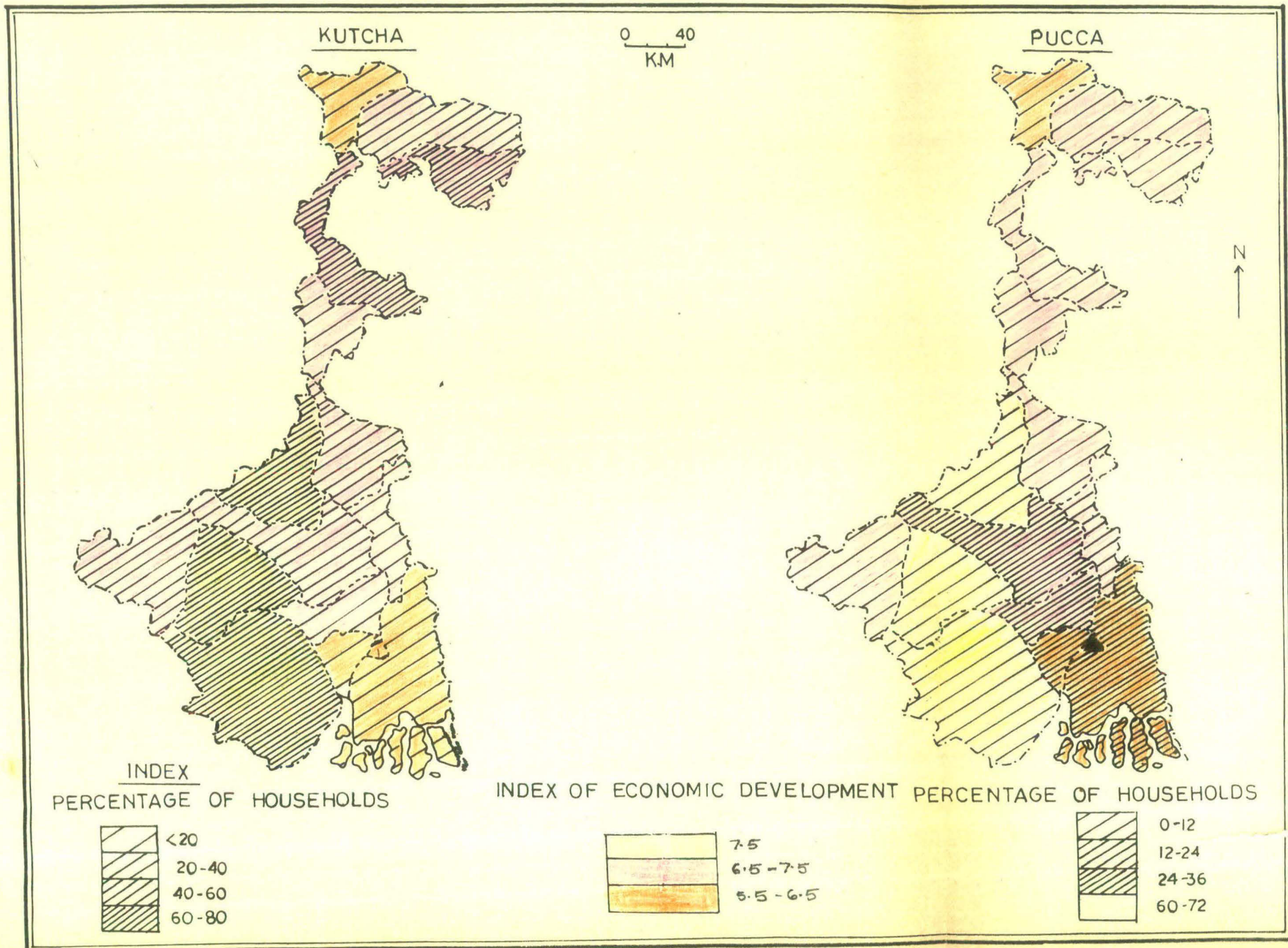


Fig:3

2.2.2 Distribution of rural households in kutchha houses:

The proportion of households in kutchha houses is expected to be high in rural areas. Table no.2.2 shows district-wise distribution of households, in different categories of houses type in the rural areas of West Bengal.

From the table it is observed that, inspite of regional variation, quite a substantial proportion of households in each district live in Kutchha house. This proportion is higher in Bankura Birbhum, Burdwan, Jalpaiguri, Fochiihar, Midnapur, West Dinajpur and Puruliya, ranging between 59% to 81%. In rest of the districts, it varies from 20% to 44%. This pattern of regional variation is relation to the levels of economic development has been shown in map no.6.4. This map shows that, except Haora Hugli and 24-Pargana the relationship is prominent and direct. In case of these three districts, the relationship between economic development and proportion of households in kutchha houses in quite peculiar. But, inspite of this variation, the overall picture is not satisfactory. Such a high percentage of households in kutchha houses in most of the region, indicate the extent of poor housing quality throughout the rural areas of the state.

2.2.3 Distribution of Urban Households in kutchha houses

For having better economic conditions, usually less proportion of urban people live in kutchha house. Table no.2.3

TABLE 2-2WEST BENGALDISTRIBUTION OF RURAL HOUSEHOLD IN DIFFERENT CATEGORY OF
HOUSES

S1. Districts No.	Kutchha	Semi Pucca-I	Semi Pucca-II	Semi Pucca-III	Pucca
1. Bankura	76.30	1.89	8.50	6.04	6.21
2. Birbhum	71.72	1.19	8.93	3.37	4.06
3. Burdwan	63.80	1.88	10.51	10.03	11.92
4. Darjiling	37.62	7.35	42.24	1.58	2.37
5. Haora	20.56	.74	11.14	43.74	12.33
6. Hugli	36.06	1.01	11.80	30.57	15.11
7. Jalpaiguri	59.22	3.25	31.62	1.89	2.31
8. Kochbihar	76.24	1.62	18.52	.19	.30
9. Malda	34.91	.53	3.06	53.27	3.63
10. Midnapur	72.47	1.73	4.59	14.50	2.35
11. Murshidabad	43.29	.96	8.52	36.56	7.86
12. Nadia	32.05	.99	16.84	30.92	11.05
13. Puruliya	60.12	1.31	2.63	27.09	6.48
14. 24-Pargana	44.93	.80	5.08	35.94	8.18
15. W.Dinajpur	75.98	1.02	10.57	9.17	1.63
16. West Bengal	55.81	1.46	10.15	21.94	6.60

Source: Computed from Census of India, 1981
Series 23, West Bengal, Part VIII A&b
Household Tables.

WEST BENGAL

RURAL URBAN DISTRIBUTION OF HOUSEHOLDS IN KUTCHA HOUSES AND LEVELS OF ECONOMIC DEVELOPMENT

1981

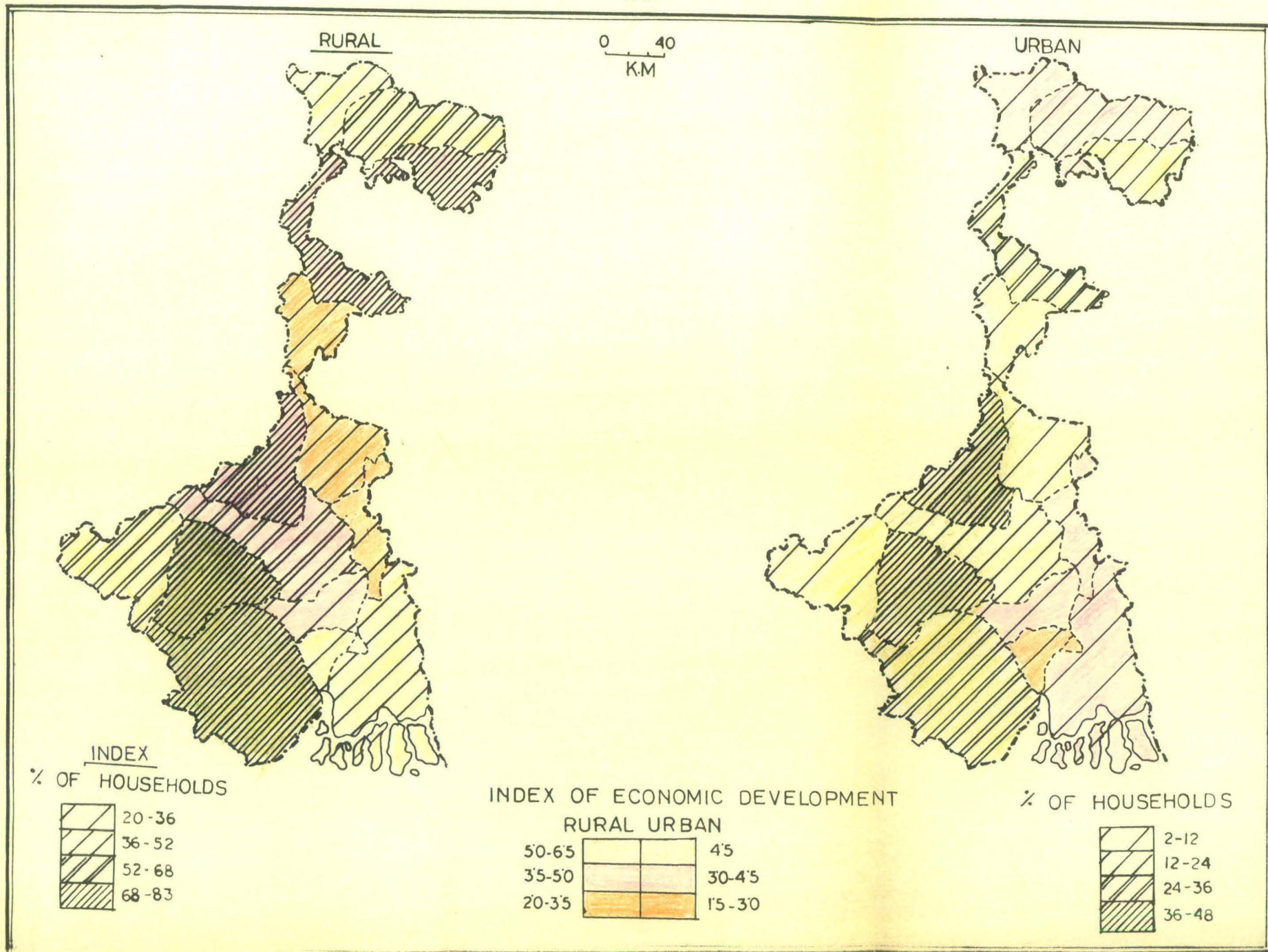


FIG 4

TABLE 2-3

WEST BENGAL

DISTRIBUTION OF URBAN HOUSEHOLDS IN DIFFERENT CATEGORY OF
HOUSES

(1981)

S. Districts No.	Kutcha	Semi Pucca-I	Semi Pucca-II	Semi Pucca-III	Pucca
1. Bankura	36.93	3.34	13.89	4.68	39.57
2. Birbhum	45.88	3.60	6.32	4.56	37.54
3. Burdwan	12.37	1.97	10.68	12.14	54.87
4. Calcutta	.72	.82	10.13	8.58	72.26
5. Darjiling	8.60	3.33	59.54	3.54	16.38
6. Haora	.88	.44	7.10	26.58	57.42
7. Hugli	2.73	.43	7.12	17.96	64.56
8. Jalpaiguri	19.16	1.51	54.22	3.65	13.20
9. Kochbihar	14.04	1.08	73.68	1.65	5.71
10. Nadia	1.75	.36	6.27	26.92	49.45
11. Midnapur	26.57	2.31	12.38	12.61	41.45
12. Murshidabad	10.39	.94	8.64	27.17	43.83
13. Nadia	4.95	.38	24.47	15.72	41.51
14. Puruliya	9.20	1.35	11.36	31.67	43.08
15. 24-Pargana	2.84	.46	10.05	16.69	55.35
16. W.Dinajpur	27.88	1.00	37.20	6.53	18.03
17. West Bengal	6.28	.94	13.15	14.65	55.33

Source: Computed from Census of India
1981, Series 23, West Bengal, part VIII
A&B Household Tables.

indicate this fact more clearly. From the table it is observed that, except few districts, in most of the parts, 72% to 45% households live in that least durable houses. This proportion is much lower in comparison to rural areas. But, in spite of lesser proportion in comparison to rural areas, one can notice the regional disparity in this particular aspect. Fig.no.6 identify clearly this pattern of regional disparity prevailing in the urban areas of the state. The region with high proportion of kutchha houses include Bankura, Birbhum, Midnapur, ^{W.} Dinajpur, and Jalpaiguri, which are economically backward districts. Therefore, the poor level of economic development makes the housing quality poorer for a large proportion of households. On the contrary, this proportion varies from .72% to 10% in the industrially as well as economically developed districts. Thus, the levels of economic development house have quite a strong impact to make this regional variation. Fig.no.6 also indicates the rural urban disparity in respect of this aspect where much higher proportion of rural households live in kutchha houses than the urban areas.

By analysing the rural and urban areas it is concluded that, a large section of population are suffering from poor housing quality for using kutchha building materials.

2.3 SEMI-PUCCA HOUSE TYPE:

The use of semi-pucca materials for buildings, indicate little better economic condition of the people.

