QUALITY OF HOUSING IN 'MILLION CITIES' OF INDIA, 1981

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

MASTER OF PHILOSOPHY

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1990

DEDICATED

TO

MY

PARENTS

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June, 1990

CERTIFICATE

Certified that the dissertation entitled "Quality of Housing in 'Million Cities' of India, 1981" submitted by Mr. Anil Kumar Yadav in partial fulfilment of six credits out of total requirements of Twenty-Four credits for the award of the Degree of Master of Philosophy (M.Phil.) of this University, is his original work and may be placed before the examiners for evaluation. This dissertation has not been submitted for the award of any other degree of this or of any other University to the best of my knowledge.

Nangia 25-6-90.
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A C K N O W L E D G E M E N T S

I am thankful to my supervisor Dr Sudesh Nangia for her valuable help and advice in the course of this study. The frequent discussions with her have been helpful in giving this dissertation its final shape.

I would also like to thank the Chairperson and the faculty of the Centre for the cooperation and facilities provided.

For the purpose of this study I used several libraries in New Delhi. I wish to thank the librarians and other staff of all the following libraries: JNU Library, TCPO Library, NBO Library, SPA Library, and Directorate of Census Library.

I also extend my special thanks to my friend Mr B.K. Tanwar who helped me a lot during the course of this study.

My warm thanks are due to Mr Ashok K. Talwar and Mrs Madhu Talwar for an excellent typing job accomplished with efficiency, good humour and hospitality in a very short span of time.

Last but not the least I am grateful to my parents for their encouragement for my higher studies without which this work would not have been possible.

Dated : 25 June 1990

(ANIL KUMAR YADAV)

C O N T E N T S

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LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

STATEMENT OF THE PROBLEM:

Problem of housing is not something new which the society has to face, it is as old as the human race itself. This problem is more grave in the cities than in rural areas. But of the fundamental human needs of food, clothing, health, and shelter, the last item has ranked lowest in the priorities of most developing countries.[1]

Housing, through the role of politics and public housing link both material and social aspects of the city. According to Pritchard, housing "straddles the boundaries of those traditional, academic disciplines which have interested themselves in urban problems. Today, such are the complexities of housing - economic, social, political, and legal - that no single subject can possibly claim a monoply of knowledge."[2] He further states that the environment of city is never static and the relationship between housing, migration and urban spatial organisation has to be reinterpreted continually in terms of shifting social, economic or political circumstances.[3]

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1. Steedman, David W., (1979), Housing Asia's Millions, I.D.R.C., Canada, p. 7.

2. Pritchard, R.M., Housing and Spatial Structure of the City : Residential Mobility and the Housing Market in an English City since the Industrial Revolution, Cambridge University Press, p. 1.

3. Ibid.

Central to the study of urban development is understanding how people organise themselves within the urban space, how people select particular neighbourhoods, locations and housing, and how social-spatial regularities are created and changed.[4]

Though we do not have much information about the type of housing of the primitive societies of the world, but according to Thycydides, even in the 4th century B.C. there was a considerable concern about housing in Ahens. The Spartam were slum dwellers par excellence. The rulers of Athens, however, met the problem of housing by passing many wise and drastic laws which setup standards of safety and sanitation. The development of Byzantine Empire, saw an improvement in sanitation of homes and bathing as a sanitary and religious requirement assuming great importance.[5]

Housing produces tremendous effects on the economic development of a nation or a region. Housing is important, according to Charles Abrams in the following ways: it stimulates employment, develop savings and release unproductive capital into the economy, it helps develop other

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4. Bassett, K. and Short, J. (1980), Housing and Residential Structure : Alternative Approaches, Boston, Routledge and Kegan Paul.

5. Aronovici Carol, (1939), Housing the Masses, New York, John Wiley & Sons, Inc., p. XI.

industries like production of building material which in turn produce not only dwellings but related services and utilities, shops and community facilities.[6]

The provision of adequate housing along with the services for inhabitants of urban areas, which are the basic needs, presents greater challenge to metropolitan authorities. Shortage of housing not only leads to overcrowding and deterioration in living conditions but also leads to promiscuity, lowering of cultural levels, squalor and diseases.[7] According to Engels housing shortage is "the peculiar intensification of the bad housing condition of the workers as a result of the sudden rush of the population to the big towns; a colossal increase in rents, a still further aggravation of overcrowding in the individual houses, and, for some, the impossibility of finding a place to live in at all."[8]

Despite the claims of impressive performance in the housing section in the National Housing Policy documen the percentage of houseless population has gone up during

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6. Charles Abrams, (1964), Man's Struggle for Shelter in an Urbanizing World, Cambridge, MIT Press, p. 67

7. Devendra B. Gupta and Ashish Bose, Housing Delhi's Millions : A Study of Rent Structure, 1958-73, Govt. of India, National Building Organisation and UN Regional Housing Centre, ESCAPS, New Delhi.

8. Engels, Fredrick, The Housing Question, London, Martin Lawrence Ltd, edited by C.P. Dutt, p. 21.

the sixties and seventies as per the population census estimates. Micro level studies indicate that the population of the pavement dwellers in the metropolitan and other large cities is growing at a much faster rate than their total population.[9] But still the National Sample Survey report on housing conditions observed that the "housing conditions and related facilities determine the immediate environment of man. The development of physical and mental potentialities is in turn influenced by the environment in which he lives. Housing condition is, therefore, recognised as an important indicator of the levels of living."[10]

Delhi has a grave housing situation. This housing delimma of Delhi is due to the rate of growth of unauthorised colonies and slums, the pavement squatters, congested colonies in the walled city, and the unplanned growth of the city. Though population of Delhi is growing very fast, the rate of house building activities has definitely declined.[11] According to the same study, "A survey of slums in Old Delhi made by Bharat Samaj has shown that

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9. Kundu, Amitabh, (1988), "Does National Housing Policy Answer 'the Housing Question'", Economic and Political Weekly, Sept. 27, 1988, pp. 1997-98.

10. The N.S.S., Seventh Round, (1954), A Preliminary Report on Housing Condition, Number 26, March 1954, p. 1.

11. Devendra B. Gupta and Ashish Bose, op. cit. p. 3.

over its 20 wards, as many as 1787 slum units - 61 bastis and 1726 slum katras were unfit for human habitation on account of congestion, delapidation and lack of amenities. They were inhabited by 48,580 families or over 2,25,000 persons - 47.5 per cent living in bastis and 52.5 per cent living in katras. The ownership of the slum structure was divided almost equally between private interests and public agencies.[12]

Ursula Hicks says that housing is a world problem and most of the housing problem in the cities is due to the migration of people from rural to urban areas giving rise to congestion and this congestion leads to other troubles in cities like pollution of different sorts, inadequate housing, serious health hazards, and heavy unemployment. In India, according to her the problem is not so much the rate of growth, although this is obviously important, but the sheer number of people that has to be dealt with.[13]

Housing problem increases with increase in industrialisation. Housing problem gets stubborn as a nation or

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12. Ibid., p. 4.

13. Hicks, Ursula K., (1974), The Large City : A World Problem, McMillan Press Ltd.

area develops. As a family moves from a village to city, it not only surrenders its home but it surrender freedom from noise, smoke, traffic, and danger, closeness to nature, and their prestige in the community.[14] According to Abrams, "shelter problem needs some fresh thinking. The provisions of the bare essentials may have to be the world's sad but only reasonable alternative. Once we understand the size and importance of the problem, however, there may be ways of dealing with it. It is only when the hope is lost and eyes are closed to reality that crisis becomes inevitable."[15]

According to some studies there are some 800 million people in the world living in a state of absolute poverty (World Bank) or about 1600 million people (I.L.O.). Equally horrifying figures are: 430 million people severely undernourished, 1000 million badly housed, 1300 million without access to drinking water and according to statistics provided by UNESCO, 418 million adult illiterates and 123 million children of school going age not attending school.[16] According to another study, in order to ensure

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14. Abrams, Charles, (1964), op. cit., p. 35.

15. Ibid., p. 37.

16. Sharma, S.L., (1986), Development, Socio-Cultural Dimensions, Rawat Publications, Jaipur, p. 4.

reasonable housing for all in the year 2000, it will be necessary to build 1000 million dwellings in the present century.[17]

It is the poor people who suffer most due to housing shortage. As against the housing shortage of advanced countries which concerns with instances of natural disasters and wars etc,, the developing countries have a perennial shortage of housing. For example, more than a billion people in Africa, Asia and Latin America are houseless or live in type of housing that according to the United Nations is a menace to health and insult to human dignity.[18] It is due to being houseless that about 6,00,000 people sleep in streets in Calcutta and one out of every six persons from Bombay were homeless.[19]

Income is the most important determinant of housing characteristics, influencing the type and location of each family's dwelling and reflecting the country's capacity to house its population. The spatial distribution of income affects the residential characteristics of different parts

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17. Ettinger, J. Van, (1960), Towards a Habitable World, Elsevier Publishing Co., Amsterdam, London, New York, Princeton, p. 32.

18. Abrams, Charles, op. cit., p. 6.

19. Ibid., p. 7.

of a city as well as housing characteristics between cities or regions of a country.[20] James R. Follain and Jimenez found that household willingness to pay for living space increases with income but at a less than proportionate rate; willingness to pay for living space declines as household size increases; willingness to pay for several quality measures - structural quality; wall, roof, and floor quality - is quite responsive to income.[21] For the poorest, such as the unemployed, it is impossible to build on a commercial basis even if stringent savings are done, therefore, all non-subsidised housing, even the least expensive, is unaffordable.[22]

Though a difference exist between urban and rural area in the distribution of electric lighting, it is more marked in developing nations. It is very difficult to gauge the availability of electric lighting, especially in non-conventional dwellings, because of countless illegal connexions, location of such type of houses, and general condition of electric supply which differs from one city

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20. Yeh, Stephen H.K. and Laquian, A.A., "Policy Trends and Prospects" in Stephen H.K. Yeh and A.A. Laquian (ed.), Housing Asia's Millions - Problems, Policies and Prospects for Low Cost Housing in South East Asia, p. 181.

21. Follain, James R. and Jimenez, Emmanuel, "The Demand for Housing Characteristics in Developing Countries", Urban Studies, Vol. 22, No. 5, Oct. 1985, pp. 421-432.

22. Teigi, Karel, "The Housing Problem of the Subsistence Level Population", Habitat International, Vol. II, No. 3, pp. 147-151, 1987, Pergamon Journals Ltd.

to another. Therefore, it is quite possible to find no electricity in one slum area, and more than 80 per cent electricity in another slum area.[23]

The squatter settlement and slums that encircle or infiltrate almost all cities of the developing world are evidence that migration is not checked by inadequate water supply and sewerage, or by lack of shelter or housing sites.[24] According to Sivaramakrishnan the concern for level of urban amenities like electricity, water, toilet facility, sewerage etc. or the quality of environment comes from affluence and is not a criteria for the migrants or the urban poor.[25]

The kind of effect a housing may have on the family life can be assessed by posing the following questions, according to a UN study:[26]

a) Does it enable the family to achieve or sustain feelings of personal and human dignity?

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23. United Nations, (1976), Global Review of Human Settlements : A Support Paper for Habitat, UN Conference on Human Settlements; Pergaman Press, pp. 106-107.

24. Konigsberger, Otto H., "The Absorption of Newcomers in the Cities of Developing Countries", Document No. BP/22, Commissioned by HABITAT Secretariat.

25. Sivaramakrishnan, K.C., (1978), Indian Urban Scene, Indian Institute of Urban Studies, Shimla, p. 3.

26. United Nations, Social Aspects of Housing and Urban Development, UN Publication, Sales No. 67, IV.12, p. 39.

b) Does it permit the family to stay together, or does it force separations, before the family wishes them?

c) Does it permit the family to eat, sleep, and perform all daily functions in accordance with the family's standard of decency and its requirements for privacy?

d) Does it stimulate and assist in the expression of the family's rise in aspirations?

e) Does the family feel the dwellings to be so much theirs, regardless of the method of tenure, that they adorn it, making it the outward visible symbol of an inner spritual grace?

A good and adequate housing is very essential for the development of any nation and its people. And for this to be achieved housing should be integrated into the national development planning process as:

1) Good housing is essential for human dignity and self fulfilment. According to a report of the Ad-hoc Group of Experts on Housing and Urban Development of the United Nations, housing provides "the physical framework in which man's human, social, economic, and cultural resource are released, enriched and integrated;

2) Adequate housing with good sanitary facilities contributes directly to individual's health and productivity, which are important for national economic growth and improved standards of living.

3) Good housing creates the social environment necessary for the proper development of society. This is necessary for economic and social development;

4) The development of new or renovated housing creates economic stimuli to employment, production and savings in a variety of areas;

5) Moving to a decent dwelling can have an important influence on reducing the sense of anomie that pervades and reinforces the "vicious circle" of chronic poverty;

6) Subsidised housing for low income families provides an effective and acceptable means for redistributing income;

7) The location of housing can be used to distribute population in accordance with national objectives for regional development.[27]

Though large investments were made in different production sectors during the past few decades of planned development, not much attention was paid to the improvement or augmentation in the existing housing stock.[28]

India is facing a severe housing shortage according to the estimates available for the year 1981, but these

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27. United Nations, (1976), Why Should Housing be Included in a National Development Programme: Policy and Guidelines, pp. 8-9.

28. Kundu, Amitabh, "Shelter and Living Environment in India", Manpower Journal, Vol. XIX, No. 4, January to March 1987, p. 60.

estimates vary according to their concept of a house. According to Kundu, 'to argue that all that is needed in the housing front is to provide one house to one household without looking into the physical conditions of the houses would be to grossly understate the problem.'[29]

As cities expand, the features of physical geography that contributed to their initial site and growth become obscured. Modern cities, according to Atkinson,[30] "are still subject to the vagaries of nature and for the most part the elements are not within man's control. Large and concentrated population can be highly vulnerable to natural hazards and it is often the poorest countries that are most vulnerable. Squattter settlements may have to occupy unstable hillsides not taken up by the homes of well-to-do, and an abnormal rain can bring disaster".

The physical form of the city that is yet to be, the future city, will be inherited in large measure from what is already there. Whatever new technologies are adopted, cities will have to be less prodigal in their use of energy, less congested and less polluted.[31]

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29. Ibid.

30. Atkinson, B.W., " The Vulnerable City", Geographical Magazine, Vol. 50, 1977-78, pp. 526-528.

31. Hall, John M., "The City of the Future", Geographical Magazine, Vol. 50, 1977-78, pp. 533-538.

DEFINITIONS:

All the terms which will be used in this study are defined here so as to avoid misunderstanding.

Housing:

The definition of housing will vary by geographic and climatic regions, by religion and ethnic groups, by available income to be spent upon housing as well as by the individual's own past history with housing and his individual preferences and attitudes. All the nations of the world agree that housing is not just a dwelling unit but the whole residential environment.

The monograph of India noted that "the concept of housing was enlarged to include the residential environment, which includes - in addition to physical structure that the family uses as a shelter - all necessary services and facilities required for the physical and social well-being of the family, and individual programmes of health, education, & employment". Environmental improvement in such circumstances was preferred over the need to provide direct housing services.[32]

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32. United Nations, (1977), The Social Impact of Housing : Goals, Standards, Social Indicators and Popular Participation, New York, p. 4.

According to World Health Organization, it is "the residential environment, neighbourhood, micro district 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 the individual".[33]

Beyar has different views from that of the UN's. According to him it is a bulky, durable and permanent product which has a fixed location being used only in the place where it is built. Once built it tends to remain in existence for many years frequently long after it has served its usefulness. It becomes almost a part of the land.[34] For Chester, native of space in a house is important determinant of personal and family satisfaction. It serves common purposes like feeding the members, working, sleeping, child rearing, entertaining, leasure and many more activities.[35]

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33. World Health Organization, Expert Committee on the Public Health Aspects of Housing (Technical Report Series No. 225, 1961), Geneva.

34. Beyar, (1965), Housing and Society, MacMillan, New York.

35. Hartman W. Chester, (1975), Housing and Social Policy, Prentice Hall, USA, p. 3.

The monograph from Egypt defined the house as a collection of facilities for intensive services in one physical location, and suggested that the meaning of the term varies with different social, economic, and familial conditions. The house in its residential content was not considered only as a shelter, but as a facility that should match the basic criteria that link the family like with environment.[36]

According to a UN report, "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 progreses".[37] The inter-regional seminar on the Social Aspect of Housing held in 1975 gave more emphasis to the social aspects than the physical structure itself. According to the Seminar the community facilities, social amenities and services should be given more attention than the housing unit itself.[38]

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36. United Nations, (1977), op. cit.

37. United Nations, (1962), Report of the Ad-hoc Group of Experts on Housing and Urban Development (UN Publication, Sales No. 63 IV.1), p. 1.

38. United Nations, (1976), Housing Policy Guidelines for Developing Countries, New York, p. 1.

"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 and protection against hostile physical forces and disturbances. In its indirect role housing serves as the area where an abundant supply of social relationships and services are accessible, such as places for social intercourse, education, recreation, sports, social welfare and health protecting services, shopping, and transportation".[39]

Thus, we see that though the definitions vary but all agree that housing is not just physical structure alone but the whole residential environment which includes social amenities and services etc.

Housing Unit or Census House:

A housing unit is a separate and independent place of abode intended for habitation by one household or one not intended for habitation but occupied as living quarters by the household at the time of the census. Thus it may be occupied or vacant dwelling, an occupied mobile or improvised housing unit or any other place occupied as

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39. United Nations, Social Programming of Housing in Urban Areas (UN Publication, Sales No. E.71 IV.10), p. 13.

living quarters by a household at the time of census.[40]

According to the Indian Census, 'A Census house is a building having a separate entrance from the road or common courtyard or staircase, etc., used or recognised as a separate unit . It may be occupied or vacant. It may be used for a residential or a non-residential purpose or both.'[41]

Household and Type of Household:

The concept of the household is based on the arrangements made by persons, individually or in groups, for providing themselves with food or other essentials for living. A household may be either a one person household, i.e. a person who makes provision for his or her own food or other essentials for living without combining with any other person to form part of multi-person household or a multipurpose household i.e., a group of two or more persons living together who make common provision for food or other essential for living. The persons in the group may pool their incomes and have a common budget to a greater or lesser extent; they may be related or unrelated

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40. United Nations, (1980), Principles and Recommendations for Population and Housing Censuses, New York, p. 238.