WEST BENGAL

DISTRIBUTION OF HOUSEHOLDS IN SEMI-PUCCA HOUSES AND LEVELS OF ECONOMIC DEVELOPMENT

DISTRICT TOTAL
1981

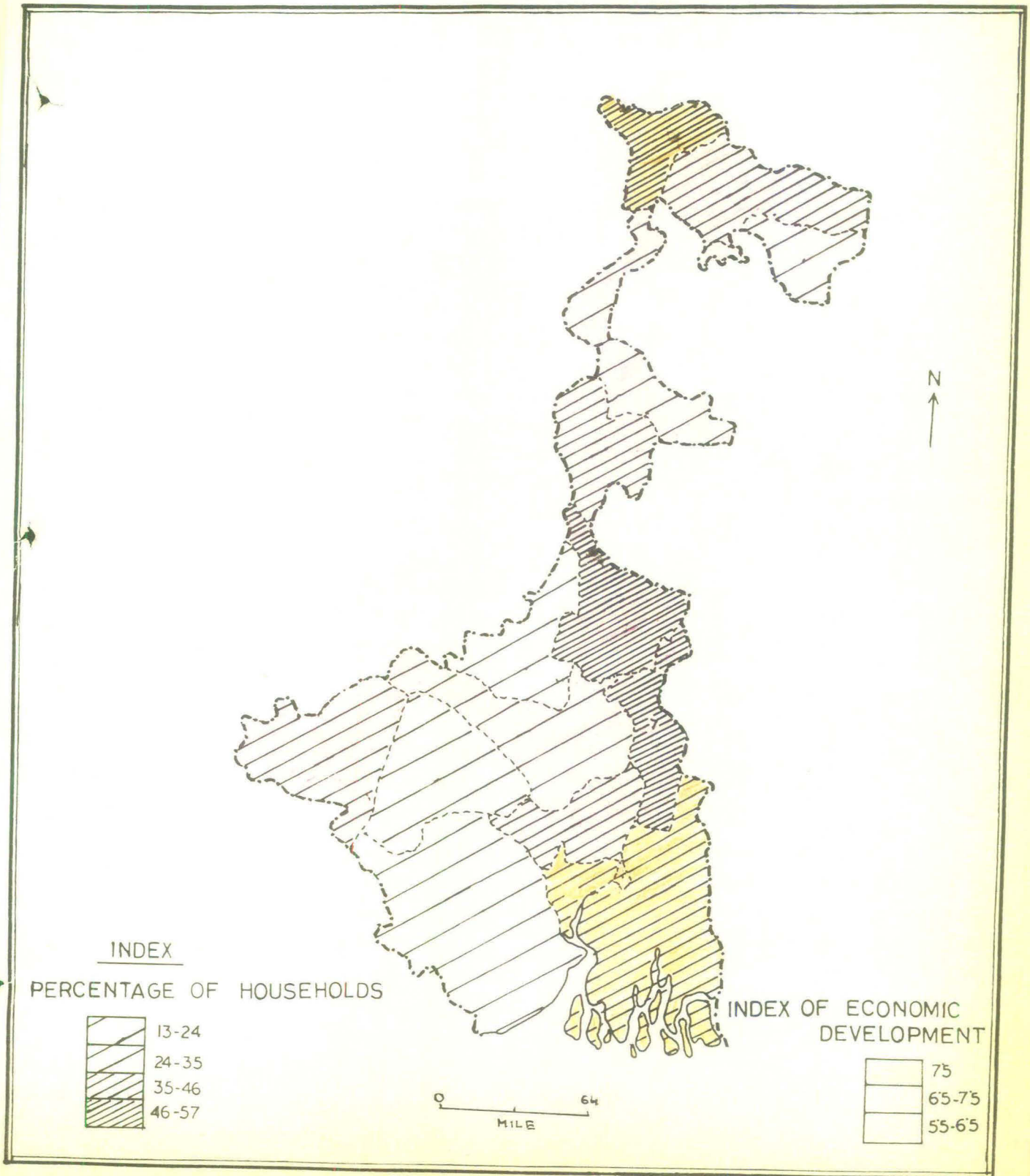


FIG:5

2.3.1 District level analysis:

Table No.21. represents that, the proportion of households on semi-pucca (i) and (ii) category is very less in these backward districts of Bankura, Birlhum, Burdwan, Puruliya, Midanapur etc. This shows, the economic inability of a large section of population to have even a semi-pucca house. But, always the use of building materials is not determined by the levels of development economic développement. Sometimes it depends on the availability of housing stock, climatic factor etc. For this reason, in the hilly districts of West Bengal, the existence of high proportion of semi-pucca houses does not indicate their better economic condition. In the districts of Darjiling Kochlihar and Jalpaiguri 22%.- 47% of the households live in semi-pucca II houses. In these districts the existence of large forest area and easy availability of stone in the hills, help the people to construct houses with timber and stone. For abundance of superior varieties of bamboo and timber, these are preferred to construct the wall and roof. But only the availability of these materials, do not guide exclusively the construction of particular house type. It also influenced by the typical climatic condition. The average annual/rainfall of this region varies from 280 cm - 380 cm. In such a rainfall area people have to use timber and stone rather than mud. Thus in those regions physiographic and climatic factors have strong influence in determining their house type.

The table shows that in the developed districts, also percentage of households in semi-pucca (iii) category is higher. As discussed earlier that, this category of houses have pucca roofing, Thus, it is stated that, better economic condition has helped higher percentage of households, to afford, the cost of costlier materials, like G.I. sheets, cement etc. This relationship will be more clear from map No.5.

2.3.2 Distribution of rural households in semi-pucca houses:

In the rural areas also the same pattern is observed Table No.22 shows that, 30% to 53% of the household can afford the cost of semi-pucca (iii) houses in the economically developed districts, Fig.no.6 will show this regional variation in relation to economic development.

2.3.3 Distribution of urban households in semi-pucca houses:

In comparison to rural areas higher proportion of urban households live in semi-pucca houses for their higher economic affordability. It is interesting to note that also the urban parts of the three hilly districts have highest proportion of semi-pucca houses. Fig.no.6 shows that, 59% to 74% of the households live in semi-pucca houses in these regions. Besides, the fig. also indicates the impact of economic development in making the variation.

WEST BENGAL

RURAL-URBAN DISTRIBUTION OF HOUSEHOLDS IN SEMI-PUCCA HOUSES AND LEVELS OF ECONOMIC DEVELOPMENT

1981

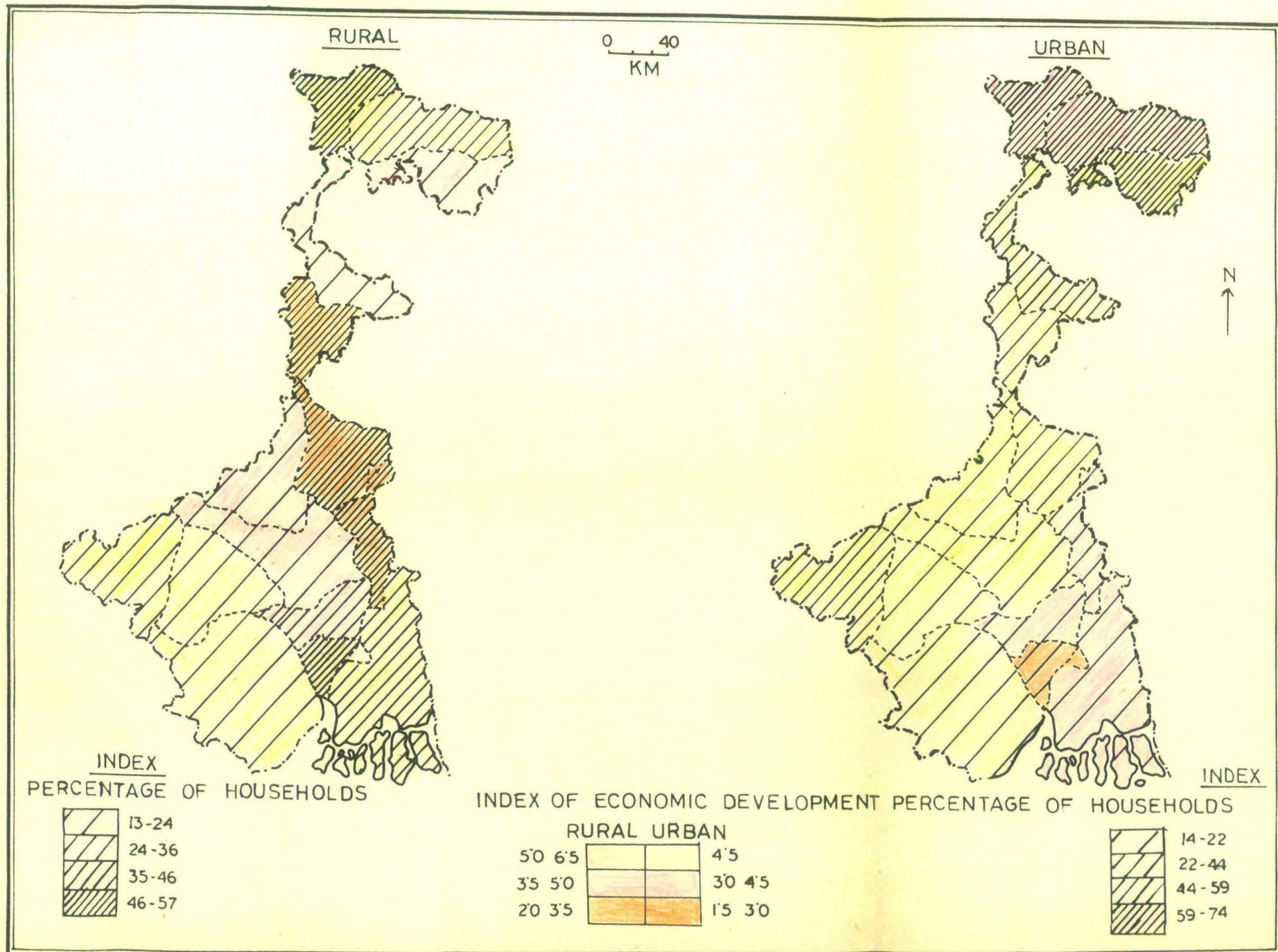


FIG:6

2.4 PUCCA HOUSE TYPE:

Since constructed with the durable and costliest materials like cement concrete etc, the existence of pucca houses indicate good housing quality as well as economic condition of the households. Thus it is expected that the economically developed regions will have high percentage of households in pucca houses.

2.4.1 District level analysis

Table No.2.1 shows that, .65% to 35% of the urban households live in pucca houses. In the districts of Bankura, Birlhum, Jalpaiguri, Kochbihæ, Puruliya, Midnapur etc. only 3% to 17% households can afford the cost of having pucca house. Since, pucca house is an important indicator of good housing quality, the data indicate poor housing quality throughout the state. The picture of regional variation is shown in Fig.no.03 which has followed the same pattern as discussed in the earlier sections.

2.4.2 Distribution of rural households in pucca houses:

For the poor rural people, it is really difficult to bear the cost of pucca house. For this reason only a small proportion of households are capable to live in pucca houses. Table No.2.2 represents this fact clearly. In all over the state, only .3% to 15% of households, live in pucca house,

WEST BENGAL

RURAL-URBAN DISTRIBUTION OF HOUSEHOLDS IN PUCCA HOUSES
AND LEVELS OF ECONOMIC DEVELOPMENT
1981

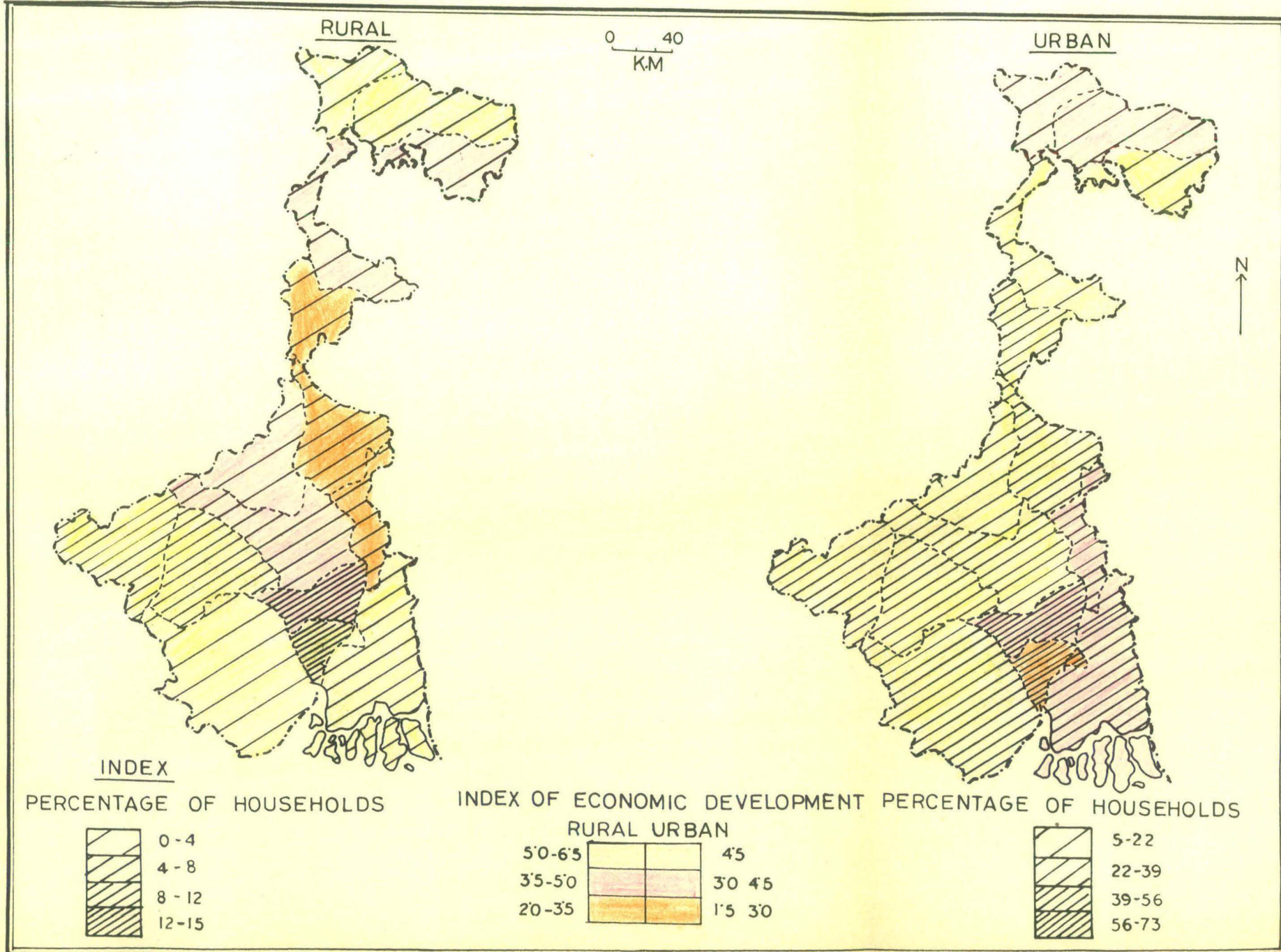


FIG:7

map No. 7 shows that, even in the economically developed regions, this proportion varies from 3% to 15%. It indicates that, inspite of better economic condition, people cannot bear the cost of pucca houses. The main reason for this is the dependence on backward, low productive agriculturally activity. Thus, the difference in levels economic development doesn't make any significant variation within the regions.

2.4.3 Distribution of Urban households in pucca house.

The condition is for better in urban areas, where larger proportion of households live in pucca houses. From the table no. 2.3 it is observed that, 55% to 72% of the households live in pucca houses in the districts of Haora, Hugli, 24-Parganas and Calcutta. In case of Burdwan, Malda, Murshidabad, Nadia and Puruliya this proportion varies from 41% to 57%. In rest of the regions it is ^{less} / than 40%. The picture of regional variation is clearly shown in map no. 7. This map shows that, except the highly developed regions, the levels of economic development has failed to make any significant variation over rest of the parts. But inspite of regional variation, the over all picture is not good for urban areas. As pucca house is considered as the indicator of good housing quality, these figures represent that, still a substantial proportion of households have poor housing quality.

By analysing the rural and urban picture, it is observed that, the housing quality is not good in respect of the distribution of house type. In the field survey it is observed that, rural people have given 21% weightage to the quality of building materials and it ranks second among the housing indicators. Thus, this shows the importance of building materials or the quality of houses to the rural people. In case of urban areas, people have given 10% weightage to building materials, and according to their view point, it ranks third among the components of housing quality.

Therefore, it is stated that both in rural and urban areas, building materials is considered as one of the major indicator in identifying the quality of housing. Despite its importance, a large section of population have poor housing quality as they live in kutcha houses.