41. Census of India, (1981), (Series 1, Part VIII A & B), India: Household Tables, p. 5.

persons or a combination of both.[42]

But in this particular study, the definition given by the Census of India, 1981[43] has been adopted which states that, "A household is a group of persons who commonly live together and would take their meals from a common kitchen unless the exigencies of work prevented any of them from doing so. There may be a household of persons related by blood or a household of unrelated persons or having a mix of both. Examples of unrelated households are boarding houses, messes, hostels, residential hotels, rescue homes, jails, ashrams, etc. These are called 'Institutional Households'. There may be one member households, two member households or multi member households. For each purpose, each one of these types is regarded as a 'household'.[44]

If a group of persons who are unrelated to each other live in a census house but do not have their meals from a common kitchen, they would not constitute an institutional household, Each such person should be treated as a separate household. The important link in finding out

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42. UN, (1980), op. cit., p. 50.

43. Census of India, op. cit., 1981, p. 5.

44. Ibid.

whether there is a household or not is a common kitchen.[45]

Here it would be prudent to see the differences between the household and the family as sometimes even family is taken as a unit of enumeration in place of a household. The differences are that: (a) "a household may consist of only one person but a family must contain atleast two members, and (b) the members of a multi-person household need not be related to each other, while the members of a family must be related. Where the family is used as a unit of enumeration, households cannot be identified. Where the household is a unit of enumeration, however, families within the household can be identified".[46]

Homeless households are defined as those households without a shelter. They carry their few possessions with them, sleeping in the streets, in doorways or on piers or any other space on a more or less random basis.[47]

Improvised Housing Units:

According to the United Nations (1980), 'a improvised housing unit is an independent, make shift shelter or

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45. Ibid.

46. United Nations, (1980), op. cit., p. 70.

47. Ibid., p. 50.

structure built of waste materials and without a pre-determined plan, for the purpose of habitation by one household, which is being used as living quarters at the time of the census. Included in this category are squatter huts, poblaciones callempas (Chile), hongos (Peru), farelas (Brazil), sarifas (Iraq), jhuggis (India and Pakistan), gubuks (Indonesia), gecekondula (Turkey), and any similar premises arranged and used as living quarters though they may not comply with generally accepted standards for habitation. This type of housing unit is usually found in urban and sub-urban areas, particularly at the peripheries of the principal cities.

Building:

A United Nations paper (1980) defined building as 'any free standing structure comprising one or more rooms or other spaces, covered by a roof and usually enclosed within external walls or dividing walls which extend from the foundations to the roofs. However, in tropical areas, a building may consist of a roof with supports only, i.e., without constructed walls; in some cases, a roofless structure consisting of a space enclosed by walls may be considered a 'building'.[48]

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48. Ibid., p. 232.

But according to the Census of India (1981)[49] definition, which is also used in this study, 'a building is generally a single structure on the ground. Sometimes it is made up of more than one component unit which are used or likely to be used as dwellings or establishments such as shops, business houses, offices, factories, work-sheds, schools, places of entertainments, places of worships, godowns, stores, etc. It is also possible that buildings which have component units may be used for a combination of purposes such as shop-cum-residence, workshop-cum-residence, office-cum-residence, etc.'[50]

The United Nations paper (1980)[51] further clarifies that a building may be used or intended for residential, commercial or industrial purposes or for the provision of the services. According to the paper, "in some exceptional cases, facilities usually provided by a set of living quarters are located in two or more separate detached structures, as when a kitchen is in a separate structure. In the case of living quarters with detached rooms, these rooms should be considered as separate buildings. A building may, therefore, contain several

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49. Census of India (1981), op. cit., p. 5.

50. Ibid.

51. United Nations (1980), op. cit., p. 232.

sets of living quarters, as in an apartment building or duplex; it may be coextensive with a signle set of living quarters, example, living quarters with detached rooms, which are clearly intended to be used as part of the living quarters".[52]

Room

According to the defintion adopted by Census of India in 1981[53] a room should have four walls with a doorway, with a roof overhead and should be wide and long enough for a person to sleep in, i.e., it should have a length of not less than two metres and a breadth of atleast 1.5 metres and two metres in height. A room, however, which is used in common for sleeping, sitting, dining, storing and cooking, etc. should be regarded as a room. An unenclosed varandah, kitchen, store, garage, cattleshed and latrine and rooms in which a household industry such as a handloom is located, which are not normally usable for living or sleeping are excluded from the definition of a living room for the purpose of this question.

One is likely to come across conical shaped huts or tent in which human-beings reside. In such improvised accommodation, there will be no four-walls to a room and

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52. Ibid.

53. Census of India (1981), op. cit., pp. 5-7.

therefore, the above definition would not apply strictly to such types of accommodation. In such cases, the tent or conical hut, etc. have been construed to be a room.

In certain parts of India, particularly in rural areas, the pattern of housing may present some problems. For example, a household may be in occupation of several huts put to different uses such as main residence, sitting room, store and even for sleeping at night. By strict application of the definition each one will be reckoned as a census house, but this does not reflect the real situation. While huts used as store or cattle-shed pose no problems, those used as sleeping rooms beyond the main residence, should be counted as rooms rather than as separate census houses.

If a garage is used by a servant and he lives in it as a separate household, it should be reckoned as a room available to the servants household. If a servant is considered as a member of the household then the garage room should be reckoned as an additional room of the household.

Town:

According to 1981 Census,[54] a town is defined as:

a) All places with a municipality, corporation, cantonment board or notified town area committee, etc.

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54. Ibid., p. 7.

b) All other places which satisfy the following criteria;

i) A minimum population of 5000;

ii) At least 75 per cent of male working population engaged in non-agricultural pursuits; and

iii) A density of population of atleast 400 persons per sq. km. (1000 persons per sq. mile).

City:

An urban unit having the population of one lakh and above is treated as a city.[55]

Urban Agglomeration:

An urban agglomeration, according to 1981 Census, may constitute:[56]

a) A city with continuous outgrowth (the part of outgrowth being outside the statutory limits but falling within the boundaries of the adjoining village or villages);

b) One town with similar outgrowth or two or more adjoining towns with their outgrowth as in (a); or

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55. Ibid.

56. Ibid.

c) A city with one or more adjoining towns with their outgrowth all of which form a continuous spread.

Million City:

A city having a population of ten lakh and above is treated as a 'million city'.

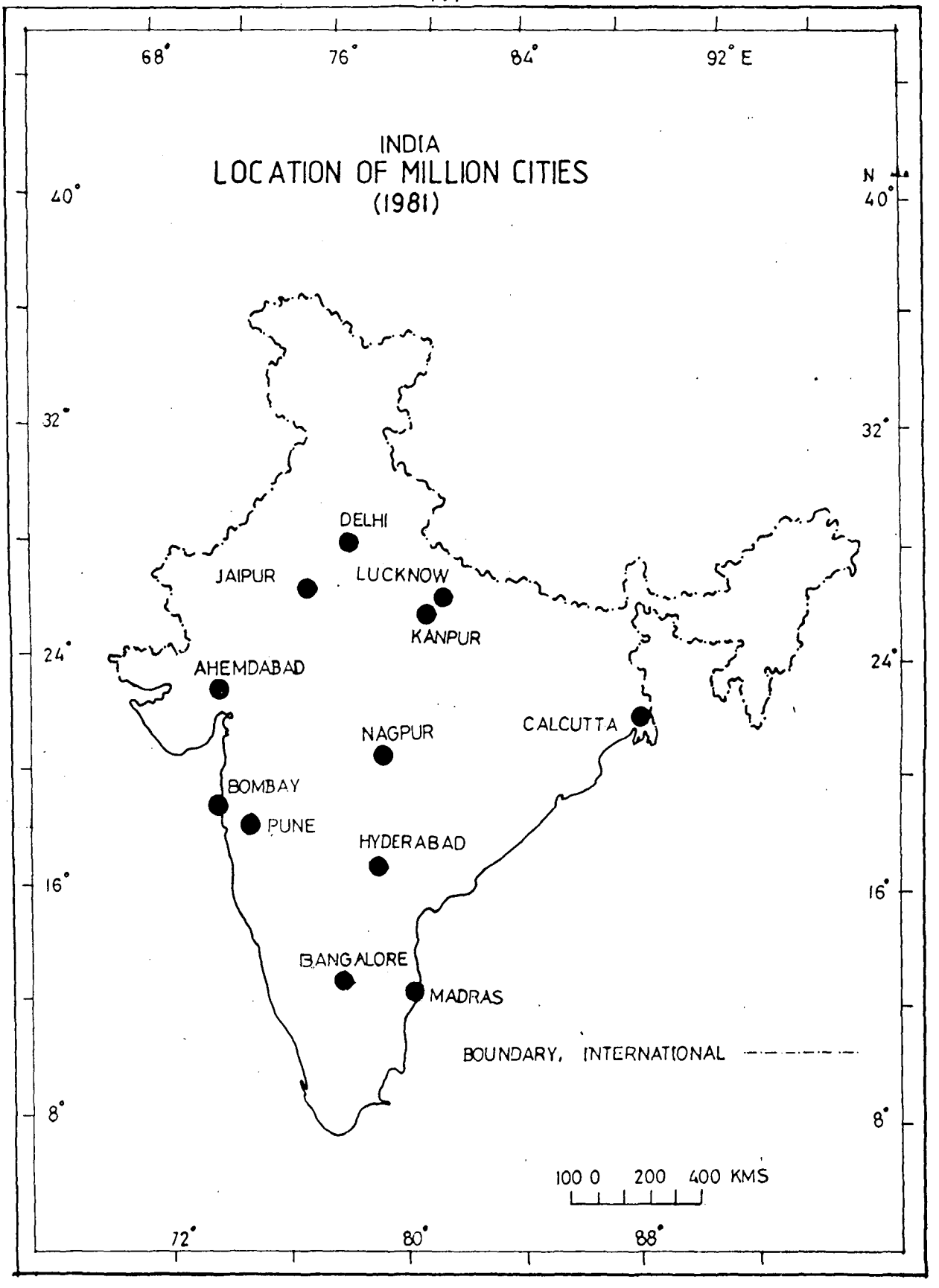
STUDY AREA:

The present study has been worked out for the cities of India having a population of one million or more as per 1981 Census. According to 1981 Census, twelve cities come under this category. As these cities are spread from north to south and from west to east (See Map 1.1), each city has developed or growth into a unique city not resembling the other and each city is affected by its hinterland. Therefore, it will be worthwhile if we see each city separately.

Calcutta:

Location : Bengali Kalikata, is capital of West Bengal state and former national capital (1772-1912) of India. The nation's largest metropolitan area and a major port, Calcutta is located on the eastern bank of Hooghly River, an arm of the Ganges, about 154 kms upstream from its mouth at the head of Bay of Bengal. It is a city of

FIG.1.1


INDIA
LOCATION OF MILLION CITIES
(1981)
68°
76°
84°
92° E
N
40°
32°
24°
16°
8°
72°
80°
88°
DELHI
JAIPUR
LUCKNOW
KANPUR
AHEMDABAD
NAGPUR
CALCUTTA
BOMBAY
PUNE
HYDERABAD
BANGALORE
MADRAS
BOUNDARY, INTERNATIONAL
100 0 200 400 KMS

commerce and manufacture and dominant urban centre of East India (situated in 22°34' North and 88°24' East).[57]

Climate and Topography: Although Calcutta is favourably located for trade, its low, swampy, hot, and humid river bank location is not ideal for human habitation. Eastward from the river the land slopes away to marshes and swamp-lands. Similar topography on the west bank has confined the metropolis to an area, three to five miles wide on either bank, but reclamation projects have shown that the limits of usable land can be expanded.[58] Of considerable interest is the low altitudinal position of the region where the great agricultural and industrial complex seem to have grown paradoxically as can be inferred from the observations made for Calcutta by a noted traveller of the 18th century: "...no worse place could be found in the whole of Lower Ganga Plains for the location and inception of a city of the stature of Calcutta, which became the core of great industrial conurbation of the Indian sub-continent".[59] Principal suburbs include Howrah, Baranagar, South Dum Dum, the South Suburban Area (Behata) and Garden

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57. The New Encyclopaedia Brittanica, Micropaedia, Vol. 2, Ed. 15, p. 735.

58. Ibid.

59. Kar, N.R., (1968), "Calcutta Conurbation", India Regional Studies, ed., R.L. Singh (Indian National Committee for Geography, Calcutta), p. 331.

Reach. The Calcutta city's maximum elevation is 30 ft. (9 metre) above sea level. It has a subtropical climate with a season regime of monsoons. The maximum temperature reaches about 108°F (42°C) and the minimum temperature about 44°F (7°C). Average annual rainfall is about 64 inches (1625 mm). The atmospheric pollution has greatly increased since the early 1950's.[60]

People : Most of the Calcutta's people are Hindus who speak Bengali language. The population also includes groups who speak Marathi, Bihari, Hindi, Urdu or other Indian languages. About two-thirds of city's adults cannot read or write. Wealthy Calcuttans live near the centre of the city in pleasant neighbourhoods with wide streets and modern houses. But the majority of the people live in slum areas called bustees. Most of the slum dwellings are made of scraps of metal or wood. They have no electricity, running water, or sewage disposal. Thousands of people sleep in the streets because they have no shelter.[61]

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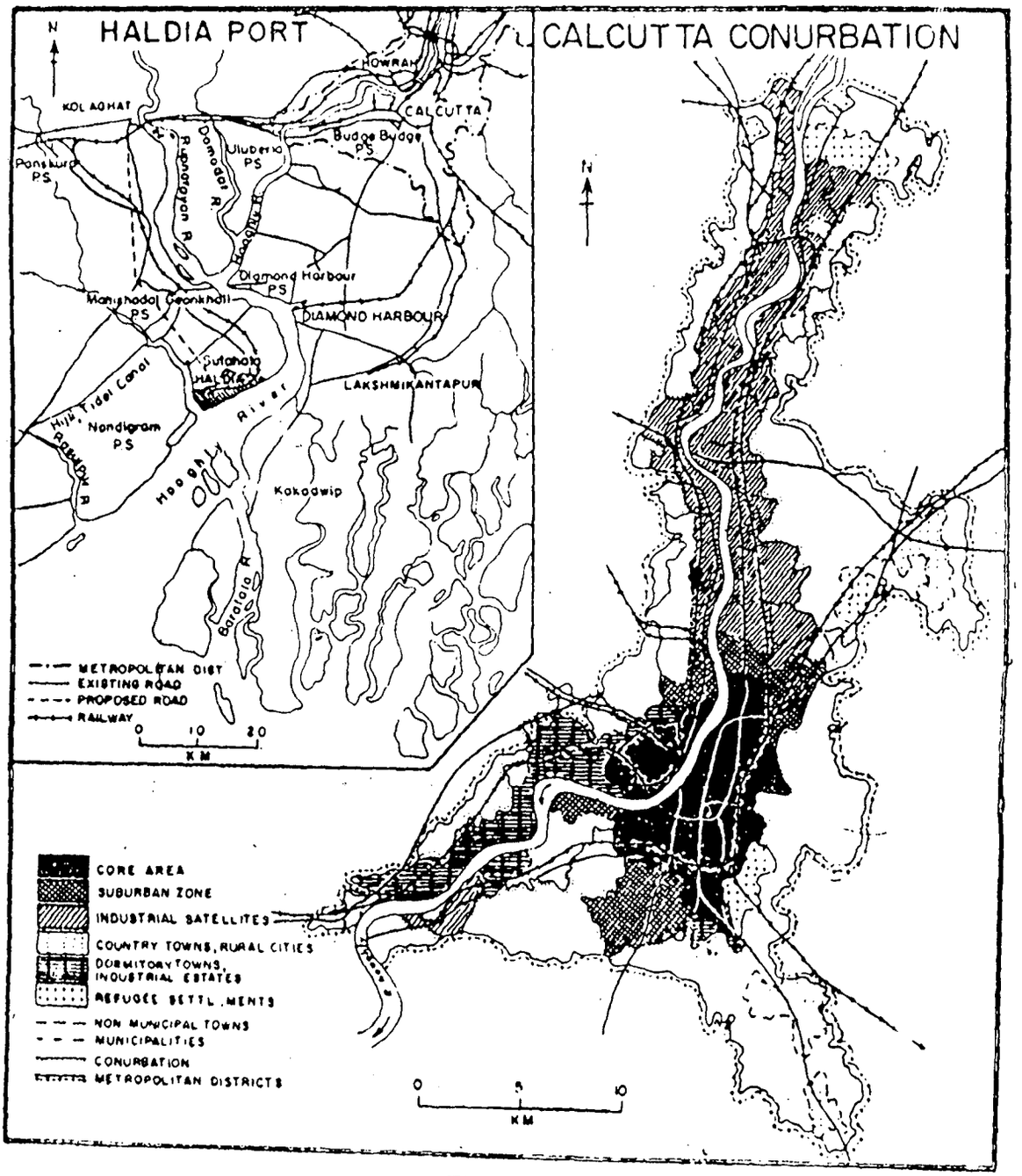
60. The New Encyclopaedia Brittanica, Macropaedia, Ed. 15, Vol. 15, p. 455.

61. The World Book, Vol. 3, World Book Inc., 1983, p. 23.

FIGURE 1.2



SOURCE : R.L. Singh (1989) (ed.) India : A Regional Geography, UBS publishers.

Housing : The city has an acute housing shortage. Of the persons living in institutional shelters in the Calcutta metropolitan district, probably more than two-third live in city itself. About three-forth of the housing units are used for dwelling purposes only.(Figure 1.2). Most of the units are very small. The city has numerous slum areas occupied by about one-third of the inhabitants.[62]

Economy : Calcutta is the world's largest processor of jute; also important are food processing, hosiery and footwear production, the manufacture of textiles and the making of iron and steel goods. The coal mines, tea gardens and industrial concerns of West Bengal and neighbouring states are managed and financed from Calcutta. Calcutta is also a major port in India. It is eastern India's financial headquarters, with many foreign banks, chambers of commerce, and a stock exchange. Calcutta is a major educational and cultural centre catering to a cosmopolitian population speaking Bengali, English, Hindi and Urdu.[63]

History : The British East India Company, a trading firm, founded Calcutta in 1690. The settlement grew rapidly in size and importance, and many neighbouring villages became

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62. The New Encyclopaedia Brittanica, Macropaedia, op. cit.

63. The New Encyclopaedia Brittanica, Micropaedia, op. cit.

part of it. Calcutta became the capital of India in 1773. By 1900, the city ranked second only to London as largest in the British Empire. In 1912, the capital was moved to Delhi, which had a more central location.[64]

Roads etc.: Calcutta's streets are mostly narrow and in poor condition; motorised transport is a relatively recent development. Construction of India's first subway system was begun in Calcutta in 1973 part of which is now operational. National highways and railways connect Calcutta to other cities; Sealdah and Howrah stations are terminals of several railway lines and air services is provided by the Dum Dum International Airport.[65] Area of the city is 100 sq. km and that of metropolitan area is 1334 sq. km.

Population of Calcutta city according to 1981 census is 3,291,655 persons and that of metropolitan area is 9,165,650 persons.

Bombay :

Marathi Mumbai, the port city of Greater Bombay, the capital of Maharashtra state is the premier metropolis of

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64. The World Book, op. cit., 1983.

65. The New Encyclopaedia Brittanica, Micropaedia, op. cit., 1987.

India (second largest in population) and the biggest rival of Hooghly-side as a production centre. Located on the commercially active Konkan littoral across the Sahyadri it is easily approachable through the Ulhao basin leading to Thalghat and Bhorghat. The city enjoys the 'western gateway of India' significance[66] (Figure 1.1). From the Hindu chiefs it passed in 1348 to Sultan of Gujarat and then to Portuguese in 1534, who ceded the territory to British crown as dowery in 1661 and it is since then that its real development started.[67]

Topography and Climate : One of the most densely populated cities of the world, Bombay occupies a group of former islands off the Konkan coast that are unified by landfills and brackwaters. Known as Bombay Island, the site is joined on the north with the larger island of Salsette, which is connected to the main landto the east. Bombay Island itself consist of a low lying plain between ridges of low hills. The city is flanked by Bombay Harbour on the east and Arabian Sea on the West. The Backbay forms the S.W. contour.[68] The climate is hot and humid most of

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66. Singh, R.L. (ed.), (1989, reprint), India : A Regional Geography, UBS Publishers, p. 917.

67. Ibid.

68. The New Encyclopaedia Brittanica, Micropaedia (1987), Ed. 15, Vol. 2, p. 348.

the year, with rain season lasting from June to September. The coolest season is from December to February.[69]

Economy : Bombay is the economic hub of India. The cotton textile industry, on which its traditional prosperity is founded, is still important. Manufacturing is diversified and includes the production of chemicals, oils and soaps, automobiles, and silk and artificial fibres; machinery and equipment forms and printing houses are also numerous. The Reserve Bank of India, the State Bank of India, and the Bombay Mint are located here, as is the country's largest and leading stock exchange. Most of India's international trade moves through the city's port. In addition, the India Atomic Energy Commission's headquarters are in Bombay.[70]

Problems : The city's population growth (36 per cent for the decade 1971-81) has created serious overcrowding, housing shortages and pollution. The poverty of many residents is reflected in Bombay's slum areas which are among the largest in India. Dharavi, has grown into the largest slum of Asia. By necessity, the metropolitan area has expanded northward past Thana, and a 'twin city' on the main land opposite Bombay has arisen to relieve some of the urban pressures.[71]

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69. Ibid.

70. Ibid.

71. Ibid.

Bombay's educational and cultural life reflects its cosmopolitian and polyglot population. Perhaps no other Indian city matches Bombay in the wide scope of its cultural and entertainment facilities. It is centre of India's thriving film industry.

Traffic inside Bombay, despite the suburban electric train system, is highly congested owing to a gowing number of private automobiles and taxies. The city is linked by road and rail to all the major towns in India. Sahar International Airport (1981), located in Sahar village on Salsette island handles foreign flights formerly served by Santa Cruz Airport. Ferry services connect Bombay to mainland towns. The city is India's major western harbour.[72]

The metropolitan area i.e. Greater Bombay has an area of 603 sq. kms and population is 8,227,332 persons according to 1981 census.

Delhi :

Delhi city, and Union Territory is situated in north central India (Figure 1.1). The Union Territory comprises the cities of Delhi (popularly known as Old Delhi) and New Delhi (India's capital from 1912) to the

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72. Ibid.

south, and adjacent rural areas. The areas economy and population centre primarily in Old Delhi, while government activities are concentrated in New Delhi; the territory as a whole serves as a focus of transport for north-central India.

Location : Delhi has been a capital city of a succession of empires and kingdoms, and according to tradition, the city has had various sites, all within the zone known as Delhi Triangle.[73] Besides being a natural point of convergence of routes from most parts of the country, Delhi's nodality is vastly enhanced by its cross-road strategic position in South Asia. According to Spate, the city is 'between the North-west, ever accessible to the new waves of invasion and cultural intrusion, and the shock absorbing Gangetic Plains... Few sites enjoy such advantages and perhaps none save Rome and Istanbul have had such long sustained significance'.[74] The Union Territory is situated on the western bank of Jamuna river, a tributory of the Ganges and is bounded by the states of U.P. (east) and Haryana (West). To the

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73. The New Encyclopaedia Brittanica, Micropaedia, 1987, Ed. 15, Vol. 3, p. 973.

74 Spate, O.H.K., (1954), India and Pakistan, p. 490.

west of Delhi is a northern extension of Aravalli Range called the Delhi Ridge.

Climate : The climate of Delhi is extremely dry, with intensely hot summers, cold winters, and a post-summer monsoon season.[75] The climate is associated with a general prevalence of continental air, which moves in from the west or north-west, except during the season of monsoon, when an easterly to souther-easterly influence of oceanic air brings increased humidity. The summer season lasts from March to the end of June with average maximum and minimum temperatures of 97°F (36°C) and 77°F (25°C); it is characterised by frequent thunderstorms and squalls, which are most frequent in April and May. The monsoon season following the hot summer, continues until the end of September, with an average rainfall of about 26 inches (660 mm). The post-monsoon period of October and November constitutes a transition period from monsoon to winter conditions. The winter season extends from the last week of November to mid-February; average maximum and minimum temperatures are 70°F (21°C) and 52°F (11°C) respectively. The air

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75. The New Encyclopaedia Brittanica, Micropaedia , Vol. 3, (1987).

in Delhi is dry for most of the year, with very low relative humidity from April to June and markedly higher humidity in July and August, when weather conditions are oppressive. The mean daily temperature is highest in May, and the monthly mean temperature is highest in June, when the night temperature is also at its maximum. The mean daily temperature may rise as high as 110°F (43°C). The coldest month is January, when both the mean maximum and the mean minimum temperatures are at their lowest - 70°F (21°C) and 45°F (7°C), respectively.[76]

Economy : In Delhi, service, especially government and administration, is the chief employer and most important sector of the economy; the industrial sector is the second and the commercial sector is the third. In modern times, Delhi has also become a manufacturing sector with small and medium scale industries such as electronics and engineering goods, automobiles parts, and electrical appliances. Traditional handicrafts, such as ivory carving, painting, brassware, and copperware, continue to be important, as are handloom products and garments. Delhi has been the dominant trading and commercial centre in North India for centuries. It is headquarters of the

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76. The New Encyclopaedia Brittanica, Macropaedia, 1987, Vol. 17, Ed. 15, p. 223.

Reserve Bank of India and a major Stock Exchange centre. Transportation, storage, and wholesale and distributive trades are also vital activities.[77]

Street Plan : The contrast between the convulated street plan of Old Delhi and the orderly, diagonal traffic pattern in New Delhi is striking. In relation to Old Delhi, which has twice (in some places five times) the population density, New Delhi exudes a feeling of openness and quiet as do the Civil Lines upper income residential areas to the north (Figure 1.3). In the old city there is a strong mohalla (neighbourhood) feeling in some quarters, though overall the social structure has become more hetrogenous owing to an influx of immigrants from other Indian states and adjacent countries.[78]

Housing : The housing situation in Delhi deteriorated after 1947 as a result of the influx of refugees caused by the partition of India and the city's emergence as the national capital of India. Building activity was insufficient to close the gap or to keep pace with the increasing

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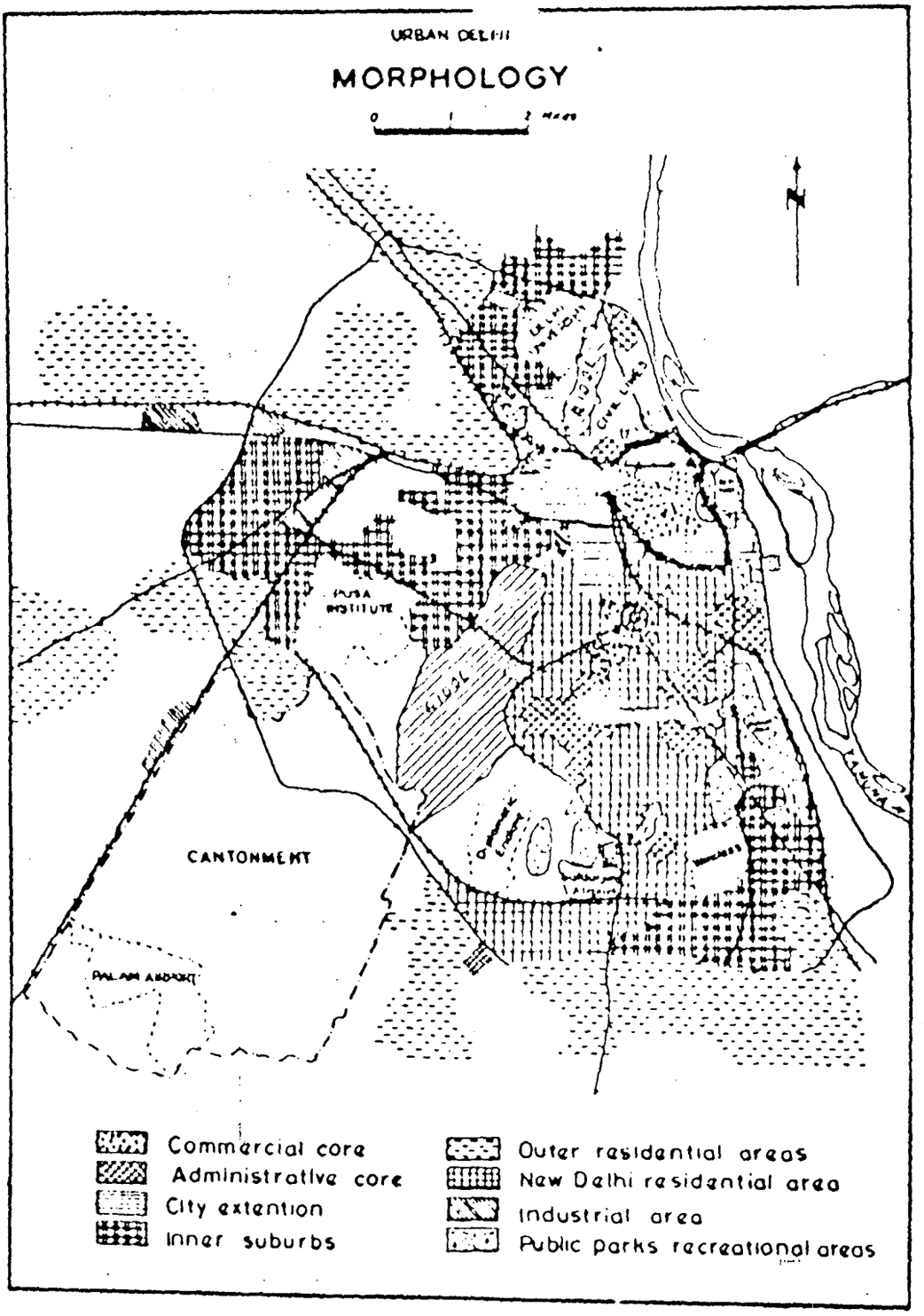
77. The New Encyclopaedia Brittanica, Micropaedia , Vol. 3, 1987.

78. Ibid.

FIGURE 1.3



SOURCE : R.P. Misra (1978) (ed.) Million Cities of India, Vikas publishers.

population. This compelled nearly a third of the city's population to seek shelter in congested areas and in unauthorised dwellings or to settle as squatters in slums. The house in Old Delhi are unplanned, consisting of old structures of two, three, or more storeys with a high proportion of single room dwelling units. In the Civil Lines are there are number of old one storey bunglows. In New Delhi, the government housing colonies have been laid out in a lavish manner and are grouped on an income basis. The earliest construction consisted of one story houses, but multi-storyed structures were later built. The implementation of the housing programme is administered by various agencies, such as the government of Union Territory, the various municipal governments, the Delhi Development Authority, and various individuals and corporations.[79]

Delhi lacks adequate mass transit facilities; intra-city transportation is a congested tangle of bullock carts, bicycles, automobiles, and trucks. Because of Delhi's geographical location, all land routes form north-west India to the eastern plain must pass through the city; five national highways and several railway lines converge here.

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79. Ibid.

The Palam International Airport, Indira Gandhi International Airport and the Safdarjung Airport serve this importany traffic centre.[80]

Old Delhi covers a area of 932 sq. kms; New Delhi 438 sq. kms; and Union Territory 1485 sq. kms. According to Census of India, 1981, population of Old Delhi was 4,884,234; New Delhi have 273,036 persons; and Union Territory have 6,220,406 persons.

Madras

Tamil CENNAI, Madras, situated on the Coromandal Coast is the capital and principal commercial and port city of Tamil Nadu State. The extensive site is at dead level, low lying flat terrain, the highest point being only about 7 metre above the sea level and is intersected by two creeks, the Cooum in the centre and Adyar in the south.[81]

History : Madras is a shortened name of the fishing village Madraspatnam, where the British East India Company built a fort and trading post in 1639-40. At that time, weaving of cotton fabrics was a local industry, and the English invited the weavers and native merchants to settle

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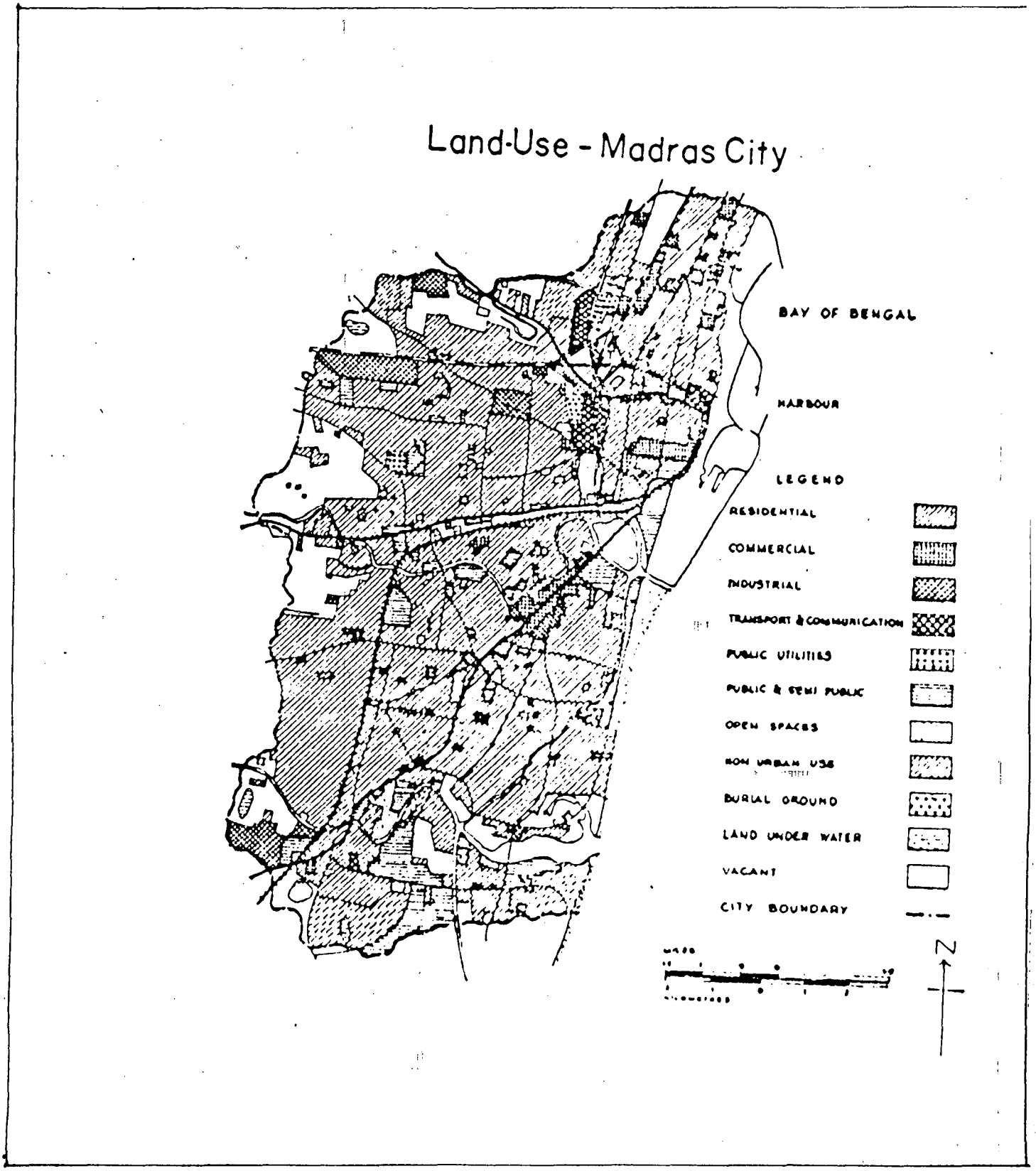
80. Ibid.