The following section will make out the important characteristics existing in this aspect.

2.5 SUMMARY:

In light of the foregoing analysis, poor quality of housing in terms of its building material is observed throughout state. On an average 43% of the households live in kutcha houses, while this proportion exceeds 55% in case of rural areas. Such a high percentage of households in kutcha houses represents the degree of poor housing quality.

Alongwith the overall poor situation, a great rural-urban dichotomy prevails in each district. In rural areas about 56% of the households live in kutcha houses, while in urban areas, this proportion has been decreased to 6%. The similar contrast picture is observed in case of semi-pucca and pucca houses also.

Apart from rural-urban variation, the picture of regional disparity is also predominant in this state. Both the rural and urban areas of the surrounding districts of Calcutta have better housing quality in respect of building materials. The difference in levels of economic development partly responsible for this variation.

In the hilly districts the physiographic and climatic factors have dominated the factor of economic development. In some other districts like Haora, Hugli,

24-Paragana the relationship between level of economic development and building materials is very insignificant. Thus, it may be concluded that in West Bengal level of economic development has partial impact in determining the nature of building materials.

CHAPTER-III

BASIC AMENITIES

3.1 INTRODUCTION:

For analysing quality of housing in terms of availability of basic amenities, the following facilities have been taken into account:

- a) drinking water
- b) electricity
- c) toilet

Without these major requirements for daily life, a shelter can not provide a satisfactory housing quality.

The main objective of this chapter is to analyse the quality of housing in respect of household amenities, in different districts of West Bengal, and to mark out the pattern of regional variation.

For this purpose, the following indicators have been selected.

On the basis of available data, drinking water facilities have been divided into following categories:

- i) Percentage of households having protected drinking water source within the premise
- ii) Percentage of households having source of protected drinking water outside the premise .

- iii) Percentage of households having up-protected drinking water within the premise.
- iv) Percentage of households having unprotected drinking water outside the premise.

For electricity and toilet, it is the presence of absence of the two facilities, which has been taken into account.

On account of these indicators, the quality of housing has been analysed both for rural and urban areas seperately.

3.2 DRINKING WATER:

Availability of drinking water is essentially needed for daily life of every human being. The information obtained from the field survey shows, that people give highest weightage (29%) to drinking water in rural areas, while it has been considered in urban areas as second most important component of housing quality. This indicates the degree of importance of drinking water both in rural and urban areas. Therefore this item can easily be considered as a major component for measuring the housing quality.

3.2.1 District level analysis:

Table no. 3.1 gives detailed information about the condition of drinking water in all the districts as a whole.

TABLE 3-1.

WEST BENGAL

DISTRIBUTION OF HOUSEHOLDS WITH DRINKING WATER FACILITY

(Total), 1981

S. Districts No.	PWWP	PWOP	UNPWP	UNPOP
1. Bankura	2.71	22.76	7.15	67.88
2. Birhum	6.27	56.90	4.98	31.83
3. Burdwan	20.11	55.45	5.74	18.23
4. Calcutta	66.32	24.60	4.69	4.38
5. Darjiling	12.64	24.40	16.21	46.73
6. Haora	10.35	75.18	7.03	7.43
7. Hugli	18.24	72.44	3.48	5.83
8. Jalpaiguri	9.82	25.55	21.12	43.49
9. Kochlihar	33.63	29.60	2.16	23.79
10. Malda	8.77	45.91	6.16	39.14
11. Midnapur	6.39	51.20	10.22	32.18
12. Murshidabad	12.45	66.29	3.08	16.10
13. Nadia	31.40	56.25	5.92	6.41
14. Puruliya	2.08	9.45	10.31	78.14
15. 25 Pargana	20.51	69.55	3.45	6.48
16. W.Dinajpur	11.69	32.24	12.83	43.24
17. West Bengal	17.69	51.69	7.29	23.08

Source: Compiled from Census of India, 1981, Series 23,
West Bengal, Part VIII A & B (ii) Household tables.

PWWP - Protected water within premise.
PWOP - Protected water outside premises.
UNPWP - Unprotected water within premise.
UNPOP - Unprotected water outside premises.

Protected water supply within the premises, generally indicates the economic condition of the households. From the table it is observed, that in the state as a whole, only 18% households have this facility. When the districts are taken into consideration, it is observed that, only few districts have better condition than the state average in this respect. Among those districts, Burdwan, Calcutta, Kochlihar, Nadia and 24-Pargana have high percentages. Rest of the regions are far beyond the state average , where this proportion ranges from 2% to 12%. For most of the regions, the unaffordability of people to bear the cost of having own well, pump etc. is responsible for this poor situation. This factor is possibly true for the economically backward districts, like Bankura, Birlhum, Puruliya, Midnapur etc. Along with the economic factor, the physiographic factor also exerts partial impact in those districts. For the plateau structure of those regions the construction cost of well,pump etc. has turned out to be costlier. Thus, only the rich households have been able to get their own pump, well etc. But in case of economically developed sitriacts, like Haora, Hugli, 24.Pargana, Malda, the presence of larger number of well pump etc. outside the premise, make people unwilling to have own source of drinking water, which incur the extra cost for them.

In case of protected water supply outside the premises, the situation is quite better. For the state as whole, 51% of the households get this facility outside their premises. The table shown that, quite a large number of districts have this proportion higher than the state average. For example in Hawra, Hugli, 24-Pargana Nadia, Murshidabad, Burdwan, Malda, this proportion ranges from 51% to 75%, which is quite satisfactory. In rest of the regions, it is as poor as the first category. Protected source of drinking water outside the premises, usually is provided by the various government agencies. Thus, the data reflect the inefficiency of the Government to fulfill the need for drinking water in some parts of the state. Their activity has been limited only within the surrounding districts of Calcutta.

Un-protected water supply includes all the natural source of water, like, river, canal, tank etc. For all the economically poor households, it is the only source of drinking water. From the table it is observed that, in most of the districts quite a substantial proportion of households depend on those source of drinking water. Among them, the larger share of households get this facility outside their premises. It is important to notice that, except the neighbouring districts of Calcutta, in rest of the parts it is the only source of water for 23% to 78% households. Among these districts, the condition is worst in Bankura, Birbhum, Darjiling, Jalpaiguri, Malda, Midnapur Puruliya, West Rinpur, This shows the degree of backwardness/^{of} those region.

Therefore, this distributional pattern represent poor housing quality in respect of drinking water facility, prevails in most of the regions. As the availability of this essential need is closely related with economic condition of the household, one can analyse this existing disparity from the view point of economic development. The districts of Bankura, Birbhum Puruliya, Midnapur, W. Rainjpur have been considered as economically backward. Here also, these districts have the highest share of households collecting water from unprotected source. Thus the low level of economic development can be considered as the major responsible factor for this existing poor condition.

As the prime need of man, water is the most important component for living. From that point of view, it can be stated that, large proportion of households are suffering from low living standard in most of the parts of the state.

3.2.2. Drinking Water Facility in Rural Areas:

Usually in rural areas for poor economic condition large proportion of people depend on tank, river or well, for collecting drinking water. The facility of pump or tube well is very limited within some regions. The related table no.3.2 shows the clear picture about the facility of drinking water. From that table it is observed that only 10% of the

WEST BENGAL

DISTRIBUTION OF RURAL HOUSEHOLDS WITH DIFFERENT SOURCE OF DRINKING WATER

1981

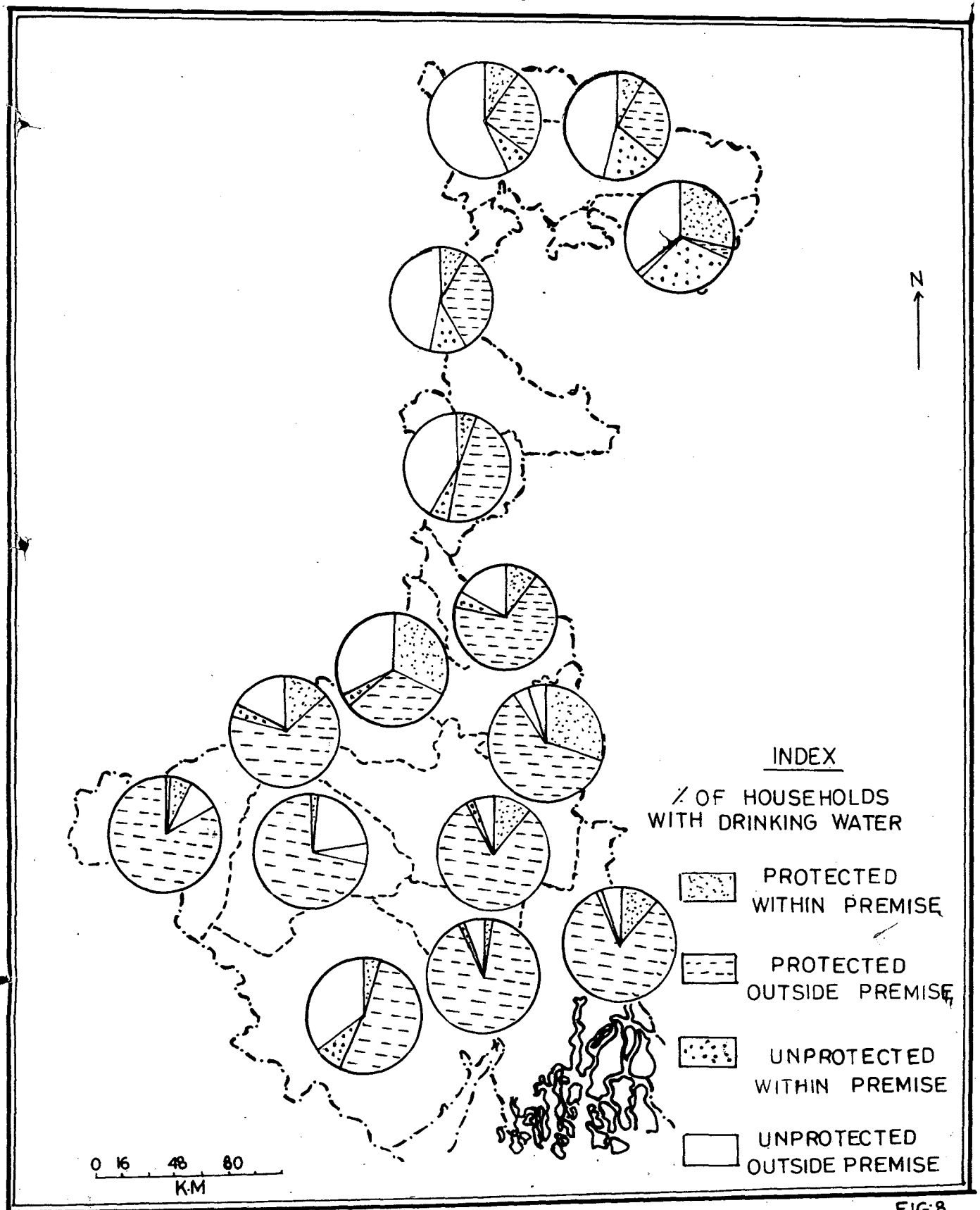


FIG:8

TABLE 3-2.

WEST BENGALDISTRIBUTION OF RURAL HOUSEHOLDS WITH DRINKING WATER FACILITY

		1981			
S. No.	Districts	PWWP	PWOP	UNWWP	UNWOP
1.	Bankura	1.94	20.85	5.84	71.36
2.	Birahum	5.82	57.86	3.53	32.78
3.	Birdwan	13.32	65.84	2.94	16.72
4.	Darjiling	9.95	24.68	8.27	57.08
5.	Hawara	2.06	90.50	1.10	6.32
6.	Hugli	10.79	81.17	1.76	6.27
7.	Jalpaiguri	7.96	27.04	18.36	46.63
8.	Kochlihar	31.63	30.64	1.28	24.89
9.	Malda	7.59	45.91	5.78	40.70
10.	Midnapur	4.96	52.46	9.00	33.58
11.	Murshidabad	10.10	67.99	4.86	10.98
12.	Nadia	28.32	69.93	3.97	6.76
13.	Puruliya	40	7.16 (i)	9.57	82.86
14.	24 -Pargana	10.70	82.17	.97	6.15
15.	W.Dinajpur	8.86	33.18	11.38	46.59
16.	West Bengal	10.04	55.74	6.02	28.19

Source: Compiled from Census of India, 1981, West Bengal
part VIII A & B (ii) Household tables.

households have tube well, pump or well within their premises in the state as a whole. Except few districts, like Burdwan, Hugli, Kochlihar Murshidabad, Nadia and 24-Pargana, in rest of the parts this proportion varies from 1% to 9%. It is lowest in Bankura (1.9%) and Puruliya (40%) whereas Kochlihar has the highest percentage (31%) in this respect. This shows the poor economic condition of the rural people throughout the states which limits their capability ^{of} having own pump or well.

The proportion is quite higher in respect of the next category households with protected drinking water outside the premises. Here larger number of districts have more than 50% of the households with this facility. In spite of better condition, the picture of regional variation is also very prominent. This figure is highest in the three adjacent districts of Calcutta, Hawara (90%) Hugli (81%) 24 Pargana (82%). In Birbhum, Burdwan, Midanapur, Murshidabad and Nadia this percentage varies from 52% to 67%. On the contrary, in rest of the parts 7% to 45% households collect drinking water outside the premises.

Dependency on unprotected source of drinking water often creates health hazards in that particular region. In spite of this it is observed that, huge proportion of households depend entirely on those source of water for drinking purpose. In case of unprotected water within the premise, the data show little variation within the districts.

This proportion ranges from 1% to 18%.

But over a broad region, a large section of population does not have any alternative but using those source of unprotected water outside the premises. The condition has turned ^{out} to be worse in Bankura and Puruliya where the proportion is 71% & 81% respectively. Except Hawra, Hugli, Nadia, 24-Pargana, in rest of the parts this proportion varies from 16% to 57%. The distribution pattern would be more clear from map no. 8.

Thus, all these above mentioned figures indicate poor housing quality as well as the intensity of poverty of the rural people. Besides, these also show the insignificant relationship between levels of economic development and drinking water availability in some districts.

3.2.3 Drinking Water facility in urban areas:

Usually, the urban peoples have much better economic condition in comparison to rural areas. Thus, the situation is quite different in this particular aspect of housing also.

Table no. 3 will help to identify this contrasting picture. For better economic condition of the urbanities, in all the district much higher percentage of households have

TABLE 3-3

WEST BENGAL

DISTRIBUTION OF HOUSEHOLDS WITH DIFFERENT SOURCE OF
DRINKING WATER (URBAN), 1981

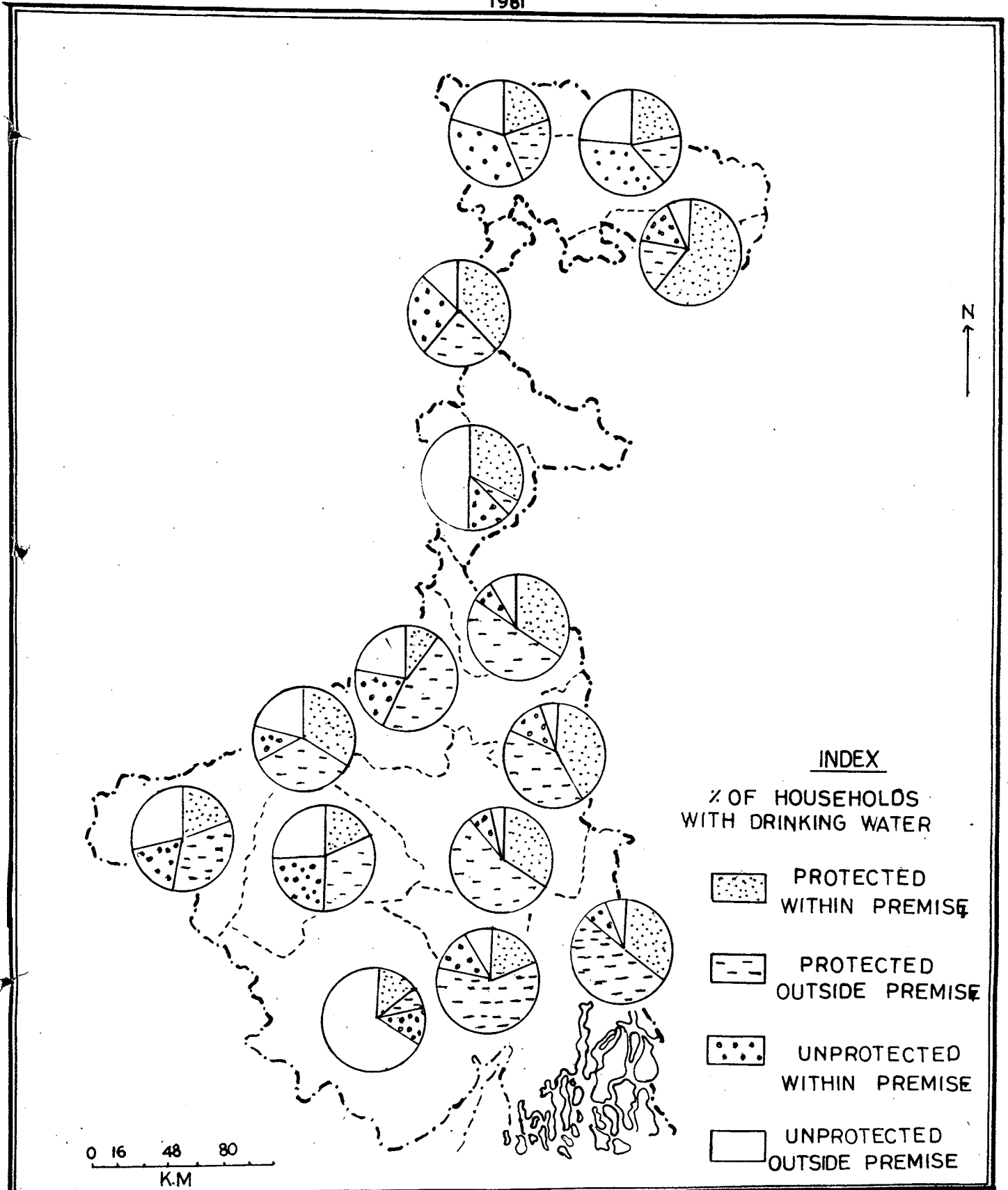
S.No.	Districts	PWWP	PWOP	UNPWP	UNPOP
1.	Bankura	12.13	39.40	23.18	25.28
2.	Birbhum	11.16	46.56	20.75	21.51
3.	Burdwan	33.39	33.54	11.64	21.43
4.	Calcutta	66.32	24.60	4.69	4.38
5.	Darjiling	19.71	23.66	37.11	19.50
6.	Hawara	19.06	59.08	13.25	8.59
7.	Hugli	33.30	54.79	6.95	4.94
8.	Jalpaiguri	21.48	16.21	38.53	23.77
9.	Kochlihar	62.77	14.54	14.89	7.79
10.	Malda	32.55	4.58	13.70	77.86
11.	Midnapur	21.57	37.95	23.02	17.46
12.	Murshidabad	34.38	50.52	7.18	7.90
13.	Nadia	41.93	40.25	12.60	55.20
14.	Puruliya	19.78	33.67	18.13	28.40
15.	24-Pargana	34.74	51.24	7.05	6.96
16.	W.Dirjapur	36.93	23.91	25.85	13.20
17.	West Bengal	38.67	41.12	10.59	9.62

Source: Compiled from Census of India, 1981, series 23,
West Bengal, Part VIII A&B (ii) Household Tables.

WEST BENGAL

DISTRIBUTION OF HOUSEHOLDS WITH DIFFERENT SOURCE OF DRINKING WATER

URBAN
1981



their own source of drinking water. In case of within the premise, the proportion varies from 11% to 62% whereas, it is 14% to 58% for outside the premises.

But, inspite of overall better situation, some districts have more developed condition. The pattern of regional variation has been shown clearly in map no. 49. The main reason for this is the existing difference in levels of economic development. All the economically advanced districts, like Hawara, Hugli, Nadia, Murshidabad 24- Pargana etc. provide the supply of protected drinking water to a large proportion of households. On the contrary in the less developed districts, like Bankura, Birlhum, Jalpaiguri Pululiya more than 40% of the households collect drinking water from unprotected source. Therefore, it can be concluded that, both in rural and urban areas, a substantial proportion of house holds, live in poor housing condition in respect of unavailability of having proper source of drinking water which is a vital requirements of daily life.

3.3 ELECTRICITY:

The facility of electricity is one of the important indicator of housing standard. It not only provides the source of power for domestic lighting, but also indicates access to various aspects of modern life. Therefore, it has become one of the necessary services rather than a luxury item for all the households.

TABLE 3-4WEST BENGALDISTRIBUTION OF HOUSEHOLDS HAVING ELECTRICITY, 1981

S.No.	Districts	Total	Rural	Urban
1.	Bankura	14.39	10.46	62.45
2.	Birahum	14.42	12.23	38.08
3.	Burdwan	26.65	11.28	59.09
4.	Calcutta	83.66	--	83.66
5.	Darjiling	23.9	10.10	60.19
6.	Haora	26.79	5.69	48.95
7.	Hugli	22.85	9.84	49.17
8.	Jalpaiguri	14.01	9.17	44.49
9.	Kochlihar	7.61	3.23	70.98
10.	Midnapur	7.26	3.75	44.11
11.	Murshidabad	7.67	4.34	38.63
12.	Nadia	15.28	6.41	45.54
13.	Puruliya	6.73	2.79	48.23
14.	24-Pargana	23.06	4.08	50.61
15.	W.Dirajpur	8.47	5.28	37.82
16.	West Bengal	21.08	7.01	57.86

Source : Compiled from Census of India, 1981, Series 23,
West Bengal, Part VIII A&B (11) Household tables.

It is interesting to note that, in field survey people both from rural and urban background, have given some weightage (19%) to electricity, and they have preferred it as the third important indicator for housing quality. From this the importance of electricity is easily understood.

3.3.1 District level analysis:

The following table no.3.4 shows, districtwise distribution of households in electrified houses. This table represents a unthinkable situation in West Bengal, which is considered as one of the urbanised state of the country. From the data it is observed that, for the whole state, only 21% of the households enjoy this facility. Only the few districts, like, Darjiling Malda, 24-Pargana Haora, Hugli, and Burdwan, have little higher percentage of households with electricity, than the state average. This proportion ranges from 7% to 15% over rest of the regions. Thus, with little regional variation, the overall picture indicates poor housing quality in term of electricity availability.

3.3.2 Facility of electricity in rural areas:

The rural electrification is still far from its target in the state of West Bengal. The related table represents this fact, where only 3% to 19% of the rural households

WEST BENGAL

DISTRIBUTION OF HOUSEHOLDS WITH ELECTRICITY

1981

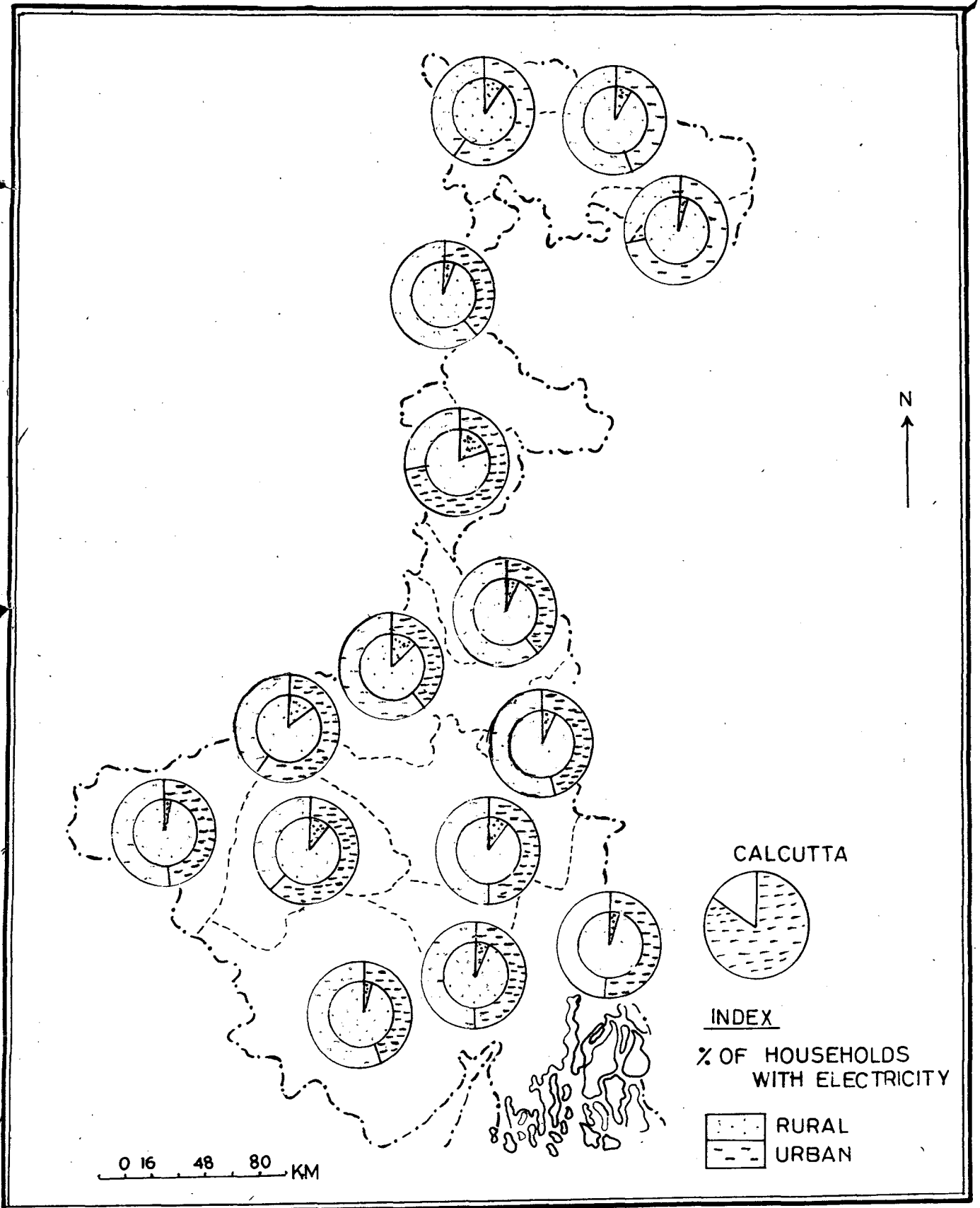


FIG:10

have electricity . In Bankura, Bulhum, and Burdwan this proportion is higher, ranging from 10% to 12%. It is interesting to note that, in the adjoining districts of Calcutta, this proportion varies from 4% to 9% . The economic condition of people is expected to have a dominant role for the non-availability of electricity. It is also usually noticed that inspite of electrification, the poor economic condition makes people incapable to bear the cost of electricity.

Thus, this factor has determined such a poor condition all over the state. Regarding this situation it is stated that rural West Bengal is suffering from poor housing quality in respect of electricity availability.

3.3.3. Facility of Electricity in Urban Areas:

In urban areas, electricity is considered as an indispensable item for daily life. Thus, in comparison to rural areas, the urbanities enjoy this facility more in number. The proportion of households in electrified houses, ranges from 37% to 83% in the different districts. It is highest in Calcutta. In spite of better situation, in some districts this proportion is far from expectation. In Birhum, Haora, Hugli, Jallpuri, Midanapur, Murshidabad, Puruliya it ranges from 37% to 49% . It is difficult to explain the reason for this low proportion in the industrialised and urbanised

districts like Haora, Hugli, 24 -Parganas. Therefore, inspite of better situation the overall picture does not show a good condition for an urban area.

The rural urban disparity in this particular aspect is clearly shown from the fig. no. 10. The proportion of households with electricity is much higher in the urban areas. This great rural urban disparity indicates the difference in economic condition of the households. But , it is important to note that, levels of economic development do not have any impact on the availability of electricity within the districts.