81. Singh R.L. (ed.), op. cit., p. 951.

FIGURE 1.4



SOURCE : R.P. Misra (1978) (ed.) Million Cities of India, Vikas publishers.

near the fort. By 1652 the factory of Fort St. George was recognised as a presidency and between 1668 and 1749 the company expanded its control. At about 1801, by which time the last of the local rulers had been shorn of his powers, the English had become masters of southern India, and Madras had become their administrative and commercial capital.[82]

Lay-Out : Madras developed without a plan from its 17th Century core, formed by the fort and the Indian quarters. To the north and northwest are the industrial areas; the main residential areas are to the west and south, and the old villages are in the centre. A number of modern high rises have also been built.[83]

Except in central portion, Madras enjoys a much lower density than Bombay, Calcutta, or Delhi suburbs and its colonies of Ayanavaram, Shenoy Nagar, Gandhi Nagar, etc., are very finely developed. Madras is the centre of Tamil culture, art and literature.[84]

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82. The New Encyclopaedia Brittanica, Micropaedia, 1987, Ed. 15, Vol. 7.

83. Ibid.

84. Singh R.L., (ed.), op. cit.

Economy : Industrial concerns include vehicle factories, an electrical engineering firm, rubber and fertilizer factories, and a refinery. The principal commodities exported from Madras are leather, iron-ore and cotton textiles. Wheat, machinery, iron and steel, and raw cotton are imported. There are various educational institutions in Madras (Figure 1.4). The sub-urban town of Koddambakkam, with its numerous film studies, is described as the Hollywood of South India.[85]

Madras, which is the fourth largest city of India had a population of 3,276,622 persons as per the 1981 census. The population of the metropolitan area during the same period was 4,289,347 persons.

Bangalore:

Bangalore city is the capital, since 1830, of Karnataka state (formerly Mysore), southern India, and headquarters of Bangalore district. It is the nation's fifth largest city. It lies 3113 ft. (949 metres) above sea level atop an east-west ridge in Karnataka plateau in the south-eastern part of the state. It is a cultural

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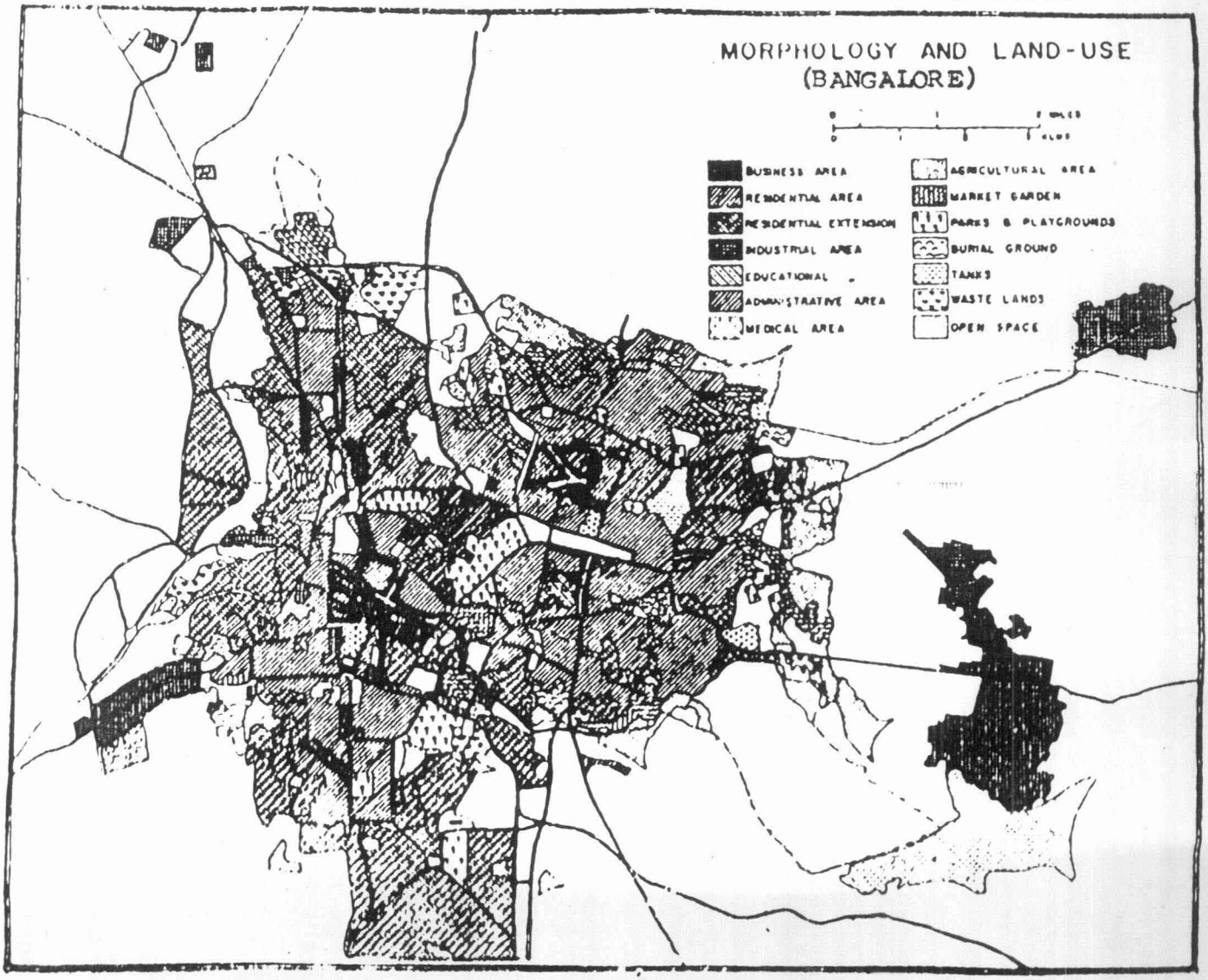
85. The New Encyclopaedia Brittanica, Micropaedia, Vol. 7, op. cit.

FIGURE 1.5



SOURCE : R.L. Singh (1989) (ed.) India : A Regional Geography, UBS publishers.

meeting point of the Kannada, Telugu, and Tamil speaking peoples. Pleasant winters and tolerable summers makes it a popular place of residence, but water supply for its increasing industrial and domestic needs is a problem.[86]

Its name is an anglicization of Kannada Bangaluru, "village of boiled beans". The city consist of closely built old town; a number of suburbs laid out on a grid-stone pattern to the north and south, with many parks and wide streets; and a sprawl of military cantonments to the east. Its nucleus was a mud fort, built in 1537 by a petty chief, Kempe Gowda, and constructed of stone in 1761. Bangalore was the headquarters of British administration from 1831 to 1881 when the raja was restored but Britain retained an administrative and military presence there until 1947.[87]

At the focus of southern India's road system, Bangalore lies on the Varanasi-Kanyakumari National Highway. It is connected by major roads with Bombay and Madras, and is linked to Kerala via Mysorecity, through the Nilgiri hills and Palghat Gap. It is also a junction

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86. The New Encyclopaedia Brittanica, Micropaedia, 1987, Ed. 15, Vol. 1, p. 865.

87. Ibid.

for the Southern Railways broad gauge line (from Madras) with an extensive metre gauge system to the north and west. Hindustan Airport, 8 km. east, has scheduled flights to and from Bombay, Madras, Mangalore and Colombo (Sri Lanka).[88]

Bangalore district (8003 sq. kms in area) is drained by the Akravati and Kanva rivers, tributaries of the Cauvery, which forms its southern border. Millets and oil seeds are the main crops. Cattle and sheep are grazed. Besides, Bangalore, the main towns are Channapatna, Closepet, Magadi, and the Hosekote.[89]

Population of the city according to 1981 census is 2,628,593; that of metropolitan area, 2,921,751; and the district's population is 4,947,610 persons.

Ahemdabad :

Also spelled Ahmadabad, city, and administrative headquarters of Ahemdabad district in the state of Gujarat, west central India on the Sabarmati river, north of Bombay (Figure 1.1). The city was founded in A.D. 1411 by the Muslim rulers of Gujarat, Sultan Ahmad Shah, next to the old Hindu town Asawal. Ahemdabad grew larger

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88. Ibid.

89. Ibid.

and wealthier for a century, but dynastic decay and anarchy brought decline, and the city was captured in 1572 by the Mughal Emeror Akbar. Renewed eminence under the Mughals ceased with the death of Aurangzeb in 1707. Further decline was arrested by the annexation of Gujrat in 1818 by the British. The city's first cotton mills were opened in 1859-61, and it has now become the sixth most populous city and largest inland industrial centre in India. Ahemdabad became the temporary capital of Gujrat state in 1960; the state administration was moved in 1970 to Gandhinagar.[90]

Today the city has two parts, the old and historic Ahemdabad on the left bank of the Sabarmati and the modern and better planned extension on the right bank. (Figure 1.6). The two parts are as much epitomic of their age as of functions and economic levels of its inhabitants. The overcrowded older part is interspersed with historic monuments amidst essentially residential areas with busy shopping parade, while the right bank sprawl is functionally dominated by administration, education and upper class residential colonies.[91]

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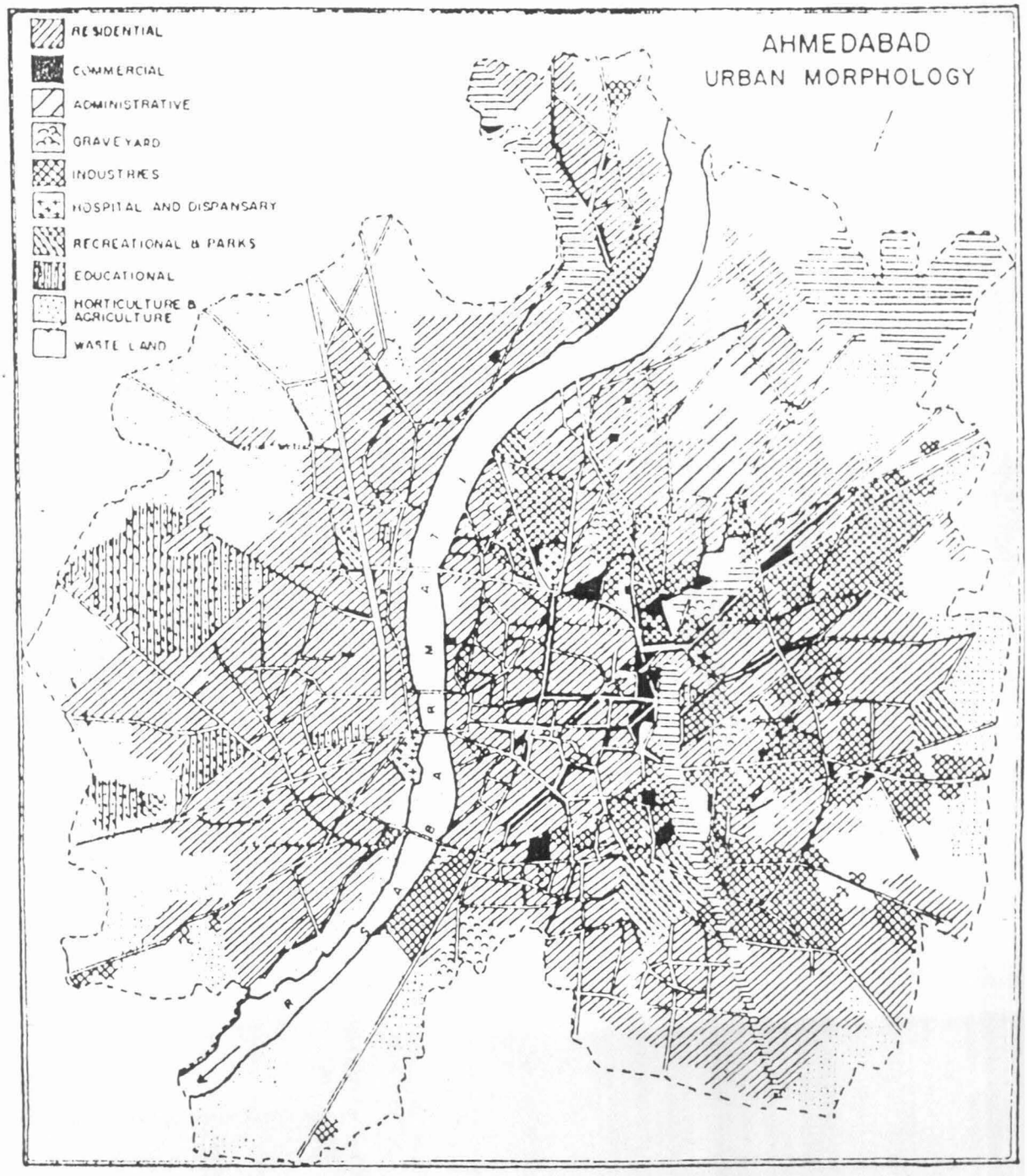
90. The New Encyclopaedia Brittanica, Micropaedia, 1987, Ed. 15, Vol. 1, p. 165.

91. Singh R.L., (Ed.), op. cit.

FIGURE 1.6



SOURCE : R.L. Singh (1989) (ed.) India : A Regional Geography, UBS publishers.

In the city the Hindu, Muslim and Jaina architecture met, and its ancient architectural remains contrast sharply with the modern mills and facilities. About half of the city's population depend upon the cotton industry, with various other light manufactures. Roads lead to Bombay and Central India, the Kathiawar Peninsula, and the Rajasthan border. It is a major junction on the western railway, with lines running to Bombay, Delhi, and Kathiawar peninsula.[92]

Ahemdabad district occupies 8707 sq. kms. across the neck of Kathiawar Peninsula. The northeast is dotted with low hills that gradually give way south-westward to a great plain, the only fertile area in the district. The chief crops are cotton, millet, wheat, pulses. Part of the district are wooded. The main rivers are the Sabarmati and its tributaries, which flow southward into the Gulf of Cambay.[93]

Population of Ahemdabad city, according to 1981 Census, is 2,129,799; whereas that of metropolitan area is 2548,057; and of the district 3,875,794 persons.

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92. The New Encyclopaedia Brittanica, Micropaedia, Vol. 1, op. cit.

93. Ibid.

Hyderabad :

Hyderabad is capital of Andhra Pradesh state and of Hyderabad district in southern India. (Figure 1.1). It is located on the Deccan Plateau and Musi river.

History : Hyderabad was founded in about 1591 by Muhammad Quli Qutb Shah, the fifth of the Qutb Shahi Sultans, as the new capital of the Golkanda Kingdom.[94] The Charminar, a grand architectural composition in Indo-Sarcenic style with open arches and with four minarets, is regarded as supreme achievement of the Qutb Shahi period. It formed the centre piece around which the city was planned. The Mecca Masjid, a mosque was built later. Hyderabad was known for its beauty and affluence but this glory lasted only as long as the Qutb Shahis, for the Mughals conquered Hyderabad in 1685. The Mughal occupation resulted in plunder and destruction and was followed by the intervention of European powers in Indian affairs . In 1724 Asaf Jah Nizam-ul-Mulk, the Mughal viceroy in the Deccan declared independence. This, Deccan Kingdom, with Hyderabad as its capital, came to be known as Hyderabad. The Asaf Jahis, during the the 19th century, started to rebuild, expanding

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94. Census of India, 1981, District Census Handbook, Hyderabad District, Part XIII, A&B, p. 1.

to the north of the old city across the Musi. Further north, Secunderabad grew as a British cantonment, connected to Hyderabad by a mile long bund (embankment) on the Husain Sagar Lake. The bund serves as a promenade and is the pride of the city. Many new structures, reflecting a beautiful blend of the Hindu and Muslim styles, were added. Under the Nizams the Hindu and Muslim population lived in amity although immediately after independence a fanatical Muslim faction, the Razakars, fomented tensions in the state and the city. The Indian Government intervened, and eventually the state of Hyderabad was acceded to India.[95] On 1st November 1956, the state was split up; its Telugu speaking areas were combined with the erstwhile Andhra state to form the state of Andhra Pradesh with Hyderabad as its capital under the State Reorganisation Act of India.[96]

Economy : Hyderabad has become a centre of trade and commerce. Cigerettes and textiles are manufactured, and the service industry have been expanded. The city also has good transportation facilities. There are rail and

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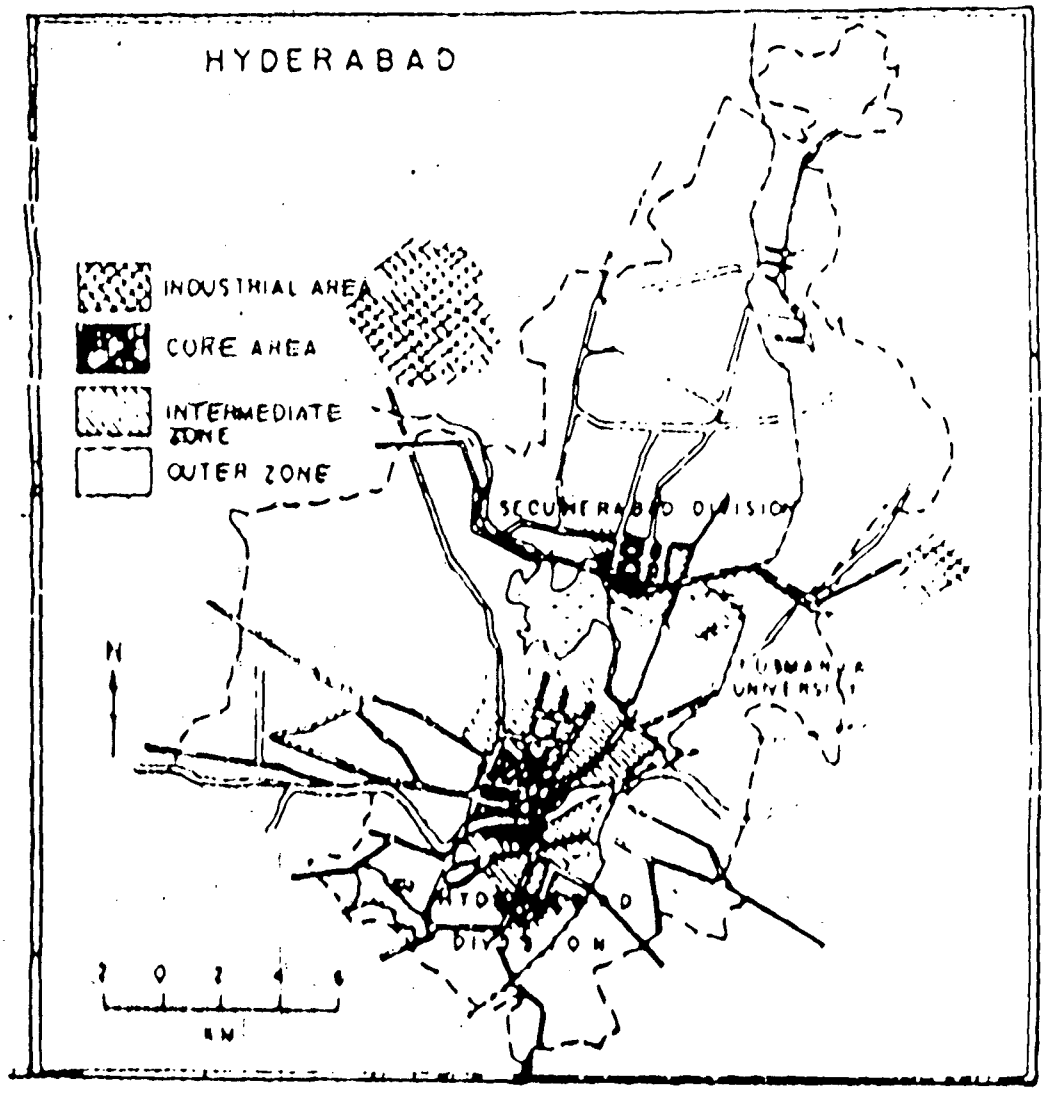
95. The New Encyclopaedia Britanica, Micropaedia, 1987, Ed. 15, Vol. 6, p. 185-186.