3.4 TOILET:

Toilet is considered as one of the most important requirements for a healthy living standard. Adequate toilet facility ensure the proper disposal of human waste, and minimise hazards to health by preventing the spread of diseases. For this reason, proper toilet facility is essential for each an every household. From the field survey it is seen that people from urban areas have given highest weightage (28%) to toilet facility and consider it as the most important indicator for good housing quality. Thus considering its importance it is important to analyse the housing quality in respect of toilet facility. Inspite of its importance and requirements in rural area also, for non-

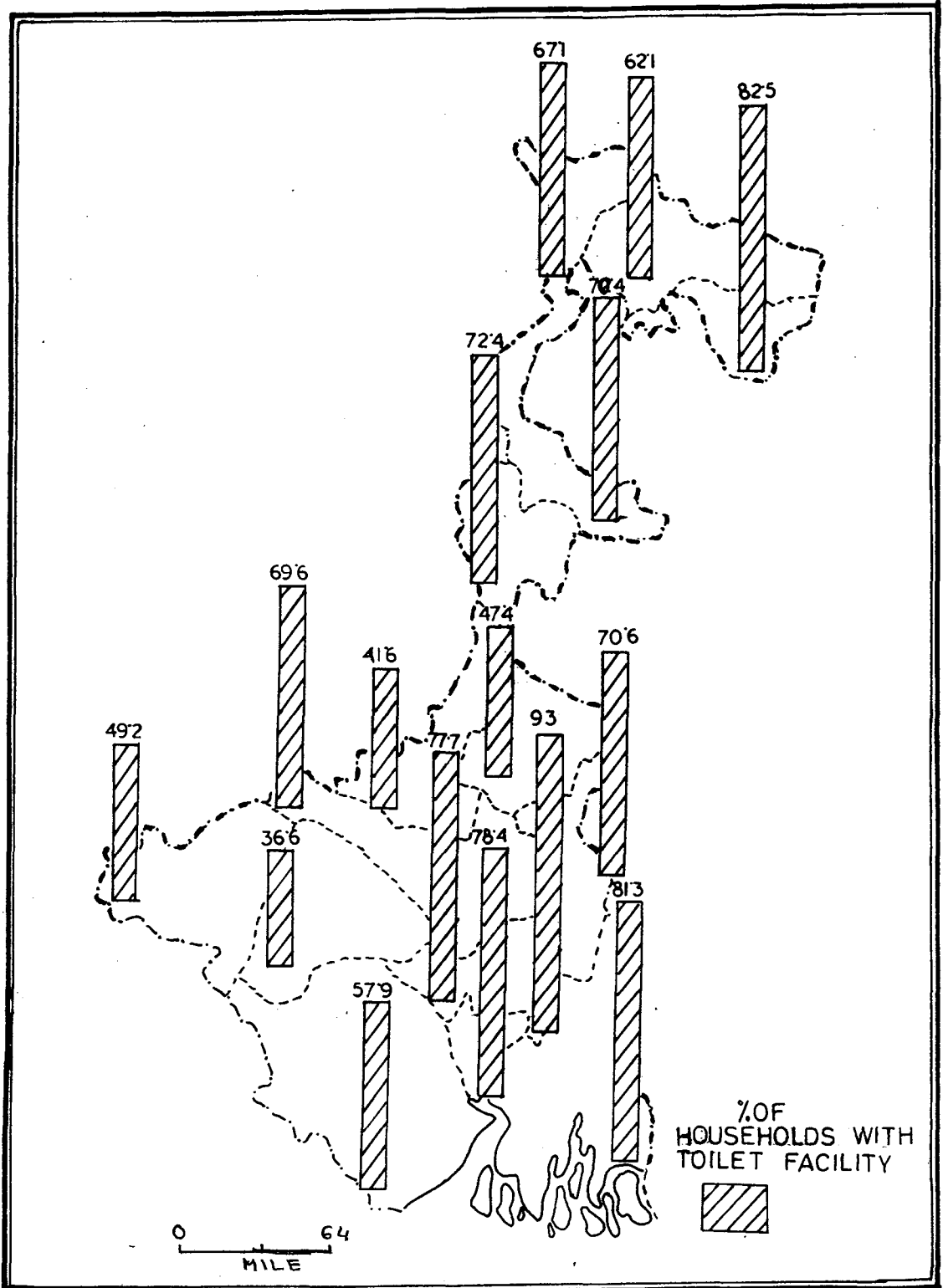
TABLE 3-5WEST BENGALDISTRIBUTION OF TOILET FACILITY IN URBAN HOUSEHOLDS, 1981

S.No.	Districts	Toilet
1.	Bankura	36.65 17 8
2.	Birahum	41.65 16 10
3.	Burdwan	69.66 10 13
4.	Calcutta	92.97 1 1
5.	Darjiling	67.13 11 4
6.	Haora	78.42 24 2
7.	Hugli	77.72 5 3
8.	Kochilhar	82.50 2 5
9.	Jalpaiguri	62.17 12 12
10.	Malda	72.43 7 16
11.	Midnapur	57.95 13 14
12.	Murshidabad	47.49 15 11
13.	Nadia	70.65 8 7
14.	Puruliya	49.20 14 9
15.	24-Pargana	81.34 3 6
16.	W.Dinajpur	70.49 9 15
17.	West Bengal	77.73 5

Source: Computed from Census of India, Series, 23, West Bengal
Part VIII A&B (ii), Household tables.

WEST BENGAL

DISTRIBUTION OF URBAN HOUSEHOLDS WITH TOILET FACILITY
1981



availability of data it has been taken as an indicator of housing quality only for urban areas.

On the basis of selected indicator the following table No.3.5 shows district wise distribution of household with toilet facility. From that table it is observed that the data on the availability of toilet facility represents quite a good situation for the state as a whole. In the state, about 78% of the urban households have toilet facility. This proportion is higher than the state average in Calcutta, Haora, Hugli, 24-Pargana, Kochilads (93%) with toilet facility. Apart from these districts this percentage is also higher in Malda, Jalpaiguri, Darjiling ,Nadia, and Burdwan districts, ranging from 60% to 72%. All these districts are more urbanised and developed. Rest of the districts have poor situation in respect of toilet facility, where only 36% to 58% households have this facility. The poor economic condition of the house holds is responsible to make the situation poorer in those districts. Thus, from this it is stated that, these districts have poor housing quality in respect of toilet facility.

3.5 SUMMARY:

From the preceeding analysis it is observed that the basic housing amenities are not available to the larger section of households. Specially in case of electricity the condition is worse. Only 21% of the households can avail this facility while this proportion has become 7% in case of rural areas.

In respect of basic amenities also the rural-urban differential is very prominent. In rural areas about 65% of the households use protected source of drinking water and 7% of the households can avail the facility of electricity. On the contrary, these proportions have increased to 80% and 58% in the respective urban areas.

It is interesting to mark that the availability of electricity is distributed quite uniformly irrespective of the factor of economic development. But in the context of drinking water and toilet facility, the impact of economic development is quite prominent.

Therefore it may be stated that the levels of basic amenities depend partially on the factor of economic development.

CHAPTER - IV

INTENSITY OF USE

4.1 INTRODUCTION

The factor of crowding is usually considered as one of the determining indicator of housing quality. In this chapter the condition of crowding has been analysed from density and privacy of person.

Therefore, the main objective of this chapter, is to focus on the existing pattern of density of persons and the degree of privacy at the household, and thereby to examine the quality of housing and its regional variation.

The following indicators have been used for analysing the crowding condition both in rural and urban areas:

- 1) Persons per household
- 2) Average number of rooms per household
- 3) Proportion of household having one room
- 4) Percentage of households having less than 1 person per room.
- 5) Percentage of households having 1-2 persons per room
- 6) Percentage of households having 2-3 persons per room
- 7) Percentage of households having 3-4 persons per room
- 8) Percentage of households having 4+ persons per room
- 9) Percentage of households where 2 or more couples share one room.

On account of these indicators, the districts show various picture about the crowding situation.

4.2 THE AVERAGE HOUSEHOLD RISE:

The average size of the household partially determine the extent of crowding situation in the house. Table No.4.1 shows districtwise distribution of average household size. From that table, two important features are marked out:

- a) Uniform pattern of average household size, and
- b) little rural urban difference.

Throughout the state the average household size ranges between 5 to 6. The average household size is little higher in rural areas which can partially create conjection problem in the house.

The figures of average household size throughout the state indicate crowding situation in the house. Therefore, it is important to analyse the extent of crowding with the help of other indicators.

4.3 THE SPECIAL PATTERN OF CROWDING AND ITS'S EXTENT:

The extent of crowding has been analysed with the help of number of rooms/household, percentage of households in one room and persons per room.

TABLE 4-1

WEST BENGAL

DISTRIBUTION OF PERSONS PER HOUSEHOLD, 1981

Districts	Total	Rural	Urban
Bankura	5.76	5.77	5.73
Birbhum	5.58	5.59	5.44
Burdwan	5.62	5.95	5.93
Calcutta	5.29	--	5.29
Darjiling	5.28	5.28	5.27
Haora	5.55	5.99	5.10
Hugli	5.65	5.97	5.02
Jalpaiguri	5.28	5.27	5.36
Kochlihar	5.36	5.35	5.54
Malda	5.82	5.82	5.79
Midnapur	5.75	5.78	5.53
Murshidabad	5.83	5.86	5.60
Nadia	5.90	5.99	5.58
Puruliya	5.55	5.54	5.74
24-Pargana	5.57	5.78	5.27
W.Dinajpur	5.49	5.45	5.90
W.Bengal	5.61	5.74	5.26

Source: Compiled from Census of India, 1981 series 23,
West Bengal Part VIII A&B (i) household tables.

4.3.1 District level analysis:

Table no.4.2 shows the figures for district total.

This table shows that, the number of rooms per household varies between one to two rooms. Indefinitely, these figures indicate quite a high concentration of population in the house. Besides, in each district more than 50% of the households live in one room tenement. In case of Nadia, 24-Pargana and W.Binajpur this proportion has increased to more than 60%. All these figures represent the incapability of the household to live spacioously. With the economic inability, the space problem also is expected to act a dominant role to make this crowding problem. On account of those indicators, it is stated that, the extent of crowding shows quite a uniform pattern. The extent of crowding has been analysed by using the indicator persons per room. From that table it is observed that, persons per room has increased with the decrease in number of rooms per household.

In all the districts, very few proportion of households have density of persons less than one per room. In Burdwan and Darjiling, highest proportion of households have density one to two persons per room, where the average number of room is also higher. In rest of the parts, this proportion is more or less uniform. Much variation is observed in case of more than three persons per room which represent the actual picture of crowding.

Thus, on the basis of this indicator, the districts have been grouped to find out the intensity of crowding.

TABLE 4-2

WEST BENGALOCCUPATION DENSITY OF THE HOUSEHOLDS (TOTAL), 1981

S. Districts No.	Average no. of rooms	% of house- holds having one per- son.	Person per room				
			Less than 1 per- son	1-2 per- sons	2-3 per- son	3-4 person	4+
1. Bankura	1.69	56.51	1.00	23.73	18.53	27.43	27.97
2. Birbhum	1.76	53.29	1.50	26.50	18.54	26.32	25.43
3. Burdwan	1.85	45.35	2.90	32.26	18.50	23.85	19.24
4. Calcutta	1.81	53.00	1.67	3.44	18.58	19.96	21.30
5. Darjiling	2.05	43.06	3.13	34.17	20.14	21.40	19.14
6. Haora	1.72	55.28	.98	27.75	18.28	26.03	24.92
7. Hugli	1.83	50.60	1.32	29.39	19.37	25.53	22.72
8. Jalpaiguri	1.81	53.45	1.25	24.30	20.58	26.86	24.39
9. Kochlihar	1.76	54.07	.65	25.73	23.75	25.98	21.83
10. Malda	1.71	53.88	.55	23.07	21.21	27.38	26.34
11. Midnapur	1.68	54.42	.95	23.91	17.76	26.14	28.62
12. Murshidabad	1.70	25.19	1.14	23.91	18.64	27.11	28.12
13. Nadia	1.45	69.07	.60	16.26	15.86	26.25	40.35
14. Puruliya	1.64	54.86	.69	24.00	20.37	27.98	25.29
15. 24-Pargana	1.47	67.55	.66	20.25	17.03	23.22	35.76
16. W. Dirnajpur	1.49	64.53	.38	18.64	19.93	28.10	31.58
17. W. Bengal	1.66	56.92	1.14	24.88	18.58	25.39	27.91

Source: Compiled from Census of India, 1981, Series 23,
West Bengal, Part VIII A&B (i), Household tables.

TABLE 4-3

WEST BENGAL

SPATIAL PATTERN OF CROWDING, 1981

Range	Districts
Low (40-50%)	Burdwan, Calcutta, Darjiling, Hugli Kochlihur.
Medium (50-60%)	Bankura, Birlhum, Malda, Midnapur, Puruliya, 24-Pargana, Murishdabad, W.Dinajpur.
High >60%	Nadia

From the preceeding table, the relative variation is observed ^{within} the overall high congestion. But without other related factors it is difficult to explain this variation. Thus, it can be concluded that, in all the districts of West Bengal, large number of households suffering from poor housing quality in respect of crowding condition.

4.3.2 The extent of crowding in rural areas:

The preference of rural people for large family size and their economic incapability, usually create the crowding problem in rural areas. Table.4.4 shows the spatial pattern of crowding condition in the rural parts of different districts. In this case also, the average number of rooms per household is more or less same for all the districts. Again it ranges between one to two room per household on an average. Besides, except Burdwan, Hugli and Darjiling, in all the districts more than 50% of the households live in one room. In case of Nadia and 24 Pargana it has an increased to 70% ,as these two districts have less number of rooms per household. All the districts show more or less similar picture in case of density of persons less than one, one to two and two to three per room. Little better situation is observed in Burdwan, and Darjiling, where higher proportion of households (30% - 33%) have density of persons per room one to two. To find out the extent of crowding the following table has been prepared.

TABLE 4-4.

WEST BENGALOCCUPATION DENSITY OF THE RURAL HOUSEHOLDS

1981

Sl. District No.	Average no. of rooms	% of house- holds having one room per- son	Persons per room				
			Less than one son	1-2 per- son	2-3 per- son	3-4 per- son	4 +
1. Bankura	1.66	57.23	.88	23.15	18.55	27.67	28.46
2. Birbhum	1.86	53.61	1.41	26.15	18.43	25.56	25.74
3. Burdwan	1.73	48.10	2.18	30.54	19.11	25.38	21.33
4. Darjiling	2.01	41.51	3.18	33.36	20.36	21.75	19.54
5. Haora	1.70	50.34	.79	22.40	18.29	30.52	26.45
6. Hugli	1.86	47.34	1.05	26.86	19.72	27.77	23.10
7. Jalpaiguri	1.59	52.95	1.16	23.99	20.79	27.31	24.17
8. Kochlihar	1.72	53.78	.62	26.83	24.00	26.07	21.46
9. Malda	1.70	54.29	.48	22.80	21.22	18.48	26.57
10. Midnapur	1.66	55.56	.76	23.07	17.78	26.46	29.51
11. Murshidabad	1.67	55.82	1.01	22.51	18.60	27.42	28.60
12. Nadia	1.37	72.12	.29	14.25	16.32	26.66	43.10
13. Puruliya	1.59	55.85	.53	23.23	20.60	28.45	25.72
14. 24 Pargana	1.33	74.38	.23	14.02	15.67	25.21	43.34
15. W. Dinajpur	1.46	65.82	.31	18.28	20.22	28.13	31.74
16. W. Behgal	1.62	58.24	.86	22.33	18.56	25.73	29.88

Source: Compiled from Census of India, 1981 Series 23, West Bengal Part VIII A&B (i) Household Tables.

TABLE 4-5

WEST BENGAL

DISTRIBUTION OF HOUSEHOLDS HAVING DENSITY OF PERSONS MORE

THAN THREE PER ROOM

(Total), 1981

<u>Rnage</u>	<u>Districts</u>
Low (45% - 55%)	Birlhum, Burdwan, Darjiling, Hugli, Jalpaiguri, Kochilpur, Malda, Paurliya.
Medium (55% - 65%)	Bankura, Haora, Midanapur, Murshidabad, W.Dinajpur
High >65%	Nadia, 24 Pargana

Table 4.5 shows the regional variation within the districts, which is difficult to explain. This can't be explained only on the basis of population density, average household size and economic development seperately. In case of Nadia, and 24 Pargana high population density, with high refugee flow may make the crowding condition critical. For rest of the regions, all the factors together influence to make this variation. Without regarding the regional variation, over all high conjection can be noticed easily. Throughout the state, 45% to 70% households live in crowded condition. Therefore, it is stated that, as a result of various factors, the rural areas of West Bengal are facing the problem of conjection, as well as poor housing quality.