96. District Census Handbook, Hyderabad District, op. cit.

FIGURE 1.7



SOURCE : R.L. Singh (1989) (ed.) India : A Regional Geography, UBS publishers.

air services to Delhi, Calcutta, Bombay, Madras, and Bangalore. Taxis, auto-rickshaws, cycle -rickshaws, private vehicles and suburban bus and rail services provide local transport.[97]

In recent years, Hyderabad has experienced a phenomental growth in all directions. The Hyderabad Agglomeration now ranks as the seventh largest in the country in terms of population. The urban growth of the city has grown rapidly in the Northeast and Northwest and has spread beyond the corporation limits. Slums have grown, not only in the core city but also in the newly developing outskirts of the city. Haphazard and substandard development in the metropolitan area is going on at a rapid rate especially on the major arterial roads and highways leading to the city. (Figure 1.7). Many scholars of the opinion that land use pattern and its distribution under different uses is unbalanced and uneconomical as there are large stretches of vacant and agricultural land which need to be brought under residential and other use to provide for balanced urban development.[98]

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97. The New Encyclopaedia Brittanica, Micropaedia, Vol. 6, op. cit.

98. District Census Handbook, Hyderabad District, op. cit.

Population in 1981 of the city is 2,093,488; and that of metropolitan area is 2,545,836 persons.

Pune :

Also called Poona, it is administrative headquarter of Pune district, Maharashtra State, Western India (Figure 1.1). This is a seat of Maharashtrian culture. Situated on the Mula-Mutha confluence, the city commanded the route that followed Indrayani Valley, from the Borghat saddle. Originally known as 'Kasba Pune', its nucleus grew on a ford point of the river Mutha in what is known as 'Kasbapeth'. The later axial growth along the modern Shivaji road, give rise to an elongated settlement (Figure 1.8), with 'Shaniwarwada', the castle, on its northern extremity.[99] Pune is also called "Queen of Deccan".

History : The city first gained importance as the capital of the Bhonsle Marathas in the 17th century. It was temporarily captured by the Mughals but again became the official Maratha capital from 1714 until its fall to the British in 1817. It served as the seasonal capital of the Bombay Presidency and is now a popular tourist resort, offering cool weather, historic and religious

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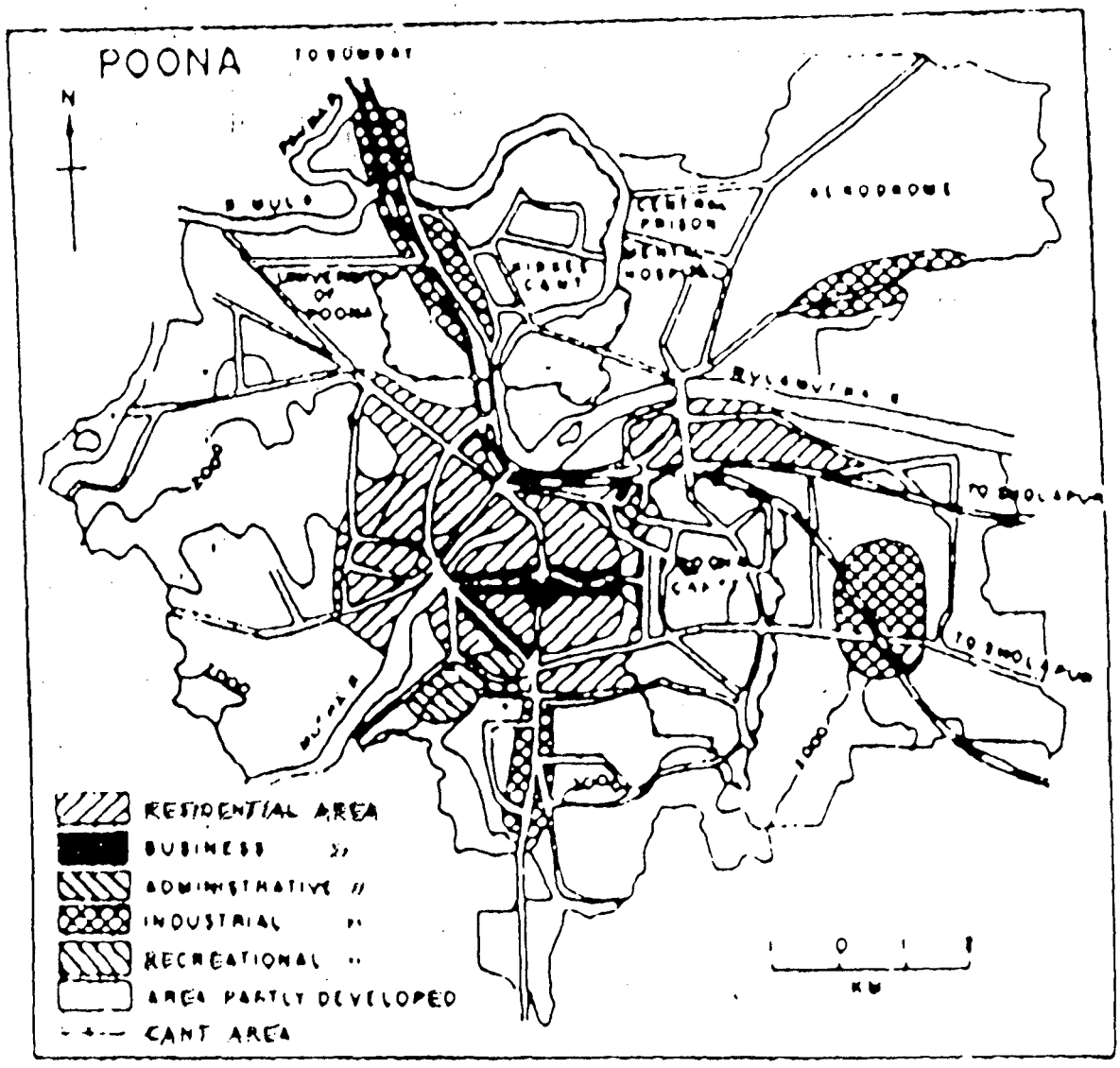
99. Singh, R.L., (ed.), op. cit., p. 711-12.

FIGURE 1.8



SOURCE R.L.Singh (1989) (ed.) India : A Regional Geography, UBS publishers.

monuments, museums, and parks, hotels, and cultural attractions. Pune has long been a major educational and cultural centre; former Prime Minister Jawaharlal Nehru referred to it as the "Oxford and Cambridge of India".[100]

A sprawling complex of industrial suburbs has developed around the city. Large factories producing a wide variety of products are distributed along the roads radiating from Pune to Bombay, Ahmednagar, Sholapur, and Satana. The old city is largely residential and commercial, and is served by large scale commuter transport. In 1961 the Panshet Dam collapsed washing away a substantial part of the old town. New housing projects make Pune's transformation from a sleepy town to a busy end growing metropolis.[101]

Pune district, 6039 sq. mile (15,640 sq. km.) in area, has a roughly triangular shape,[102] with its base in the Shahyadri Hills on the Western Ghats to the west and its apex near the confluence of Bhima and Nira rivers to the southwest. The Shahyadri hills, the Balaghat Range in the north, and the Mahadeo hills in

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100. The New Encyclopaedia Brittanica, Micropaedia, 1987, Vol. 9, p. 799.

101. Ibid.

102. Ibid.

the southenclose the northern Bhima river valley. From the forested and well watered hills of the west, the land slopes down to a semi-arid plain in the southeast.

The district is the second largest industrial area in the state; about half of the total labour force, however, is involved directly in agriculture. Chief crops are jowar (serghum), bajra (pearl millet), sugarcane and rice. Junnar is a major fruit and vegetable market.[103]

Population of Pune city, according to 1981 Census, is 1,203,351; and that of metropolitan area 1,686,109 persons ranking as eighth largest in population in India. Population of the district (1981) was 4,164,470.

Kanpur :

Formerly CAWNPORE, Kanpur city is administrative headquarters of Kanpur district, in the state of Uttar Pradesh, northern India, southwest of Lucknow, on the Ganges river (Figure 1.1). Kanpur was only a village when it and the surrounding territory were acquired in 1801 by the British,who made it one of their frontier stations. In 1857, during the Indian Mutiny, the British troops in the Indian town were massacred by the native forces.[104]

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103. Ibid.

104. The New Encyclopaedia Brittanica, Micropaedia, 1987, Vol. 15, Vol. 6, p. 723.

The largest city of Uttar Pradesh, and ninth largest in India, Kanpur has an area of more than 260 sq. km. It is an important road and rail hub and a major commercial and industrial centre. The city proper lies northwest of the cantonment; most of its industry is still farther northwest. The urban area also includes three railway colonies and Armapur, a suburb. There is a military airfield nearby.

Problems : Kanpur is one of the most stricken city in the country, both due to overcrowding and haphazard growth. Mill magnets and sweating labour, tall edifices and slums, smoking chimneys and beautiful parks, holy Ganga and dirty drains all exist side by side. Due to haphazard and rapid growth time has come now to check these chaotic growth. The problem associated with these conditions can be attributed to the unbalanced economic and social developments.[105] The existing city has complex traffic and transportation problems. There are no specific terminal facilities for buses and trucks. The existing network of road is overladden with increasing volume of slow moving traffic which mixes up with the fast moving

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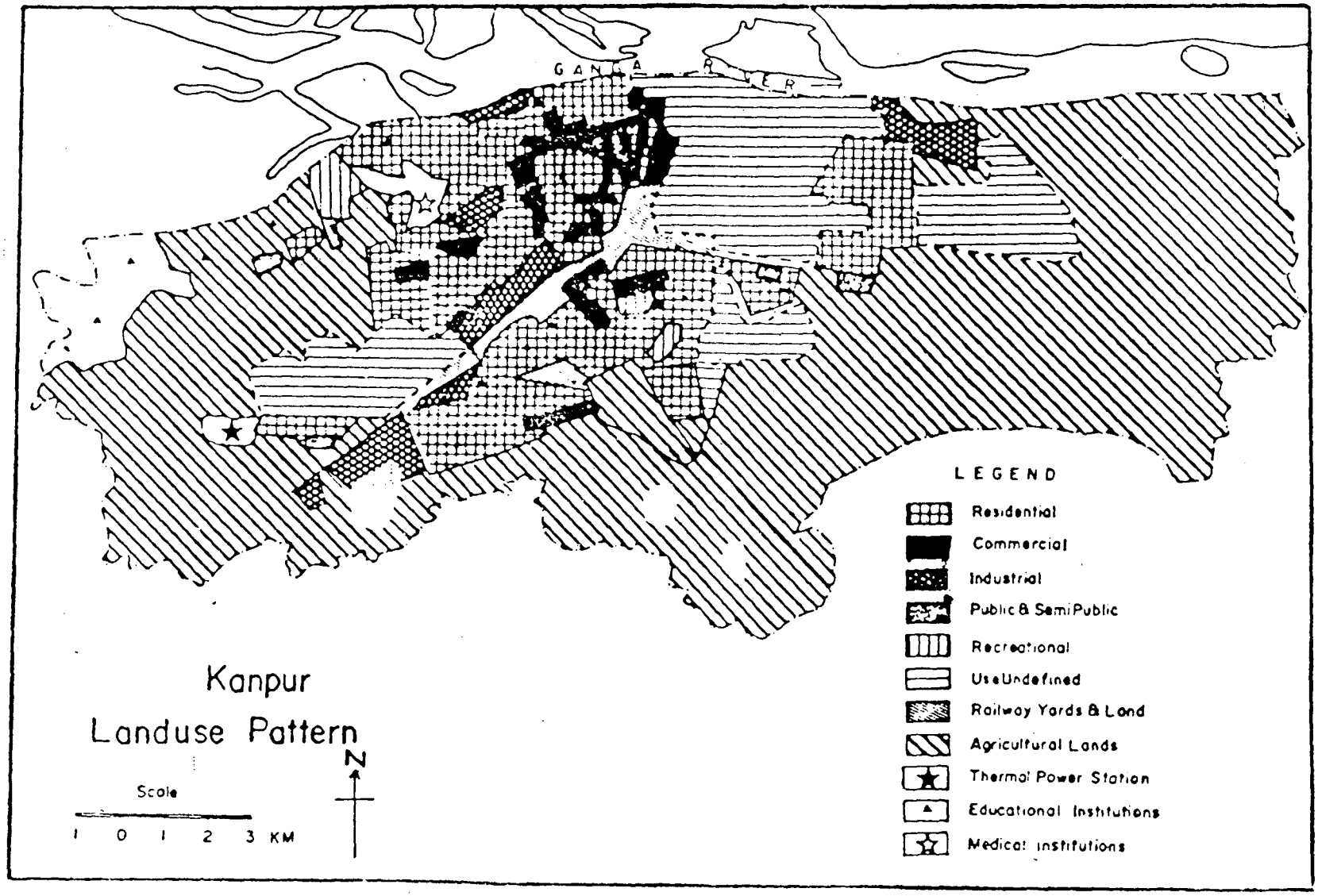
105 Kanpur Development Authority and Town & Country Planning Department, Uttar Pradesh : Integrated City Development Programme for Kanpur Metropolis (1975-81), p. 1

FIGURE 1.9



SOURCE : R.P. Misra (1978) (ed.) Million Cities of India, Vikas publishers.

traffic. The city does not have adequate mass transportation facilities. This results in congestion, overcrowding, long traffic jams adding inefficiency to the whole system.[106]

Housing : Kanpur being a big industrial metropolis of northern India has attracted a large number of industrial and commercial population, with the result of overcrowding and mushrooming of innumerable slums dotting all over the city. A high percentage of labour population live in the city area, where are located the commercial centres which make Kanpur the biggest town of northern India. (Figure 1.9). Coolie Bazar, Nayaganj, Colonelganj, and Gwaltoli are examples of extremely bad areas.[107] Immediate measures to rehouse these workers in healthier neighbourhoods and to remove this highly congested and filthy living conditions, calls for a bold step on the part of authorities to clear and rebuild these areas.

Kanpur district, about 2400 sq. miles in area, is a fertile stretch of alluvial plain between the Ganges and Yamuna rivers. It is watered by the tributaries of

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106. Ibid., p. 12.

107. Ibid., p. 22.

the two rivers and by the Lower Ganga Canal. Crops include wheat, gram, jowar (sorghum), and barley. There are mango and mahua groves and a dhak forest.[108]

Population of Kanpur city in 1981 reached 1,481,789 and that of metropolitan area 1,639,064 persons. Population of district registered a total of 3,742,223 persons.

Nagpur :

Nagpur city is administrative quarter of Nagpur district, Maharashtra state, Western India, on the Nag river. Almost at the geographical centre of India (Figure 1.1) the present city was founded in the early 18th century by Bakht Buland, a Gond Raja. It became the capital of Bhonsles of the Maratha confederacy but in 1817 came under British influence. In 1853 the city lapsed into British control and in 1861 became the capital of central provinces. The advent of the Great Indian Peninsula Railway in 1867 spurred its development as a trade centre. After Indian independence Nagpur became the capital of Madhya Pradesh state. In 1960 it was designated the district headquarter of Maharashtra state,

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108. Kanpur Development Authority and ...., op. cit., p. 723.

alternating with Bombay as the seat of Maharashtra state legislature.[109]

Economy : The growing of cotton in the region about the time of the construction of railways led to the establishment of a large textile mill and signalled the development of the city as an important industrial centre. Since that time the industrial complex has diversified considerably and in the 1970's expanded to absorb the nearby town of Kamptee, with its factories that produce ferromanganese products, transport equipment, and other metal goods. Situated at the junction of the road, rail, and air routes from Bombay to Calcutta and from Madras to Delhi, Nagpur has developed a flourishing trade. Nagpur is an educational and cultural centre.[110]

Nagpur district, 9928 sq. kms in area, in eastern Maharashtra state, is an undulating plateau rising northward to the Satpura Range, from 889 to 2142 ft. (271 to 653 metres) high. In the northeast are the Ramtek hills, site of a temple at Ramtek that draws many

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109. The New Encyclopaedia Brittanica, Micropaedia, 1987, Ed. 15, Vol. 8, p. 483.

110. Ibid.

piligrims to its sacred annual festivals. Interspersing the hills are the two major rivers - the Wardha (in the west) and the Wainganga (in the east) - both tributaries of the Godavari. The district is important agriculturally; sorghum and cotton are major crops. The district is especially known for its oranges, which are shipped all over India. Extensive coal and manganese deposits support growing industry.[111]

Population of Nagpur city, according to 1981 census, was 1,219,461; and that of metropolitan area, 1,302,066 persons. District's population in 1981 was 2,588,811 persons.

Jaipur :

Jaipur city, located at 26°55' North and 75°50' East, is capital of Rajasthan state and administrative headquarters of Jaipur district, in northwest India (Figure 1.1). A walled town surrounded by hills, except to the south, Jaipur was founded in 1727 by Maharaja Swai Jai Singh to replace Amber as the capital of the princely state. Known for its beauty, it is unique in straight line planning; its buildings are predominantly rose colour, and therefore, it is sometimes called the

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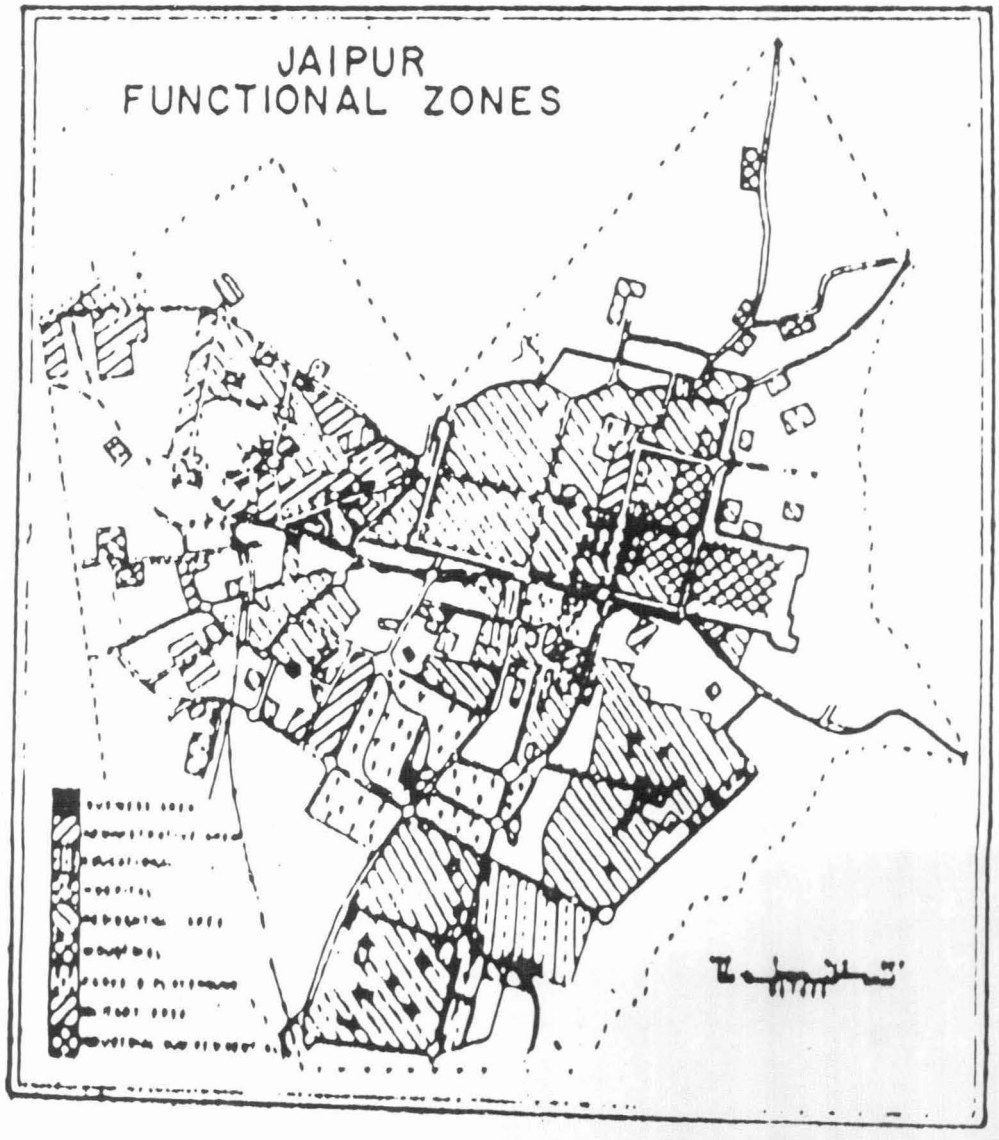
111. Ibid.

FIGURE 1.10



SOURCE : R.L. Singh (1989)(ed.) India : A Regional Geography, UBS publishers.

"Pink City".[112]

Economy : Jaipur has major road, rail, and air connections and is a commercial trade centre. Industries include engineering and metal working, handloom weaving, distilling, and the manufacture of glass, hosiery, carpets, blankets, shoes, and drugs. Jaipur's famous arts and crafts include the making of jewelry, enamel, metal work, and printed cloths, as well as stone, marble, and ivory carving.[113]

Jaipur district which is 14000 sq. kms. in area, formerly princely state comprises fertile alluvial plains to the east and south and hill chains and desert areas to the north and west. Bajra (pearl millet), barley, gram (chick-pea), pulses and cotton are chief crops; iron-ore, berigllium, mica, feldspar, marble, copper, and garnet deposits are worked.[114]

Population of Jaipur city, according to 1981 census, reached 977,165; that of metropolitan area 1,015,160; and 3,420,574 persons for the Jaipur district.

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112. The New Encyclopaedia Brittanica, Micropaedia, 1987, Ed. 15, Vol. 6, p. 474.

113. Ibid.

114. Ibid.

Lucknow :

"Is this the capital of a semi-barbarious race, erected by a so-called corrupt, effect and degraded dynasty? Is this a city in Oudh? I confess, I felt inclined to rub my eyes again and again. Not Rome, not Athens, not Constantinopole, not any a city, I have seen appears to me so striking and beautiful as this, the more I gaze the more its beauties grow upon me."[115]

Lucknow city is administrative headquarters of Lucknow district and capital of Uttar Pradesh state, northern India, on the Gomati River, at the junction of numerous roads and rail lines. (Figure 1.1). The modern city of Lucknow is 12th largest city of India and is situated nearly in the centre of the district of Lucknow which lies between the parallels $26^{\circ}30'$ and $27^{\circ}10'$ north latitude and meridian $80^{\circ}30'$ and $81^{\circ}13'$ east longitude.

History : Lucknow became important in 1528 when it was captured by Babur, the first Mughal ruler in India. Under Akbar, his grandson, the city became part of Oudh province. Asaf-u-dawlah, who became nawab of Oudh in 1775, transferred his capital from Faizabad to Lucknow. When the

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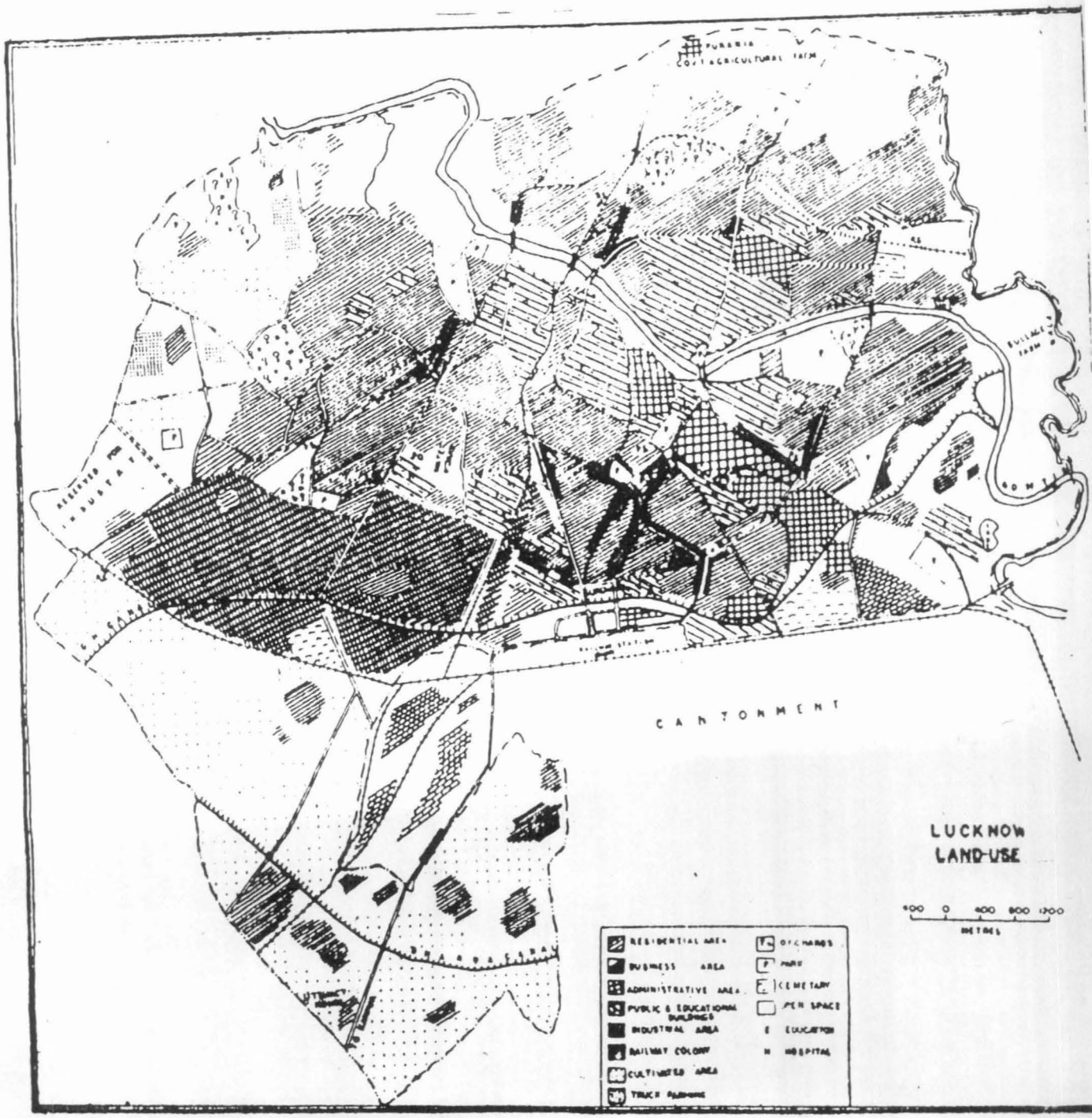
115. William Howard Russel (1856) quoted in Master Plan of Lucknow (Vol. 1), Town and Country Planning Department, Govt. of Uttar Pradesh, Lucknow Survey Division.

FIGURE 1.11



SOURCE : R.L. Singh (1989) (ed.) India : A Regional Geography, UBS publishers.

Indian Mutiny broke out in 1857, Sir Henry Lawrence, the British Commissioner, and the European inhabitants of Lucknow were beseiged for several months until rescued by British troops. The British then abandoned the city until the following year, when they regained control over India.[116]

The city is a market place for agricultural products, and its industries include food processing, manufacturing, handicrafts, and rail-road shops. The main urban areas of Lucknow is situated on the southern bank of the river Gomati (Figure 1.11). It is well linked by rail, road, and airways connections to the rest of big cities of India and is 606 miles from Calcutta; 308 miles from Delhi; 198 miles from Varanasi and 49 miles from Kanpur.

Lucknow district, 2528 sq. kms in area, comprises a section of the Ganges alluvial plain, watered by the Gomati and Sai rivers and the Sarda Canal System.[117]

Population of Lucknow city, according to 1981 census registered 895,721; for metropolitan area 1,007,504; and 2,014,574 persons for Lucknow district.

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116. The New Encyclopaedia Brittanica, Micropaedia, 1987, Ed. 15, Vol. 7, p. 543.

117. Ibid.

To sum up most of the 'million cities' are multi-functional with administration as the main functions. Out of the 12 cities, 7 are capitals of state and one capital of India. It is only Ahemdabad, Nagpur, Pune, and Kanpur which are only district headquarters but due to some industrial specialization they have also witnessed fast growth. All the cities are facing some problems which are common like lack of housing and thereby springing up of slums, traffic congestion due to lack of planning, pollution due to industries and automobiles, inadequate water and toilet facilities, overcrowding etc.

OBJECTIVES OF THE STUDY :

Housing condition can be measured with several dimensions such as physiographic, social, economic and cultural dimensions. As data is lacking in several variables all these aspects cannot be taken up in this study. The study set forth the following objectives:

1. To reviw study on housing in general and on India in particular.
2. To examine the physical quality of housing according to durability of material used in the construction of a house.
3. To examine the extent of over-crowding in terms of density of persons per room.

4. To measure the availability of drinking water facility by location and source, electricity, and toilet facilities to the households by tenure status.
5. To identify inter-city disparities.
6. To compare the situation of million cities to that of other urban areas of India as far as the quality of housing is concerned.

SOURCES OF DATA :

Secondary sources are used in this study to meet the data requirements. Household information at district level has been collected from Household Tables, Part VIII A (urban), 1981, Census of India for the following series - 1 (India), 2 (Andhra Pradesh), 5 (Gujarat), 9 (Karnataka), 12 (Maharashtra), 18 (Rajasthan), 20 (Tamil Nadu), 22 (Uttar Pradesh), 23 (West Bengal), and 28 (Delhi). For information of building materials, density and amenities household tables 1, 2 and 6 were taken into account. Several other secondary sources like Statistical Abstracts, District Census Handbooks, Reports like various NSS Rounds, UN Reports, Five Year Plans were also consulted.

METHODOLOGY :

Following methods have been used so as to serve the objectives of the present study:

1) The quality of dwelling units have been analysed by classifying houses in four categories viz. Kutcha, Semi Pucca-I, Semi Pucca-II, and Pucca. This categorisation have been done according to the durability of building material used for construction of the walls, roofs, and floor. The percentage of households dwelling in each of the above mentioned type of houses has been worked out for the individual cities separately and India as a whole.

2) The extent of overcrowding has been analysed in terms of the density of persons per room. Instead of measuring the average number of persons living in a room, households have been classified into five categories depending upon the number of persons in a room occupied by the households, so as to get a clear picture about the proportion of households who dwell in extremely congested positions i.e. the extent of overcrowding can be found out. These five categories are - households having following density of persons per room:-

a) Less than one person per room.

b) One to two persons per room.

c) Two to three persons per room.

d) Three to four persons per room.

e) Four and above persons per room.

The percentage of households falling in each of the above mentioned five categories have been worked out separately.

3) To measure the level of amenities available to the households, three variables have been taken into account, viz. drinking water, electricity and toilet facilities. Drinking water has been classified into protected and unprotected according to the source of availability:

a) Protected drinking water inside the houses.

b) Protected drinking water outside the houses.

c) Unprotected drinking water inside the houses.

d) Unprotected drinking water outside the houses.

The percentages of households availing this facility has been worked out in the above mentioned categories separately.

Percentage of households to whom electricity and toilet facilities are available have been worked out. For these two amenities percentages has been worked out for each city according to the tenure status of the household i.e. the percentages have been worked out under total, owned, and rented categories.

Further discussion of the methodology has been taken upon in the respective chapters.

PLAN OF THE STUDY :

The present study has been divied into five chapters.

The First Chapter describes about the nature of problem, definition, study area, objectives of the study, sources of data, methodology, review of the existing literature and hypotheses.

Chapter Two describes the types of houses prevalent in the cities according to the type of material used for the construction of wall, roof, and floor and thereby classified as kutcha, pucca, semi-pucca, etc.

The Third Chapter tries to find out the extent of overcrowding i.e. density of persons per room in the cities.

Chapter Four describes the availability of basic amenities enjoyed by the households viz. drinking water by source and location, electricity by tenure status, and toilet facilities by tenure status.

The concluding chapter looks at the overall findings of the study and makes some suggestions to improve the quality of housing in the million cities.

LITERATURE REVIEW :

For Rappoport, house is more than just a physical structure: it is a cultural phenomenon. "The house is an institution, not just a structure, created for a complex set of purposes... Its form and organization are greatly influenced by the cultural milieu to which it belongs. Very early in the recorded time, the house became more than shelter for primitive man, and almost from the beginning 'function' was much more than a physical or utilitarian concept. Religious ceremonial has almost always preced and accompanied its foundation, erection and occupation. If provision of the shelter is the passive function of the house, then its positive purpose is the creation of an environment best suited to the way of life of a people - in other words, a social unit of space."[118] According to Max Sorre house is the physical expression of what he calls 'Genre de Vie' - a term which embraces, in his view, all cultural spritual, material and social factors affecting the apartment.[119]

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118. Reported in Dan Soen's Habitability - Occupants need and dwelling satisfaction, Ekistics, Vol. 46, No. 275, March/April 1979, p. 129.

119. Max Sorre, Les Fondements de la Geographie Humaine, Armand Colin, Paris, 1952.

R.M. Pritchard says that, "everyone requires shelter, a roof over his head, and for most of us that means a home, a permanent 'base' in which we spend a greater part of our time".[120] Talking about the relation about the built form of an urban area to its social structure, Harvey pointed out that these two aspects of the city "should be regarded as complementary. The trouble is that the use of one impedes the use of other. Any successful strategy must appreciate that spatial form and social processes are different ways of thinking about the same thing."[121]

Some authors have raised the point that house is not a technical or physical object only. First we have to see which kind of works are performed by the local group and then only we can proceed with the planning part.[122] Elaborating further Claes Corlin said that "in a way the house may be considered as a microcosm, where every part of the building has its meaning and can be regarded as a symbol of something".[123]

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120. Pritchard, R.M., op. cit., p. 1.

121. Harvey, D., (1970), "Social Processes, Spatial Form and Redistribution of Real Income in an Urban System" in Regional Forecasting, ed. M. Chisholm, A.E. Frey and P. Haggett, pp. 270-300, (Bristol), p. 48.