TABLE 4-6

WEST BENGAL

OCCUPATION DENSITY OF URBAN HOUSEHOLDS

Sl. No.	Districts	Average no. of room/H.H.	% of house-holds having one room,	Person per room				
				Less than one person	1-2 person	2-3 person	3-4 person	4 + person
1.	Bankura	2.07	47.65	2.47	30.79	18.35	24.49	21.95
2.	Birbhum	2.08	49.81	2.49	30.30	19.72	23.73	22.08
3.	Burdwan	1.83	39.54	4.42	26.22	17.40	20.62	14.85
4.	Calcutta	1.81	53.00	1.67	33.44	18.58	19.96	21.36
5.	Darjiling	2.16	47.14	2.95	26.31	19.55	20.49	18.08
6.	Haora	1.74	60.46	1.18	33.36	18.27	21.33	23.31
7.	Hugli	1.75	57.19	1.87	34.52	18.65	20.99	21.97
8.	Jalpaiguri	1.72	56.60	1.77	25.28	19.31	24.03	26.25
9.	Kochlihar	1.81	58.26	1.14	25.28	20.01	24.66	27.12
10.	Malda	1.98	40.17	2.08	28.44	20.96	20.59	21.72
11.	Midnapur	1.98	42.35	2.92	32.67	17.64	22.79	19.30
12.	Murshidabad	1.97	49.29	2.33	28.95	18.99	23.96	23.62
13.	Nadia	1.73	58.69	1.67	23.14	24.86	24.86	30.94
14.	Puruliya	2.21	44.38	2.39	32.12	17.98	22.96	20.81
15.	24-Pargana	1.68	57.63	1.13	29.50	19.14	22.80	24.75
16.	W.Dinajpur	1.75	53.05	1.02	21.81	19.09	27.87	30.15
17.	W.Bengal	1.78	53.48	1.87	31.56	18.62	21.89	22.48

Source: Compiled from Census of India, 1981, series 23, West Bengal Part VIII A&B (i) Household tables.

4.3.3 The extent of crowding in urban areas:

Usually space problem is more acute in urban areas than the rural. But at the same time often the better economic condition dominates that existing space scarcity. For this reason, from table No.4.6 it is observed that, the average number of rooms per household quite higher than the rural areas. In all the districts, the households have more than one room, while Bankura, Birlhum, Darjiling and Puruliya have an average more than two rooms per household. Besides, the percentage of households in one room ranges between 39% to 60%, lesser than rural areas. The table shows that, higher percentage of households varying from 1% to 4% , having density of persons less than one per room. In the next category of density per room, the percentage is also comparatively higher than the rural counterparts. For analysing the extent of crowding property, the following table has been prepared.

TABLE 4-7.

WEST BENGAL

DISTRIBUTION OF HOUSEHOLDS HAVING DENSITY OF PERSONS
MORE THAN THREE PER ROOM
(URBAN),1981

<u>Range</u>	<u>Districts</u>
Low 35% - 45%	Malda, Murshidabad, Midnapur. Burdwan, Calcutta, Darjiling, Haora, Hugli
Medium 45% - 55%	Bankura, Birlhum, Jalpaiguri, Kochliar Piruliya.
High >55%	Nadia, W.Dinajpur.

From this table it is observed that, most of the economically developed and urbanised districts, like Haora, Hugli, Calcutta, 24-Paragana, Burdwan have comparatively low crowding problem. It is expected that space scarcity would be acute in those densely populated, urbanised districts. Hence, it is stated that most of the households have been able to overcome the space problem for their better economic condition. Even in Calcutta also, the crowding is not so acute problem. In case of Nadia and W.Dinajpur population density and low level of economic development have increased the degree of conjection.

But inspite of regional variation, and better condition than rural area, the over all picture of crowding is not negligible. In most of the districts, more than 40% of the households are suffering from the problem of crowding, as well as poor housing quality. Thus in urban areas also the economic factor have not made any significant difference in this aspect.

By comparing the rural and urban areas it is observed that, the degree of crowding is higher in rural areas, which is quite unusual. The main reason for this, is the difference in levels of economic condition of the households. For this reason the economically poor rural people are suffering a lot from poor houseing quality, in respect of crowding intensity.

The extent of crowding is considered as an important component for good housing quality. From that point of view, the high degree of congestion in the districts of West Bengal, indicate poor housing quality for a large section of population.

4.4. PRIVACY CONDITION OF THE HOUSEHOLD:

Apart from density, privacy is another important requirement for each person both in rural and urban areas. But in a densely populated, and economically poor country like India, it is difficult for many people to maintain privacy.

In the field survey it is observed that, people both from rural and urban background have given importance to that factor. While rural people have given 15% weightage to privacy, for urban areas it becomes 10%. Therefore, as another direction of crowding, the privacy factor has been analysed to identify the housing quality. Table 4.8 deals with number of couples per household, which is quite uniform throughout state, ranging between one to two. Though, it is little higher in some rural areas as a result of large family size and joint family structure, the

TABLE 4-8

WEST BENGAL

DISTRIBUTION OF COUPLES PER HOUSEHOLD, 1981

Sl.No.	Districts	Total	Rural	Urban
1.	Bankura	1.33	1.33	1.29
2.	Birahum	1.30	1.30	1.24
3.	Burdwan	1.26	1.29	1.20
4.	Calcutta	1.26	-	1.26
5.	Darjiling	1.19	1.18	1.22
6.	Haora	1.23	1.26	1.23
7.	Hugli	1.25	1.26	1.23
8.	Kochlihar	1.20	1.20	1.22
9.	Jalpaiguri	1.18	1.18	1.28
10.	Malda	1.28	1.28	1.24
11.	Midanapur	1.28	1.29	1.24
12.	Murshidabad	1.29	1.19	1.24
13.	Nadia	1.24	1.25	1.22
14.	24 Pargana	1.23	1.23	1.22
15.	Puruliya	1.35	1.35	1.27
16.	W.Dinajpur	.34	.34	.38
17.	West Bengal	1.24	1.27	1.23

⁰
Household excluding households with, number of couples.

Source: Computed from census of India, 1981, Series 23, West Bengal, Part VIII A&B (i) Household tables.

variation is negligible. For this uniform pattern, the number of couples per household is not expected to have any significant impact to make difference in privacy condition.

Table no.4.9 shows districtwise distribution of households, where 2 or more couples share one room. For the state as a whole, 7% of the households live in above mentioned condition. This proportion is higher than the state average in Nadia , 24-Parganas, Bankura, Puruliya, Birlhum, and Midnapur. Over rest of the regions it ranges between 4% to 6%.

This proportion is also not very high in rural areas, where it varies between 3% to 10%.

As the urbanities are more concern about the privacy factor, this proportion has decreased to 1% - 7% in urban parts. It is interesting to note that, this proportion is not high in the urbanised and densely populated areas like Calcutta, 24 Pargana, Haora, Hugli and Burdwan, As discussed earlier, all those districts are economically well off. Thus, greater proportion of households are capable to maintain privacy probably for small family size nuclear family structure and better economic condition.

Apart from the little regional variation, it is concluded that, the privacy condition is not so bad through out the state.

TABLE 4-9.

WEST BENGAL

DISTRIBUTION OF HOUSEHOLD WHERE 2 OR MORE COUPLE SHARE
ONE ROOM

Sl.No.	Districts	Total	Rural	Urban
1.	Bankura	8.55	8.60	7.73
2.	Birbhum	9.63	9.77	7.86
3.	Burdwan	6.38	6.27	6.70
4.	Calcutta	6.38	--	6.38
5.	Darjiling	5.94	6.13	5.42
6.	Haora	4.70	4.16	5.30
7.	Hugli	4.64	4.04	5.83
8.	Jalpaiguri	5.15	5.20	4.85
9.	Kochlihar	3.34	3.09	6.85
10.	Malda	5.24	5.25	4.99
11.	Midnapur	9.59	9.78	6.73
12.	Murshidabad	6.30	10.22	1.03
13.	Nadia	8.18	8.42	7.09
14.	Puruliya	9.71	10.01	5.64
15.	24 Pargana	8.35	9.43	5.90
16.	W.Dinajpur	5.66	5.63	6.03
17.	West Bengal	7.27	7.62	6.08

Source: Computed from census of India 1981, series, 23 Part, West Bengal, Part VIII A&B (i) Household tables.

All the above mentioned tables represent a clear pictures about the extent and spatial pattern of crowding in the districts of West Bengal. From that, one can summarise the important features related to that fact.

4.5 SUMMARY:

The earlier analysis reveals that, the crowding problem is more acute in rural areas than the urban parts, where space problem is a vital phenomenon. In rural areas, 45% to 65% of the households have density of persons more than three per room. But this proportion has been limited within 35% to 55% in a case of urban areas. Thus, the significant difference in economic condition of the household may be responsible for this situation.

Apart from rural-urban disparity, the regional variation is not so prominent. The overall uniform household /size, number of rooms per household, and space scarcity together may dominate the influence of economic development.

Therefore, it may be stated that, the extent of crowding is not only controlled by the economic capacity of the household, but also depends a lot on various other factors.

CHAPTER - V

THE QUALITY OF HOUSING

5.1 INTRODUCTION:

In this chapter an attempt is made to identify the housing quality by compositing variables analysed in the earlier chapters, and to analyse the housing quality in relation to economic development. Alongwith this, effort has been given to find out the inter-relationship between the variable of building material and the other housing variables.

Thus, the primary objective of this chapter is to study the regional variation in housing quality and to analyse this in relation to the levels of economic development of those regions.

The quality of housing of each district has been analysed on the basis of composite score's, prepared from the following selected indicators.

1. Percentage of households in semi-pucca (III) houses type.
2. Percentage of households in pucca houses.
3. Percentage of households in electrified houses.
4. Percentage of households with protected drinking water within premises.

5. Percentage of households with protected drinking water source outside the premises.
6. Percentage of households with toilet facility (only for urban)
7. Percentage of households where density of person less than one per room.
8. Percentage of households where density of persons one to two per room.
9. Percentage of households where two or more couples share more than one room.

The method of modified principal component analysis has been used to prepare the composite scores. These composite scores of housing quality have been cross tabulated with the index of economic development.

Besides, three correlation matrices have been prepared by using all the housing indicators as mentioned in methodology chapter. From those matrices the relationships between those indicators are understood clearly.

5.2 SPATIAL PATTERN OF HOUSING QUALITY AND ITS RELATION WITH LEVELS OF ECONOMIC DEVELOPMENT.

For analysing the spatial pattern it is important to notice the inter-relationship between those variables.

The overall housing quality depends on this existing interrelationship between the housing indicators.

Because, high correlation between the negative aspects of housing quality may lead to overall poor housing quality and vice-versa. Since, those factors are related with the factor of economic development, that correlation will help to explain the relationship between levels of economic development and housing quality.

5.2.1 District level analysis:

Appendix No. I presents the correlation among all the variables. From that table it is observed that, the indicator of kutchra house has correlation (.58) with non-availability of electricity, unprotected water supply within (.497) the premise and outside (.60) the premise and density of four persons per room. On the other hand, it has negative correlation with electricity availability (-.68), protected water supply within (-.53) and outside (-.33) premise. On the contrary, the indicator of pucca house is positively correlated with electricity availability (.90), protected water within premise (.73) and negatively correlated with unprotected water within (-.38) and outside premise (-.59). Most of these values are significant. (For level of significance, see appendix (I)).

TABLE 5-1

WEST BENGAL

DISTRIBUTION OF INDEX OF HOUSING QUALITY (TOTAL, 1981)

<u>S1.No.</u>	<u>Districts</u>	<u>Index. of housing quality¹</u>
1.	Bankura	.676
2.	Birbhum	.807
3.	Burdwan	1.634
4.	Calcutta	3.83
5.	Darjiling	1.126
6.	Haora	1.56
7.	Haora	1.56
8.	Jalpaiguri	.716
9.	Kochbihar	.871
10.	Malda	1.006
11.	Midnapur	.676
12.	Murshidabad	.993
13.	Nadia	1.331
14.	Puruliya	.623
15.	24-Pargana	1.457
16.	W .Dinajpur	.604
17.	West Bengal	1.28

1.(For Computation see methodology section).

This relationship indicates a definite dimension about the existing housing quality. As shown in the earlier chapters, the level of economic development has partial relationship with all those indicators. Thus, from these relationships it may be assumed that the relationship between economic development and housing quality will be strong. Thus in the following tables an attempt is made to analyse this assumed relationship.

Table No.5.1 shows district wise variation. For examining this regional variation distinctly the districts have been grouped into three category.

TABLE 5-2

WEST BENGAL

LEVELS OF HOUSING QUALITY (1981)

Levels of housing quality	Range	Districts
Low	1>	Kochlihar, Jalpaiguri, W. Dinajpur, Murshidabad, Midnapur, Bankura, Puruliya, Birbhum.
Moderate	1-2	Darjiling, Malda, Nadia 24-Pargana Haora, Hugli Burdwan.
High	>2	Calcutta

This table shows that, except Calcutta all the districts lie in comparatively low or moderate level of housing quality. Thus, it indicates the extent of regional disparity in respect of its housing quality. The pattern of this variation may be explained from the following table. This cross-tabulated table presents the relationship between level of economic development and housing quality.