122. K.G. Izikowitz and P. Sorensen, (1982), The House in East and South East Asia: Anthropological and Architectural Aspects, Curion Press.

123. Corlin, Claes, "The Organisation of Space in a Tibetan Refugee Settlement" in K.C. Izikowitz and P. Sorensen, op. cit., p. 3.

Housing not only means shelter for a family but it also serves a centre of its total residential environment. According to Orville F. Grimes, Jr., housing takes into account far more than living space. Its nature and value are determined by the services it offers like amenities, education, health and quality like design, density, building material and floor space, community services and markets.[124] He further states that, "... Next to food, housing is the largest component of the household budget, making up, typically, 15 to 25 per cent of total expenditure, and in low income brackets, any where between 5 to 40 per cent".[125]

Need : No one can deny that housing is one of the most important item for the citizens of any area. "The importance of adequate housing for a given population cannot be exaggerated both from the point of healthy growth of a family and because of its social, economic, and political implications. Ideally, it should be possible for any metropolitan town to offer its citizens

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124. Grimes, Orville F., Jr., (1976), Housing for Low Income Urban Families : Economics and Policy in the Developing World, published for the World Bank by John Hopkins University Press.

125. Ibid., p. 30.

proper residential accommodation at reasonable rates".[126] Housing can enhance or diminish the well-being of individuals and families. Emphasising on the importance of housing Devendra B. Gupta and Ashish Bose[127] say that it is "... the most important single item which individuals ever buy and except for food, expenditure on shelter take the largest part of the budget of most families". They further point out that housing is economically significant both for the individual families and for the economy as a whole, as house building is very large industry from the point of production as well as employment in any economy.

Though housing is a primary need but still majority of the population cannot afford even basic housing on their own and they have to depend on external assistance. The vast competition from the sectors like agriculture, industry, and defence prevents sufficient budget allocations as a result of which a large part of our urban population are either unhoused or underhoused.[128] Some

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126. Gupta, Devendra B. and Bose Ashish, op. cit., pp. 3-4.

127. Ibid.

128. Sivashanmugam, M., "Household Savings as a Potential Source in Housing Finance Intermediation", Urban India, Vol. VII, No. 2, July-December 1987, pp. 71-88.

people argue that location and environment of dwellings are important dimensions of housing conditions: "A house which offers everything a man or woman could desire when considered as a building may be uninhabitable when considered as a location".[129] According to Cooper, requirements vary from family to family and the relative importance of these needs is in the following order: first is the need for shelter and security, then physiological needs then sociological needs and in the end asethetic needs.[130]

In most developing countries housing has traditionally rank lowest in priorities. In urban areas, housing for the millions of poor, constitutes one of the most serious problems of development.[131] "In most countries housing problems have been aggravated by high rates of urbanisation Many large cities have grown faster than the countries as a whole, and the countries themselves have experienced rapid population growth due to declining

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129. Donnison, D. and Ungerson, C. (1982), Housing Policy, Penguin, Middlesex, p. 12.

130. Cooper, Clare C., (1975), Easter Hill Village - Some Social Implications for Design, The Free Press, New York, pp. 209-11.

131. Yeh, Stephen H.K. and Laquian, A.A. (ed.), Housing Asia's Millions : Problems, Policies and Prospects for Low Cost Housing in South East Asia.

mortalities and sustained birth rates. The rapid increase in population has placed constraints on the resource for food, employment and housing. Moreover, the housing problem in urban areas have been exacerbated by the increasing inflow of migrants from rural areas. The rising urban population especially in the low income groups, the increasing high cost of construction materials, and spiraling land prices have created a sizeable gap between housing supply and demand. The magnitude of this gap is reflected in the many slum and squatter settlements; over-crowded housing units, and obsolescent units requiring replacement in the cities".[132]

Shortage : Housing condition in most of the Less Developed Countries is deteriorating significantly as compared to the developed countries. This is confirmed by the United Nations Conference in 1976 where the most relevant reasons for this state of affairs is considered to be the rapid growth of population, the migration of rural households to the cities and the decline in the rate of increase in national output which has begun to slow down in virtually every major economy.[133]

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132. Chander, Ramesh, Karunanayake, H., Vera J. de, and Yeh, Stephen H.K., "Housing Conditions and Housing Needs" in Stephen H.K. Yeh & A.A. Laquian, op. cit. p. 31.

133. United Nations, (1976), Global Review of Human Settlements: A Support Paper for Habitat, UN Conference on Human Settlements, Pergamon Press, p. 91.

According to John E. Cox, one quarter of the world's population do not have adequate housing. Out of these about 100 million have no housing at all.[134] He further states that, "in the cities of the developing world, 50 per cent of the inhabitants, on average live in slum and squatter settlements. In some cities 75 to 80 per cent of the population living in such settlements is not uncommon. It is also not unusual to found in these settlements 1000 or more people depending on water from a single standpipe and having no access to human waste disposal facilities.[135]

In one of the editorial in Indian Express, it was pointed out, "with a population that has crossed 1.1 crore (in 1990) and boundaries that are unexpandable, Bombay has 60 lakh people living in slums who have encroached upon open spaces, pavements and government lands adding to the chaos and confusion. The infrastructure has been stressed beyond limits and pollution continues to worsen with an estimated 2,300 tonnes of pollutants being discharged in

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134. Cox, John E., "Objectives of the UN International Year of Shelter for the Homeless (IYSH)", Ekistics, Vol. 51, No. 307, July-April 1984, pp. 284-288.

135. Ibid., p. 284.

the environment everyday. All in all, it is an extremely grim scenario....".[136]

No country in the world is free of the housing problems. "In the highly industrialised countries there is a grim legacy from the past - obsolescence, which is ubiquitous and continually growing. In the developing countries the authorities are unprepared for large scale urbanisation, and rural housing is generally disregarded".[137]

The standard of living is visibly going down even in some of the richest and most advanced countries and much of the property which is at all being maintained, is obsolete. According to Ursula Hicks, "Housing is fantastically inadequate to accommodate the flow of immigrants and growth of indigenous population. The resulting congestion breeds physical and psychological strains and disturbance. It increases the health hazard for even the most fit.... Services in the city are deteriorating, especially education and public health. Law and order can no longer be taken for granted. In some areas crime is

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136. Editorial , "Wake Up Bombay", Indian Express, New Delhi, April 24, 1990, p. 8.

137. United Nations (1976), Design of Low Cost Housing and Community Facilities, Vol. II, Basic Housing Case Studies, New York, p. 5.

increasing in volume and severity in a quite alarming manner."[138]

Slums : As slums constitute a major portion of housing in most of the developing nations and especially so in India, several studies exclusively on slums and low income housing have been done. According to a paper presented in the UN, "70 to 80 per cent of the urban population being low income residents living in marginal communities, developing countries are faced with a vast problem of squatter colonies and urban slums with inadequate services or facilities. On the other hand, the developing countries often are committed to high standards of services and facilities by their development plans, but because of limited resources are able only to provide for a fraction of the families in need."[139]

The absence of a comprehensive policy of urbanization, land use and housing, especially for the low income group is by and large responsible for uncontrolled building

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138. Hicks, Ursula K. (1974), op. cit., p. 3.

139. Rao, D.V.R., (1977), "Standards for Community Facilities, Social Amenities and Services in Housing Projects", in Social Impact of Housing: Goals, Standards, Social Indicators and Popular Participation, U.N., New York, p. 39.

activities in urban centres.[140] It is due to this reason that those who cannot afford high standard and inflated land costs are forced to live in settlements that have come to be labelled as 'unplanned', 'unintended', 'uncontrolled', or 'unauthorised'.[141] The urban poor are not recognised as contributors to the economic, social, and political life of the city on an official plane.[142]

As the rate of profitability of housing for the poor is low, the private sector is not attracted and hence, Government took over responsibility for providing housing to the poor.[143] As observed in the First Five Year Plan, "the economic rent for even the minimum standard of accommodation is altogether beyond the means

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140. Mathur, C.G., "Inadequacies in Building Regulations and Remedial Measures for Effecting Control of Urban Building Activities" in D.D. Malhotra, ed., Control of Urban Building Activities, Indian Institute of Public Administration, New Delhi, 1980.

141. Mehta, B., Mitra Banashree C., and Nientied, Peter, "Building Regulation and Low Income Housing: A Case Study from India", Cities, Vol. 6, No. 1, February 1989, Butterworths, pp. 50-58.

142. Centre for Development Studies and Activities, "Bibewadi Low Income Shelter Project : A Case Study", Maharashtra Housing and Area Development Authority, Bombay, 1986.

143. Wadhwa, Kiran, "Housing the Urban Poor: What Can the Private Sector Do?", Urban India, Vol. VII, No. 2, July-December 1987, pp. 89-101.

of the working class and a large section of the middle classes. In these circumstances, plainly it becomes the responsibility of the government to step in and organise a programme of construction to make up the growing housing deficit."[144]

Slums are not something new to the cities of the world. Slums are ubiquitous feature of the urban landscape. Historically from the Jewish ghettos of medieval Europe to the British slums of the 19th century, and the modern day American slums and tenement houses, slums has always been a part of the urban way of life.[145] Although traditionally slums have had an evil connotation[146] of being a menace or cancer to the society, the main current of thought underlying the divergent theories appears to portray an awareness that "slums may be necessary andeven helpful phase of ecological process by which city growth can be described."[147] Thus, as far back as 1959, Seeley,

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144. Govt. of India, (1951), First Five Year Plan (1951-56), Planning Commission, New Delhi, p. 209.

145. Clinard, M., "Slums and Community Development, Experiments in Self Help, The Free Press, Glencoe, New York, 1966, pp. 24-42.

146. Anderson, Nels, The Urban Community : A World Perspective, Henry Holt and Co., New York, 1959, p. 191.

147. Stokes, C.J., "A Theory of Slums", Land Economics, Vol. 38, 1962, p. 188.

contended slums to be "not just a dumping ground, nor just a way station into the city, but also a provider of goods and services that are demanded by non-slum population".[148]

Three types of slums have been described by Vandana Desai. First one is the single storey or multi-storeyed buildings which are now in dilapidated conditions; second type is the semi-permanent structures commonly known as 'Patra Chawls' and the last one is the hutment colony or the squatter colony mainly known as Zopadpattis.[149] The latest name given by the UN to these slums is 'transitional urban settlements'. It shows a desire of the UN to move toward a terminology which will denote these settlements which though in a low income group, is potentially a dynamic and positive element of the society. These areas are 'transitional' in the sense that people from rural areas migrate and change to an

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148. Seeley, J.R., "The Slum : Its Nature, Use and Users,", Journal of the American Institute of Planners, Vol. 25 (1959), p. 17, as cited in D. Hunter, The Slums, Challenge and Response, The Free Press, Glencoe, New York, 1964, p. 17.

149. Desai, Vandana, "Dharvi, the Largest Slum in Asia: Development of Low Income Urban Housing in India", Habitat International, Vol. 12, No. 2, Pergamon Press, 1988, pp. 67-74.

urban way of life with a goal of full participation in the urban economy.[150]

Grimes, Jr. said, "If standards of living are to rise commensurately with these opportunities, the much denser concentration of the population over the coming decades will require that far greater attention to be given to the provisions of housing and other urban services. In most developing countries the most prevalent method of urban residential expansion is the formation of squatter settlements - neighbourhood at or beyond the margin of law because the housing does not meet existing standards of ownership and structural quality".[151]

Quality of Housing : The quality of residential environment declines with increasing size of settlement and with increasing centrality. There is a widespread and long standing perception that large settlements and inner city neighbourhoods provide residential environments that are not very desirable.[152]

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150. Crooks, Robert J., "Urbanization and Social Change: Transitional Urban Settlements in Developing Countries", ITCC Review, Vol. 2, No. 5, January 1973.

151. Grimes Orville F., Jr., (1976), op. cit., p. 5.

152. Dahmann, Donald C., "Assessment of Neighbourhood Quality in Metropolitan America", Urban Affairs Quarterly, Vol. 20, No. 4, June 1985, pp. 511-535.

There are two findings in the literature of residential mobility that - firstly with an increase in chronological age an individual is less likely to make a move and second the owner-occupant is less mobile than the rent-occupant, irrespective of age.[153]

In a pioneer work, Rossi emphasised that as the individual progresses through his life cycle and experiences changes in his family and occupational status, he will change his preferences regarding the attributes of his dwelling unit and neighbourhood - many of these closely associated with housing tenure status.[154] However, as Foote later emphasised, the individual may be unable to realise these housing preferences because of insufficient income resource or the unavailability of owned or rented housing units.[155]

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153. Goland, Stephen M., "The Housing Tenure Adjustments of the Young and the Elderly: Policy Implications", Urban Affairs Quarterly, Vol. 13, No. 1, September 1977, pp. 95-108.

154. Rossi, P.H., (1955), Why Families Move : A Study in the Social Psychology of Urban Residential Mobility, Glencoe, I.L., Free Press.

155. Foote, N.N., (1960), "Consumers as Actors", pp. 275-386 in N.N. Foote, J. Abu-Lughed, M.M. Foley, and L. Winnick (eds.), Housing Choices and Housing Constraints, New York, McGraw Hill.

Amenities : Some studies have also put emphasis on the amenities which should be provided to all the houses in a city. According to a UN Conference on Human Settlements, "the availability of protected source of drinking water supply for the occupant of each housing unit is essential for the prevention of communicable diseases as well as for the cleanliness and general comfort of the occupants. Furthermore, the availability of water supply installation is of vital importance in connection with the preparation of the food. For these reasons, the percentage of housing units with piped water supply, inside or outside, but within 100 metres, is an indicator of housing conditions".[156]

The urban water supply is very critical in most of the developing countries. According to World Health Organization survey of 75 developing countries in 1962, only 32 per cent of the urban population in these countries and less than ten per cent of the total population were supplied with piped water to the house. Where piped water was available, the service was often intermittent, lasting only a few hours each day and regulated by very simple

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156. United Nations, (1976), op. cit., p. 97.

technical and health standards without suitable supervision of water quality. About 41 per cent of the urban population and probably 70 per cent of the total population had no access to piped water within reasonable distances. Such people rely for drinking water on wells, rivers, and other sources that are open to contamination.[157]

Dr R.C. Ballance was of the opinion that, "... the reliable and convenient supply of wholesome water in quantities sufficient to permit satisfactory levels of personal and community hygiene is a vital prerequisite for the attainment of health and wellbeing. And equally important to health in the community is the availability of system (or systems) for the sanitary disposal of human and domestic wastes. Since the improvement of health and well being is a desirable objective, it follows that water supply and sanitation facilities are an essential part of the physical infrastructure of a community."[158]

According to a survey, safe supply of drinking water are unavailable for one-fifth of the world's city dwellers

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157. Dietrich, B.H. and Henderson, J.M., "Urban Water Supply Conditions and Needs in Seventy-five Developing Countries", World Health Organisation, Public Health Paper No. 23, Geneva, 1963.

158. "Impact of Water Supply and Sanitation - Programmes on Community Health and Organisation", Fifth Session of the International Seminar on Health and Human Settlements; Ekistics, Vol. 49, No. 296, September-October 1982, p. 405.

and in several countries only one-half of the urban population are served with an adequate and safe drinking water supply.[159]

As yet four dissertations have come out which deal with the topic of quality of housing. These dissertations have covered the state of Punjab, Haryana, West Bengal and Kerala on district basis. Rural, urban, and total of the state's housing has been analysed. Major objectives of all the four studies are to find out predominant material used, major types of houses, extent of overcrowding, percentage of households enjoying basic amenities like electricity, toilet facilities and drinking water. If comparative tables are seen for the four states for the distribution of households by the type of houses, the results come into picture are : Punjab has the maximum percentage of Pucca houses in total as well as urban areas. (Table 1.1).[160] But in the second place it is Kerala in total,[162] but Haryana[161] leads in urban areas

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159. UN Water Conference Secretariat: Assessment of the World Water Situation; Ekistics, Vol. 43, No. 254; January 1977, pp. 5-8.

160. Roy, Subha, (1989), "Quality of Housing in Punjab (1981)", M.Phil. dissertation, CSRD,SSS,JNU, New Delhi.

161. Kumar, Pradeep, (1989), "Housing and Household Amenities in Haryana, 1981", M.Phil. dissertation, CSRD,SSS, JNU, New Delhi.

162. Kumar, R. Gopa, (1989), "Housing Stock and Household Amenities in Kerala, 1981, M.Phil. dissertation, CSRD,SSS, JNU, New Delhi.

TABLE 1.1

COMPARATIVE RESULTS OF THE FINDINGS OF FOUR DISSERTATIONS ON PUNJAB, HARYANA, WEST BENGAL & KERALA
1981

State	% Distribution of Households by the type of house				% Distribution of Total Households by number of persons per room				
	Kutcha	Semi Pucca I	Semi Pucca II	Pucca	<1	1-2	2-3	3-4	4+
PUNJAB									
Total	7.30	32.94	28.86	28.02	3.61	18.94	29.20	4.16	42.46
Rural	9.08	39.21	35.01	14.84	3.34	17.72	29.12	3.81	44.42
Urban	3.05	18.01	14.20	59.43	4.28	21.86	29.37	5.00	37.80
HARYANA									
Total	10.34	44.01	22.16	23.49	3.45	29.20	23.66	22.47	21.22
Rural	12.26	53.16	22.12	12.46	3.39	29.90	23.48	22.77	20.46
Urban	4.61	16.68	22.26	56.45	3.64	27.17	24.18	21.60	23.44
WEST BENGAL									
Total	42.11	12.30	19.93	20.08	1.14	24.88	18.58	25.39	27.91
Rural	55.81	11.61	21.94	6.60	0.86	22.33	18.56	26.73	29.88
Urban	6.82	14.09	14.65	55.33	1.86	31.56	18.62	21.89	22.48
KERALA									
Total	23.84	29.92	18.26	27.97	8.34	43.70	20.54	17.99	9.42
Rural	25.93	32.02	18.55	23.50	7.98	43.05	20.82	18.40	9.74
Urban	14.05	20.11	16.90	48.94	10.02	46.69	19.22	16.09	7.97

Contd....