TABLE 5-3
RELATIONSHIP BETWEEN LEVEL OF ECONOMIC DEVELOPMENT
AND HOUSING QUALITY (TOTAL, 1981)

1 2	High	Moderate	Low
High	Calcutta	Darjiling, 24-Pargana, Haora	
Moderate		Higli, Malda Nadia, Burdwan.	W. Dinajpur, Kochlihar, Jalpaiguri, Murshidabad Puruliya
Low			Midnapur, Bankura, Birbhum

1. Levels of economic development.
2. Levels of housing quality.

WEST BENGAL

QUALITY OF HOUSING AND LEVELS OF ECONOMIC DEVELOPMENT

DISTRICT TOTAL

1981

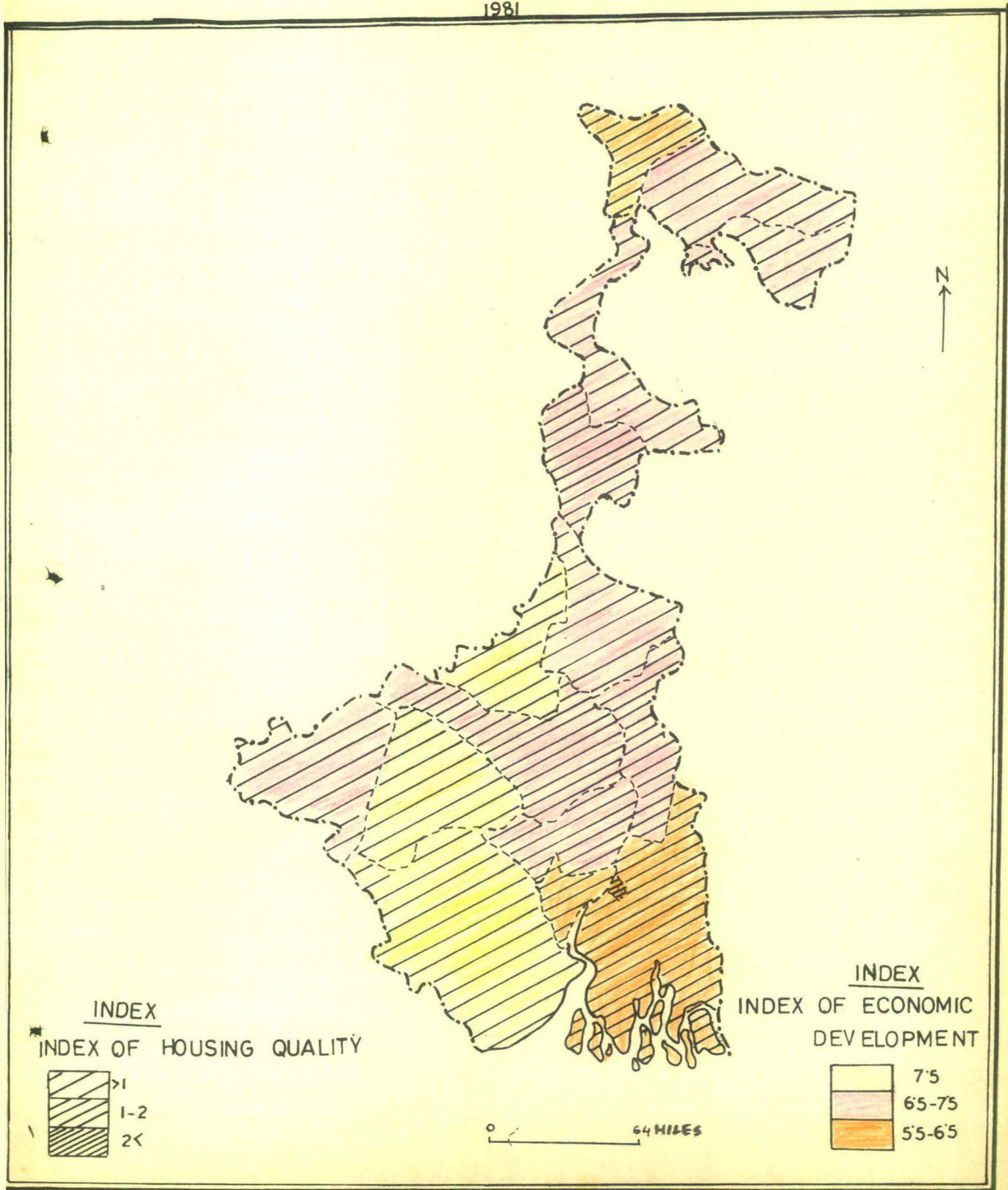


FIG:12

This table explains that the level of economic development has quite significant impact in determining the housing quality. It has been hypothesised that, with the higher level of economic development, the housing quality also will be high and vice-versa. This hypothesis has been proved significantly in case of Calcutta, Hugli, Malda, Nadia, Burdwan, Midnapur, Bankura and Birbhum districts. For the remaining districts the hypothesis has been proved partly. In those districts quality of housing has not keep parity with the level of economic development. Otherwise, it may be stated that, the impact of economic development on housing quality is quite noticable.

5.2.B Analysis of Housing quality in rural areas:

The inter correlation between the negative aspects of housing quality is expected to be high in rural areas. But the correlation table¹ indicates different picture in this context.

From that table it is observed that, the indicator of kutchra house is negatively correlated with protected water outside the premise (-.50) and unprotected water outside the premise (.44). In case of electricity availability and protected water within the premise, the correlation values are (-.12) and (-.03) respectively, which shows insignificant

1. For correlation table, see appendix.

TABLE 5-4

DISTRIBUTION OF INDEX OF HOUSING QUALITY (RURAL 1981)

Sl.No.	Districts	Index of housing quality
1.	Bankura	2.13
2.	Birbhum	2.66
3.	Burdwan	3.88
4.	Darjiling	3.09
5.	Haora	3.42
6.	Hugli	3.93
7.	Jalpaiguri	2.15
8.	Kochbihar	2.42
9.	Malda	3.46
10.	Midnapur	2.04
11.	Murshidabad	3.15
12.	Nadia	2.53
13.	Puruliya	1.90
14.	24-Pargana	2.87
15.	W.Dinajpur	1.76

relationship. The relationships with semi-pucca (III) category also are insignificant. On the other hand, the indicator of pucca house is significantly correlated only with protected water outside the premise (.69), unprotected water within the (-.54) and outside (-.55) the premise. These relationship indicate the importance of drinking water in rural areas.

These insignificant relationships also indicate the pattern of housing quality throughout the districts irrespective of the level of economic development. Therefore, it may assumed that in rural West Bengal the relationship between housing quality and economic development will not be prominent. Table 5.4 displays the regional variation of housing quality in rural areas. In Table no. 5.6 the districts have been grouped according to the level of housing quality.

TABLE 5-5

LEVELS OF HOUSING QUALITY (RURAL,1981)

<u>Levels of housing quality.</u>	<u>Range</u>	<u>Districts</u>
Low	1-2	W.Dinajpur, Puruliya, Kochlihar, Jalpaiguri
Moderate	2-3	24-Pargana, Midnapur Bankura, Birbhum
High	3-4	Darjiling, Burdwan Malda, Murshidabad, Nadia, Haora, Hugli

This table indicates quite distinct variation in housing quality. The following table No.5.6 explains this variation by using index of economic development.

TABLE 5-6

RELATIONSHIP BETWEEN LEVELS OF ECONOMIC DEVELOPMENT AND HOUSING QUALITY (RURAL, 1981)

1 2	High	Moderate	Low
High	Malda, Murshidabad Nadia	--	----
Moderate	Hugli, Burdwan	Kochbihar Birbhum	W.Dinajpur
Low	Haora Darjiling	Jalpaiguri, Midnapur, Bankura, 24-Pargana	Puruliya

1. Levels of economic development

2. Levels of housing quality

This table represents the partial relationship between economic development and housing quality. The relationship is direct and significant only in Malda, Nadia, Murshidabad, Kochbihar, Birbhum and Puruliya districts.

It has already been hypothesised that, with higher level of economic development higher will be the housing

WEST BENGAL

QUALITY OF HOUSING AND LEVELS OF ECONOMIC DEVELOPMENT

RURAL

1981

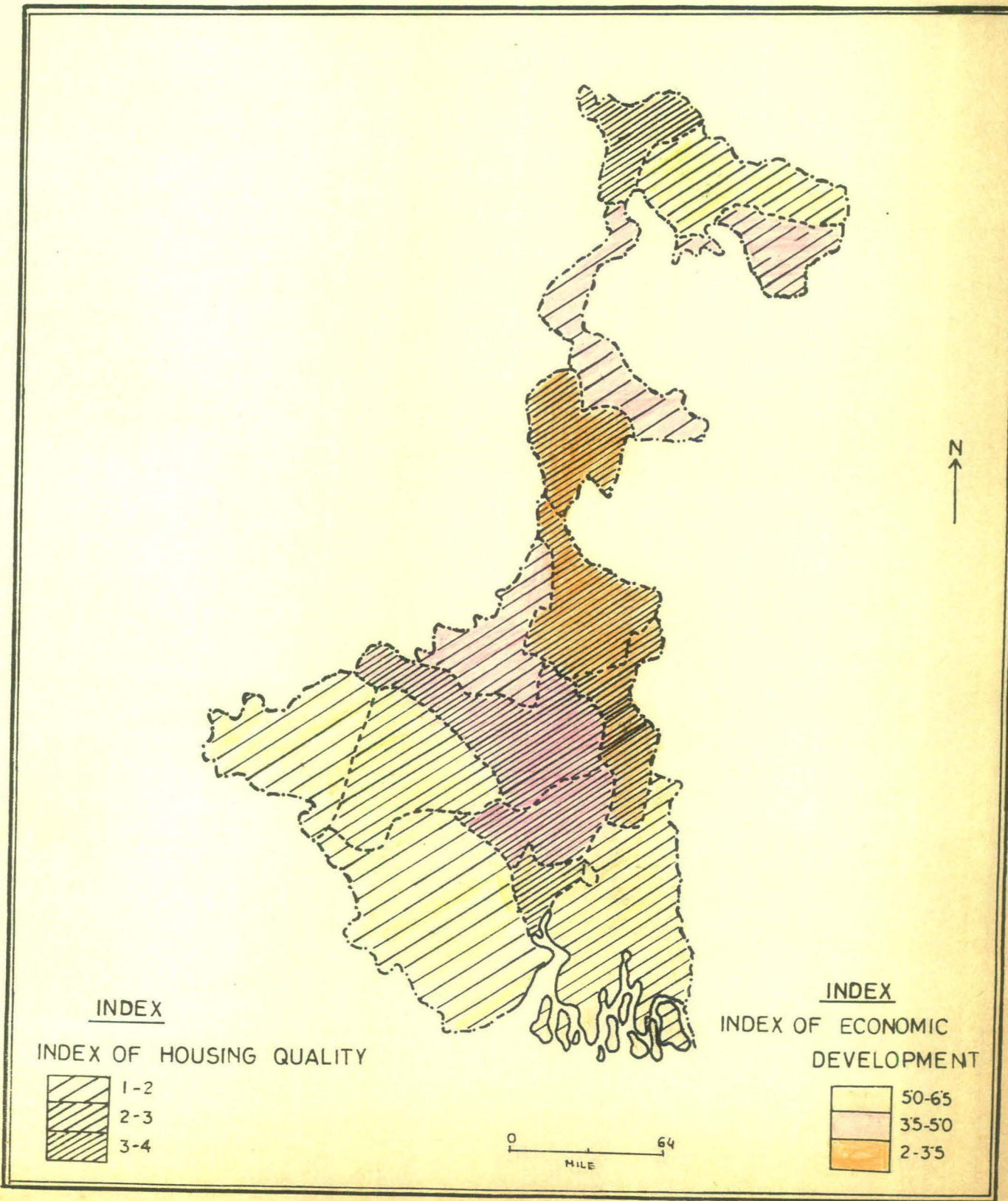


FIG:13

quality and vice-versa. But this hypothesis has been proved only for the above mentioned districts. For the remaining parts, this relationship is quite unique. The districts of Hugli, Burdwan, Haora and Darjiling enjoy high housing quality inspite of having low to moderate level of economic development. Thus, the hypothesis has been rejected in case of those districts. Hence, it may be concluded that in the rural areas the level of economic development has partial impact in determining the housing quality. (Figure 3) *and also support this fact*

5.2.3 The quality of housing in urban areas:

The above mentioned correlations are stronger in respect of urban areas. The indicator of kutchha house is correlated with non-availability of electricity (.38), protected water within the premise (.487) a unprotected water outside the premise (.511) and non-availability of toilet (.68). But the semi-pucca (III) category is insignificantly correlated with all those variables (see Appendix IV) Besides, the indicator of pucca house is only significantly correlated with protected water outside premise (.511) and unprotected water within premise (-.761). Therefore, it may be stated that the housing variables are distributed partly irrespective of the levels of economic development. Thus these insignificant correlations may make the relationship between housing quality and level of economic development quite insignificant.

TABLE 5-7
WEST BENGAL

DISTRIBUTION OF INDEX OF HOUSING QUALITY (URBAN, 1981)

S.No.	Districts	Index of housing quality
1.	Bankura	2.57
2.	Birbhum	2.48
3.	Burdwan	3.57
4.	Calcutta	3.66
5.	Darjiling	2.56
6.	Haora	3.48
7.	Hugli	3.56
8.	Jalpaiguri	2.06
9.	Kochlihar	2.51
10.	Malda	3.25
11.	Midnapur	2.96
12.	Murshidabad	3.40
13.	Nadia	3.04
14.	Puruliya	2.20
15.	24-Pargana	3.28
16.	W.Dinajpur	2.34

The quality of housing has maintained quite a uniform level within the urban areas of the districts. Table No.5.7 represents this fact. In the following table No.5.8, the districts have been grouped on the basis of their housing quality.

TABLE 5.8
LEVELS OF HOUSING QUALITY (URBAN,1981)

Levels of housing quality	Range	Districts
2.0-2.5	Low	Birbhum, Jalpaiguri Puruliya, W.Dinajpur
2.5-3.0	Moderate	Bankura, Darjiling, Kochlihar, Midnapore.
3.0	High	Burdwan, Calcutta,Haora, Hugli, Malda, Murshidabad, Nadia, 24-Pargana.

This table shows little variation in respect of housing quality. But, the relationship with levels of economic development is quite prominent than the rural areas. The following table No.5.9 shows this relationship.

TABLE 5-9

RELATIONSHIP BETWEEN LEVELS OF ECONOMIC DEVELOPMENT AND HOUSING QUALITY (URBAN, 1981)

	1 \ 2	High	Moderate	Low
High		Calcutta Haora		
Moderate		Hugli, Nadia 24-Pargana	Darjiling	Jalpaiguri,
Low		Burdwan Malda, Murs- hidabad.	Bankura, Kochbihar, Midnapur	Birbhum, Puruliya W. Dinajpur.

1. Levels of economic development.
2. Levels of housing quality.

This table states that, except Burdwan, Malda, Murshidabad, Bankura Kochbihar, and Midnapur districts, the relationship is quite strong for the urban areas of remaining districts. The relationship is quite unexplainable in case of Bankura, Burdwan, Malda, Murshidabad, Kochbihar and Midnapur districts. The predicted hypothesis has been nullified in case of those districts. Thus, it may be concluded that, in urban areas the quality of housing does not depend entirely on level of economic development.

WEST BENGAL

QUALITY OF HOUSING AND LEVELS OF ECONOMIC DEVELOPMENT

URBAN

1981

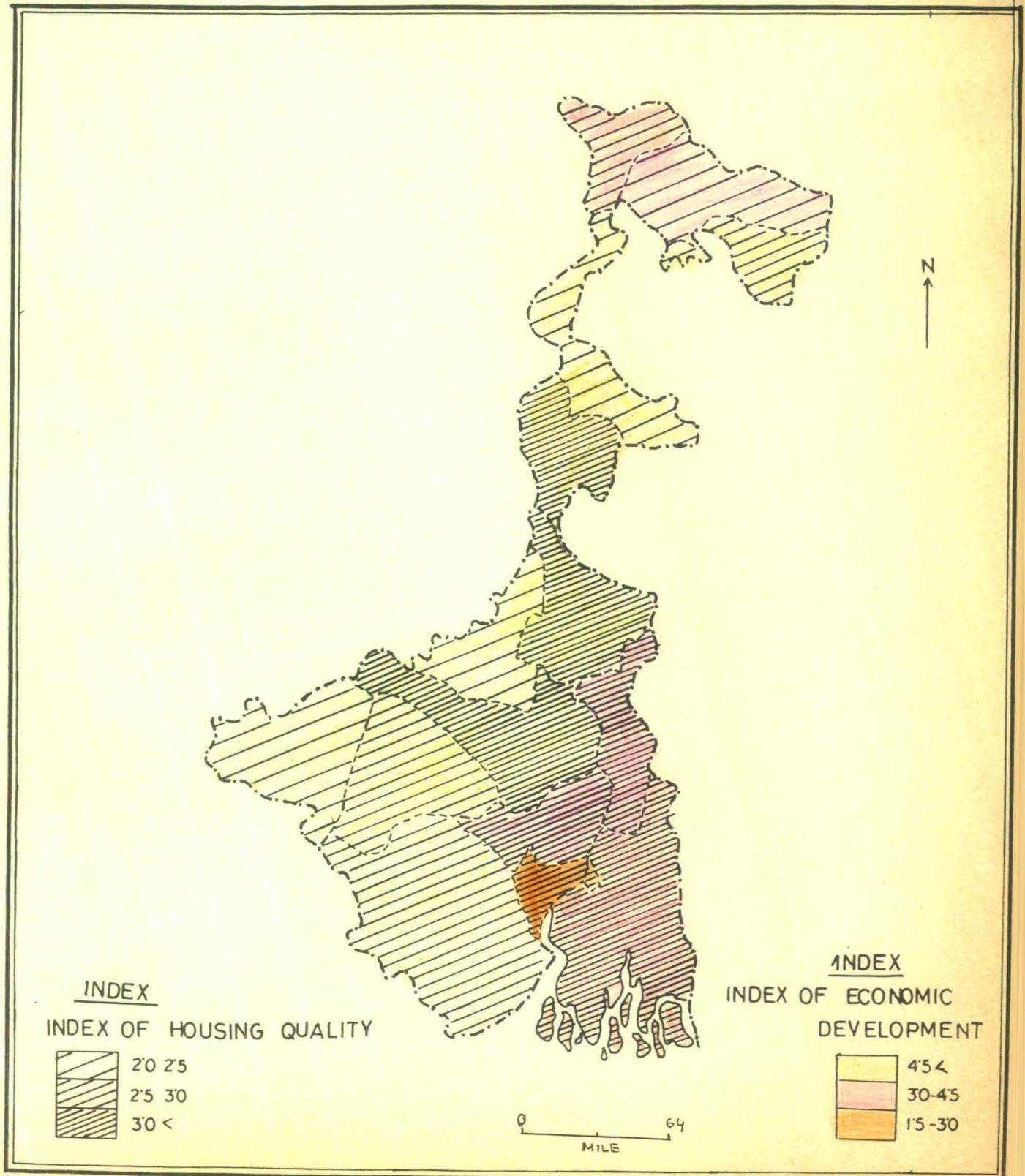


FIG:14

5.3 SUMMARY:

In view of the analysis it is observed that, the relationship between the level of economic development and housing quality is not direct and significant in all the districts. It was hypothesised that, the housing quality will be high with the higher level of economic development. But empirical findings do not support the hypothesis in several districts, both in rural and urban areas.

CHAPTER - VI

SUMMARY AND CONCLUSION



This present study is concern to evaluate the housing quality of the state of West Bengal. For that purpose the housing quality has been analysed from the view point of building materials, household amenities and density of persons. After that effort has ben given to examine the overall housing quality in relation to levels of economic development.

Thus, the foregoing analysis has enlightened some salient features of the ~~existing~~ housing condition.

First, the analysis reveals that the housing quality is poor throughout the state. For the state as a whole, 43% of the households reside in Kutchha houses, 30% of the household use unprotected source of drinking water, 78% of the households can not avail electricity. In more than 40% of the households density exceeds three persons per room. These figures never indicate a .

from these figures the extent of poor housing quality has become distinct.

Secondly, each and every aspect of housing quality represents a wide rural urban disparity. In case

TH-3288

of each district, higher proportion of households are deprived of enjoying better housing quality in respect of building materials, basic amenities and crowding condition. It was hypothesised, that the rural housing quality would be poorer than its urban counterpart. Thus, this hypothesis has been proved in respect of this state.

Thirdly, alongwith the rural - urban disparity, the picture of regional variation is quite prominent both in rural and urban areas. On the basis of the discussion in earlier chapters, it is observed that, the adjoining districts of Calcutta enjoy much better housing quality than the rest of the regions. This pattern is noticed both in rural and urban areas.

Fourthly, from the analysis it is observed that level of economic development in West Bengal has partial impact in determining its housing quality. Specially in respect of basic amenities and crowding condition, the level of economic development has not made any distinctive variation within the districts. Besides, it appears that the physiographic and climatic factors also play a role in determining the quality of housing, specially in terms of its building material apart from the general economic development of the region. But irrespective of its partial impact, in general the quality of housing is high in the districts with high level of economic development as Calcutta, Haora, Hugli and vice-versa.

Fifthly, it has been noticed that the regional variation in housing quality is lesser in urban areas than the respective rural parts. The composite scores of housing quality of rural and urban areas represents this fact distinctly.

Therefore, on the basis of those foregoing observations some concluding statements can be made.

1. In general it may be concluded that the overall poor level of economic condition of the households may be responsible mainly for the existing poor housing quality.
2. The rural-urban dichotomy in housing quality represents one of the characteristic features of our country. For low level of economic development, the rural areas remain far beyond from the respective urban parts. The difference in housing quality indicates this fact more clearly.
3. The picture of regional variation represents another important feature of India's developmental process. For the process of lop sided development, some districts enjoy much better housing quality as being the neighbouring regions of Calcutta metropolis.

From the analysis, partial impact of economic development is noticed on the prevailing housing quality,

Thus, possibly it may be stated that housing quality does not depend entirely on the selected indicators of economic development.

Therefore further study is needed to examine the existing housing quality of West Bengal.

Appendix - I

Results of Correlation Coefficients: Total

	1	2	3	4	5
1:X1	1.000	.124	-.041	-.474*	-.762***
2:X2	.124	1.000	.847***	-.555**	-.328
3:X3	-.041	.847***	1.000	-.537**	-.241
4:X4	-.474	-.555**	-.537**	1.000	.117
5:X5	-.762***	-.328	-.241	.117	1.000
6:X6	-.686***	-.086	-.025	-.060	.904***
7:X7	.686***	.086	.025	.060	-.904***
8:X8	-.529**	-.188	.072	-.168	.736***
9:X9	-.331	-.445***	-.346	.499**	.210
10:X10	.177	.652***	.627***	-.339	-.382
11:X11	.601***	.394	.104	-.226	-.598**
12:X12	-.190	.687***	.492**	-.408*	.199
13:X13	.300	.475*	.292	-.066	-.542**
14:X14	.323	.234	.287	-.214	-.384
15:X15	.499**	-.398	-.325	.367	-.648***
16:X16	.036	-.300	-.170	.245	-.140
17:X17	-.299	.056	.373	-.027	.093
18:X18	.294	-.058	-.373	-.027	-.085

Significant at : *** 1% level of significance

 ** 5% level of significance

 * 10% level of significance

1 derived from the correlation matrix.

Appendix - II

RESULTS OF CORRELATION COEFFICIENT: RURAL

	1	2	3	4	5
1:X1	1.000	-.028	-.153	-.740 ^{***}	-.570 ^{**}
2:X2	-.028	1.000	.862 ^{***}	-.548 ^{**}	-.351
3:X3	-.153	.862 ^{***}	1.000	-.518 ^{**}	-.263
4:X4	-.740 ^{***}	-.548 ^{**}	-.518 ^{**}	1.000	.516 ^{**}
5:X5	-.570 ^{**}	-.351 [*]	-.263	.516 ^{**}	1.000
6:X6	-.129	.116	.075	.099	.017
7:X7	.130	-.117	-.075	-.099	-.018
8:X8	-.032	-.017	.275	-.150	-.022
9:X9	-.506 ^{**}	-.439 [*]	-.293	.541 ^{**}	.690 ^{***}
10:X10	.274	.380 [*]	.366 [*]	-.375	-.541 ^{**}
11:X11	.442 [*]	.388 [*]	.115	-.391	-.556 ^{**}
12:X12	-.033	.818 ^{***}	.651 ^{***}	-.462 [*]	-.027
13:X13	.147	.609 ^{***}	.450 [*]	-.463 [*]	-.119
14:X14	.276	.242	.270	-.326	-.496 [*]
15:X15	.166	-.328	-.174	-.125	.334
16:X16	-.182	-.442 [*]	-.352	.392	.189
17:X17	-.216	.084	.361	-.045	.029
18:X18	.227	-.131	-.398	.061	-.016

CORRELATION COEFFICIENTS

16 17 18

SIGNIFICANT AT:- *** 1% level of significance
 ** 5% level of significance
 * 10% level of significance

Appendix - III

Results of Correlation Coefficient: Urban

	1	2	3	4	5
1:X1	1.000	.758 ^{***}	.083	-.539 ^{**}	-.442 [*]
2:X2	.758 ^{***}	1.000	.159	-.552 ^{**}	-.363
3:X3	.083	.159	1.000	-.615 ^{***}	-.867 ^{***}
4:X4	-.539 ^{***}	-.552 ^{***}	-.615 ^{***}	1.000	.533 ^{***}
5:X5	-.442 ^{***}	-.363	-.867 ^{***}	.533 ^{***}	1.000
6:X6	-.386	-.091	.120	-.158	.213
7:X7	.384	.092	-.122	.160	-.210
8:X8	-.483 ^{**}	-.570 ^{**}	.233	-.117	.114
9:X9	-.011	-.046	-.568 ^{**}	.329	.511 ^{**}
10:X10	.497 ^{**}	.602 ^{***}	.604 ^{***}	-.505 ^{**}	-.761 ^{***}
11:X11	.611 ^{***}	.741 ^{***}	.115	-.214	-.377
12:X12	.223	.580 ^{**}	-.204	-.028	.107
13:X13	.121	.310	-.069	.218	-.113
14:X14	-.155	-.262	.223	-.031	-.209
15:X15	.558 ^{**}	.055	.333	-.274	-.605 ^{***}
16:X16	.025	-.450 [*]	.335	-.110	-.371
17:X17	-.407 [*]	-.375	-.052	.529 ^{**}	.026
18:X18	.405 [*]	.369	.047	-.528 ^{**}	-.019
19:X19	-.716 ^{***}	-.662 ^{***}	.164	-.020	.263
20:X20	.687 ^{***}	.639 ^{***}	-.194	.017	-.212

Significant at : *** 1% level of significance

 ** 5% level of significance

 * 10% level of significance

Variables

X ₁	Proportion of households in kutcha houses
X ₂	Percentage of households in semipucca(1) houses
X ₃	Percentage of households in semi-pucca(II) houses
X ₄	Percentage of households in semi-pucca (III) houses
X ₅	Percentage of households in pucca houses
X ₆	Percentage of households with electricity
X ₇	Percentage of households without electricity
X ₈	Percentage of households having protected drinking water within premise.
X ₉	Percentage of households having protected drinking water outside premise.
X ₁₀	Percentage of households having unprotected drinking water withing premise.
X ₁₁	Percentage of households having unprotected drinking water outside premise.
X ₁₂	Percentage of households having density of persons less than one.
X ₁₃	Percentage of households having density of of persons one to two per room.
X ₁₄	Percentage of households haing density of of persons two to three per room.
X ₁₅	Percentage of households having desnity of persons three to four per room.
X ₁₆	Percentage of households having density more than 4 persons per room.

- X₁₇ Percentage of households where two or more couples share one room.
- X₁₈ Percentage of households where two or more couples share more than one room.
- X₁₉ Percentage of households with toilet.
- X₂₀ Percentage of households without toilet.

BIBLIOGRAPHY

BOOKS

1. Aggarwal, S.C.? 'Industrial housing in India', (1952).
2. Agnihotri, V., 'Housing Condition of Factory Workers in Kanpur', (1954), Maharaja Printers, Kanpur.
3. Chakravarty, S., 'Housing conditions in Calcutta' (1958), Bookland Publication, Calcutta.
4. Chander, R., Karunanayake, N, Housing Conditions and Housing Needs'.
5. Dasgupta, B., (ed), (1988) 'Urbanisation migration and Rural Change , A Study of West Bengal'. A Mukherjee & Co Pvt.Ltd.
6. Dholaka, B.H., 'The economics of housing in India' (1980), N.B.O.
7. Ganguli, B.N., and Gupta, D.B. Levels of living in India. 1976, S.Chand New Delhi.
8. Jayaram, N and Sandhu, R.S., 'Housing in India: Problem, Policy and Perspective' (1988), B.K.Publishing Corporation, Delhi.
9. Koth, M.N. Silva, J. Dietz, A.G.H., 'Housing in Latin America', (1965), M.I.T. Press, Cambridge.
10. Kundu, A., 'Measurement of urban processes, A Study in regionalisation, (1980), Popular Prakashan, Bombay.

11. Mahmood, A., 'Statistical Methods in geographical Studies', (1977) Rajesh Publications, New Delhi.
12. Paravathamma C. & Satyanarayana. 'Housing rural poor and their living conditions', (1987), Gian Publishing House, New Delhi.
13. Rao, B.B., 'Housing and habitat in developing countries', (1979), Newman Group of Publishers.
14. Ramachandran, P., 'Housing situation in Greater Bombay', Somariya Publication, 1977.
15. Sinha, B.D., 'Housing growth in India', (1976), Arnold Heinemann, New Delhi.
16. Stephen, H.K., Yeh, Laquian, A.A.(ed), 'Housing Asia's Millions - Problems, Policies and prospects for low cost housing in S.E.Asia ' International development research Center, Ottawa.
17. Varghese, K.V., 'Housing Problem in India, economic and social aspects, (1980), Eureka Publications, New Delhi.

ARTICLES:

1. Mathur, G.C., 'Strategies for provision for the urban poor', Journal of the N.B.O. U.N. Regional housing Center, ESCAP, Vol. XXXII, No.2, Oct.1987.
2. Mathur, G.C., 'Minimum housing standards for lowest income families', Journal of the N.B.O., Vol. XXX II, No.1, April 1987.
3. N.V.Rajeswari, D.Usha Rani, M.Hari., 'Towards a new housing policy in India', Social Change: Vol.17, No.4, Dec,1987.
4. Talati, R.C., Hasnani, K.J., Patel, V., Patel, S.K., 'The problem of housing in India', The housing times, Vol. XXIII, No.7, February,1988.

OTHERS:

1. U.N. 'World housing survey', (1974).
2. U.N., 'Social aspects of housing and Urban development'.
3. U.N., 'Rural housing: A review of world conditions', (1969).
4. U.N., 'Housing Policy guidelines for developing Countries', (1976).
5. U.N., 'The social impact of housing((1975).

6. 'Monograph on housing situation in India' (1959),
N.B.O.
7. Census of India, 1981, Series 23, West Bengal,
Part VIII A&B (i) & (ii) household tables.
8. Census of India, 1981. Series 23, West Bengal,
Part II B(ii), Economic Tables.
9. Economic Review, 1981, Govt. of West Bengal.