Contd....

State	% of Households having Drinking Water				% of HH having Electricity	% of Urban HH having Toilet Facility
	Protected Water		Unprotected Water			
	W.P.	O.P.	W.P.	O.P.		
PUNJAB						
Total	66.76	17.79	3.55	11.89	60.90	-
Rural	62.60	19.20	3.54	14.66	50.61	-
Urban	76.68	14.44	3.56	5.31	85.44	64.75
HARYANA						
Total	24.29	30.82	1.76	43.13	51.53	-
Rural	12.40	30.53	1.65	55.42	41.04	-
Urban	59.00	31.65	2.00	7.19	82.22	58.10
WEST BENGAL						
Total	17.69	51.69	7.29	23.08	21.08	-
Rural	10.04	55.74	6.02	28.19	7.01	-
Urban	38.67	41.12	10.39	9.62	57.86	77.73
KERALA						
Total	6.27	5.93	54.37	33.43	28.78	-
Rural	2.80	3.46	56.93	36.81	23.21	-
Urban	22.32	17.39	42.52	17.76	54.57	59.40

W.P. = Within Premises ; O.P. = Outside Premises

Source : Kumar, Pardeep, (1989), "Housing and Household Amenities in Haryana - 1981", *
Kumar, R. Gopa, (1989), "Housing Stock and Household Amenities in Kerala - 1981", *
Roy, Subha, (1989), "Quality of Housing in Punjab - 1981" *; and
Banerjee, Ishani, (1989), "Housing and Household Amenities : West Bengal, 1981", *

* M.Phil. dissertations, CSRD, SSS, JNU, New Delhi.

which shows that Punjab and Haryana are more developed. Likewise Kerala and West Bengal[163] have the maximum number of kutcha houses followed by Haryana and then Punjab. In the semi-pucca-I type of houses Haryana and Punjab have 44 and 33 per cent whereas West Bengal has only 12.3 per cent. In the case of semi-pucca-II type, though, overall Punjab has the maximum but in the case of urban areas Haryana has the maximum number of this type of houses whereas Punjab has the lowest. In the case of Punjab it has been noted that, use of pucca materials is well practised for the construction of roof and wall. Semi pucca houses also comprise a major proportion of the total residential houses in Punjab.[164]

As against the case of Punjab, Pardeep Kumar's[165] findings reveals that more than 85 per centof the households in Haryana live in kutcha and semi-pucca houses in rural areas, only 12 per cent can afford the pucca houses. In Gopa Kumar's study[166] it has been found that there is an

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163. Banerjee, Ishani, (1989), "Housing and Household Amenities: West Bengal, 1981", M.Phil. dissertation, CSRD, SSS, JNU, New Delhi.

164. Roy, Subha, (1989), op. cit.

165. Kumar, Pardeep, (1989), op. cit.

166. Kumar, R. Gopa, (1989), op. cit.

equal distribution of households in all the four categories. Kerala has lesser percentage of houses of pucca type in urban areas (less than 50 per cent) as compared to the other three states (more than 55 per cent), but it has the highest percentage of pucca houses in rural areas (23.5 per cent), which is much higher than the other three states.

Compared to the other three states, West Bengal has poor quality of housing. Only 20 per cent of houses in the state are pucca. A rural-urban dichotomy prevails throughout the state which is true of all the 4 categories. Building material in Calcutta is of better quality than other parts of the state.[167]

Percentage distribution of the total households by number of persons or intensity of usage data reveals some interesting pattern in the four states. In the state of Kerala 52 per cent of the households reside in less than 2 persons per room followed by Haryana (32.6 per cent). Whereas it is more than 3 persons per room for 46.6 per cent of the households in Punjab and 53.3 per cent of households in West Bengal. Punjab has the highest percentage of households with a density of more than 4 persons per room.

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167. Banerjee, Ishani, (1989), op. cit.

Kerala is the only state with a low percentage of 27 for more than 3 persons per room. Therefore, it can be concluded that in Kerala households have more rooms than in Punjab or West Bengal. One interesting point to note here is that Punjab has the maximum pucca houses as well as the highest density. The high density in all the states except Kerala reflects the great shortage of dwelling units in the states.

The situation of availability of protected drinking water in the four states also reflect the level of development of the states. Punjab leads with more than 84 per cent of the households having protected drinking water source among which about 67 per cent of the households have the protected drinking water within premises. The situation is even better for the urban Punjab where more than 91 per cent of households enjoy protected drinking water. Though Haryana is second in providing safe drinking water, but still, a very large proportion of the households (45 per cent) consume unsafe drinking water. The situation is much better in urban areas where about 90 per cent of the households have protected drinking water. In some districts of Haryana, the situation is pathetic with almost 90 per cent of the households bringing drainage water from outside their

houses.[168] In West Bengal the rural-urban differential is very prominent but the situation is alarming in Kerala where only 6 per cent of the households avail protected drinking water inside the house and a total of 12 per cent availing overall protected drinking water. The situation in urban areas is only slightly better, but still more than 60 per cent of the household consume unsafe drinking water.

Punjab leads in both the total as well as urban areas in percentage of households having the facility of electricity. Though overall 61 per cent of total households in Punjab have electricity in their houses, the urban Punjab has 85 per cent of its households having electricity. Though all the villages of Haryana were electrified in 1979 still 48 per cent of their total households do not have electricity. The situation is worse in rural areas where only 41 per cent of the households have got this amenity. But urban Haryana is almost at par with urban Punjab in this context. Kerala is third, but in urban areas it is West Bengal which is third. West Bengal is the only state having a very low percentage of households in rural areas enjoying electricity i.e. 7 per

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168. Kumar, Pardeep, (1989), op. cit.

cent. Therefore, it is only Punjab and to some extent Haryana who enjoy a satisfactory percentage of households having electricity.

Data for urban areas is available for the toilet facilities. The position of the states in descending order is as follows: West Bengal, Punjab, Kerala, and Haryana. Though more than 55 per cent of the households in all the four states are having total facilities, West Bengal has the highest percentage of 77.7 per cent followed by Punjab with 65 per cent, Kerala with 59 per cent, and Haryana having 58 per cent. Compared to the other 3 states and India as a whole, Punjab's households enjoy better amenities.[169]

Housing Policy : For housing to be successful it should have the following objectives. It should be socially and culturally valid, should be economical, should ensure health of the occupants, and there should be minimum of maintenance over the life of the building. Rappoport favouring traditional housing writes that housing attitudes should be adjusted accordingly.[170] In brief, one may

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169. Rao, Subha, (1989), op. cit.

170. Rappoport, A., (1969), House, Form and Culture, Englewood Cliffs, NJ, Prentice Hall, 1969.

restate Michelson's statement, "Thus, even though a lack of wisdom may prevent people from choosing what is clearly in their own best interests, it is their preferences and not architectural theories - that will, in the long run, influence much of what happens in the cities."[171] The objective of housing policy as a component of urban development policy is to improve housing services and to facilitate the incorporation of marginal communities into urbanisation process.[172]

It is due to the misconception that housing is a social problem and has no role in development that many Asian countries neglected housing policy programmes. It was due to the fact that urban services were deteriorating and slums growing that government started paying more attention.[173]

The housing problem has been growing more acute year by year in most metropolitan areas. According to

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171. Michelson, William, "Most People Don't Want What Architects Want", Trans-Action, Vol. 5, July-August 1968, pp. 37-38.

172. United Nations, "Improvement of Slums and Uncontrolled Settlements", Report of the Inter Regional Seminar on the Improvement of Slums and Uncontrolled Settlements, Medellin, Columbia, 15th Feb.-1st March 1970 (UN Publication, Sale No. E 71 IV.6).

173. Karnjanaprakorn, Choop; Chang, ChongKim; Tung, Fung; and Bunnag, Chadsri, "Housing Administration", p. 67 in Stephen H.K. Yeh and A.A. Laquian (ed.), op. cit.

Balsara this can be solved by refusing "to accept poverty and slums as inevitable to industrial development or a permanent way to urban civilization. Our entire thinking about city building must be reoriented to building healthy communities enjoying urban living within an attainable viable economy."[174] He further emphasises that the low income groups cannot afford to pay economic or market rents of decent privately built housing.[175] But still housing for low income group could not be provided, even though an effort to this direction is made, as the immigrants who come outpace the house building activity.[176]

The improvement of housing and its surroundings and the solution of related social problems are only possible if the state supports and promotes improvement measures.

HYPOTHESES :

Following hypotheses are proposed to be tested in this study:

1) The bigger the size of a city (in terms of population) more will be its percentage of pucca houses and higher

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174. Balsara, J.F., (1970), Patterns of Social Life in Metropolitan Areas, p. 345.

175. Ibid., p. 347.

176. Ibid., p. 349.

will be the density.

2) Higher the percentage of households living in pucca houses higher will be the percentage of households living in congested conditions.

3) Higher the percentage of households living in pucca houses higher will be the availability of basic amenities to them.

4) Households living in their own houses will have better access to amenities vis-a-vis households living in rented houses.

5) Households in 'million cities' enjoy more pucca houses but also have more congested conditions vis-a-vis other urban areas.

6) The 'million cities' have better housing quality than the other urban areas of India as a whole.

CHAPTER II

HOUSING BY THE BUILDING MATERIAL

INTRODUCTION :

The houses are built from various materials available at hand. According to Dickens and Pitts, "Houses reflect the nature of a region since their character is related to the environment and to the cultural heritage of the people who build them. Houses reflect the nature of rock material or the vegetation which is the basis for their construction."[1]

It is desired that housing should be durable and permanent so as to provide the physical, economic as well as social security to its inhabitants. But it is generally found that the houses of the poor satisfy neither of the above and are, therefore, prone to the vagaries like rain, wind, floods, etc. Some houses are made of such materials like thatch or polythene sheets which can easily catch fire. Example of it is the total distruction of slum colonies by fire time and again. Though comparatively, urban houses are more durable and permanent, still a lot more can be done to improve the conditions especially of the low income group and houseless households.

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1. Dickens, Samuel N. and Pitts, Forest R., Introduction to Human Geography, p. 199.

The following part will assess the condition of housing by examining the quality of materials in respect of their durability, used in the construction of a house.

METHODOLOGY:

In this study, houses have been classified by the type of materials used for wall, roof, and floor and the percentage of households living in them has been measured, using the data for 1981 Census. Following is the data base and procedure of classifying houses.

Data Base:

Data used for the classification of houses has been taken from Household Tables of different states to which the cities belong. These tables i.e. HH 1 (Part A) give the distribution of households by predominant materials of roof, wall and floor of census houses occupied by them (urban). The lowest level of presentation is the states and cities with population of 5 lakhs and above. Table Household I excludes institutional and houseless households and is based on 20 per cent linear sample.

Materials of the Wall, Roof, and Floor As Given in the HH I Tables:

I. Material of Wall : Material of wall has been classified into 9 categories according to 1981 Census Household Tables:

a) Grass, leaves, reeds or bamboo.

b) Mud

c) Unburnt Bricks

d) Wood

e) Burnt Bricks

f) G.I. Sheets or other metal sheets

g) Stone

h) Cement Concrete

i) All other materials and materials not stated.

II. Material of Roof: Material of roof, according to 1981 Census has been classified into 8 categories, as given below:

A) Grass, Leaves, Reeds, Thatch, Wood, Mud, Unburnt Bricks, or Bamboo

B) Tiles, Slate, Shingle

C) Corrugated Iron, Zinc, or other metal sheets

D) Asbestos Cement Sheets

E) Brick stone and Lime

F) Stone

G) Concrete R.B.C./R.C.C.

H) All other materials and materials not stated.

III. Material of Floor : Material of floor has been classified into 7 categories, as per 1981 Census of India. They are:

1. Mud
2. Wood, Planks
3. Bamboo or Logs
4. Brickstone and Lime
5. Cement
6. Mosaic/Tiles
7. All other materials and materials not stated.

The above mentioned materials of wall, roof, and floor has been further classified here into three categories, viz. Kutcha, semi-pucca, and pucca according to the durability of the building material. This has been done because the types of houses have been worked out in this study on the basis of materials used in the construction of wall, roof, and floor.

Classification of Material of Wall, Roof, and Floor by their Durability:

I) Kutcha (Non-durable material):

a) Material of Wall - It includes walls made of (i) grass, leaves, reeds or bamboo, and (ii) Mud.

b) Material of Floor - It includes floor made of mud.

c) Material of Roof - It includes roof made of grass, leaves, reeds, thatch, wood, mud, unburnt bricks or bamboo.

II) Semi-Pucca (less durable material):

a. Material of Wall: Material used in the construction of semi-pucca walls includes:

i) Unburnt bricks;

ii) Wood; and

iii) GI Sheets and other metals.

b. Material of Roof : It includes roofs made of:

i) Corrugated iron/zinc or other metal sheets.

ii) Asbestos cement sheets.

c. Material of the Floor : It includes floors made of:

i) Wood, and planks;

ii) Bamboo or logs.

III) Pucca (Durable Material):

a. Material of the Wall : Material used in constructing pucca walls includes:

i) Burnt Bricks;

ii) Stone; and

iii) Cement concrete.

b. Material of the Roof : Maerial used in construction of a roof includes:

i) Tiles, Slate, Shingle;

ii) Brick stone and lime;

iii) Stone; and

iv) Concrete R.B.C./R.C.C.

c. Material of the floor: Material used in construction of pucca floors include:

i) Brick Stone and Lime;

ii) Cement; and

iii) Mosaic/Tiles.

In all the categories of wall, floor, and roof materials the last category is of - all other materials and materials not stated. This category has not been included in any of the above 3 categories that is kutcha, semi-pucca or pucca as the nature of these materials is not known and the material may fall in any of the above mentioned categories, or even in more than one or in all the 3 categories. Therefore, to avoid any confusion this category of unspecified material has not been included in the present study.

Even the UN recognises three broad types - permanent, semi-permanent and temporary for the categorization of houses. The classification is based on the principal materials used in the construction of wall, roof, and floor. Where such materials are durable like cement, brick, tile, asbestos, metal, the house has been classified as permanent. Where walls and roof are made of cadjan, nipa grass, or other non durable materials, the house has been classified as temporary. Where a mixture of both durable and non-durable materials is used the house has been classified as

semi-permanent. There have been slight variation in these classification among the countries, but there do not seem to be any broad divergence.[2]

Type of Houses:

House have been classified into four types in the present study viz. Kutcha, Pucca, Semi Pucca I and Semi Pucca II according to the material used in the construction of walls, roof, and floor as discussed above.

1. Kutcha Houses: Kutcha houses are non-durable houses, consisting of all three dimensions i.e. wall, roof, and floor made of kutcha materials. For example, a house will be considered Kutcha when its wall is made of either grass, leaves, reeds, bamboos or mud; its roof is made of grass, leaves, reeds, thatch, wood, mud, unburnt bricks or bamboo and when its floor is made of mud.

2. Pucca Houses: These houses are much durable and permanent then the kutcha and semi-permanent and, therefore, remains in existence for many years. All three - wall, roof, and floor - are made of pucca building materials. A house

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2. Soysa, Chandra, "Rural Housing" in Stephen, M.K. Yeh and A.A. Laquian (eds.) - Housing Asia's Millions - Problems, Policies and Prospects for low Cost Housing in Southeast Asia, p. 167.

can be classified pucca if the following combination of material is applied to it:

a) Its wall made of burnt bricks or stone or cement concrete;

b) Its roof is made of either tiles or slate or shingle or brick-stone and lime or stone or concrete R.B.C./R.C.C.; and

c) Its floor is constructed with any or all of the following: Brickstone and lime, cement, mosaic/ tiles.

3. Semi-Pucca I Houses :

Semi Pucca I houses are more close to the Kutcha houses. However, a little quantity of pucca or semi-pucca material might have been used while constructing these type of houses. These houses are more durable than Kutcha houses but less durable than the semi-pucca II or pucca houses.

A house is considered semi-pucca I house when:

i) Any two of its constitutents i.e. wall, roof, and floor are made of kutcha material and one is made of semi-pucca material for example, if the wall is made of grass, leaves, reeds, bamboo, or mud; its roof is made of grass, leaves, reeds, thatch, wood, mud, unburnt bricks or bamboo; and floor is made of wood, plank or bamboo and logs, such

type of houses will be considered semi-pucca I type house; or

ii) Any two of its constituents are made of semi-pucca material, while one is made of kutcha material; or

iii) One constituent is made of pucca material while remaining two are made of kutcha material; or

iv) Wall is made of pucca material, roof is made of kutcha material and floor is made of semi-pucca materials. (See Appendix IX and X).

4. Semi Pucca II Houses:

These houses are more durable than the Semi Pucca I houses but less durable than pucca houses. But a significant proportion of the material used in construction of such houses is pucca. A house has been considered pucca when:

i) Any two of its constituents i.e. wall, roof, and floor are made of pucca materials and one is made of kutcha material for example, if the wall is made of burnt bricks, stone, or cement concrete; when its roof is made of tiles, slate, shingle, brickstone and lime, stone or concrete R.B.C./R.C.C.; and the floor is made of mud, the house will be considered semi-pucca II house; or

ii) Any two constituents are made of semi-pucca material and one is made of pucca material; or

iii) All the three constituents are made of semi-pucca materials; or

iv) Wall is made of pucca material, roof is made of semi-pucca material, and floor is made of kutcha material. (Appendix IX and X).

OBSERVATIONS :

Table 2.1 presents the distribution of households by the type of house. As is evident from the table the total households in 'million cities' constitute about 27.64 per cent of the total urban households of India which shows a lopsided distribution of population in favour of the 12 cities.

The situation of kutcha houses is satisfactory in all the million cities but Madras. Madras has a high percentage (18.54) of households owning kutcha houses which is much higher than the 'million cities' average (5.07 per cent) or total India's average (9.60 per cent). Other cities which have comparatively higher percentage of kutcha houses are Nagpur (5.66 per cent), Hyderabad (5.40 per cent), and Bangalore (5.24 per cent). Calcutta and Ahemdabad have a very low percentage of households having kutcha houses i.e. 1.16 and 2.00 per cent respectively signifying better

Table : 2.1

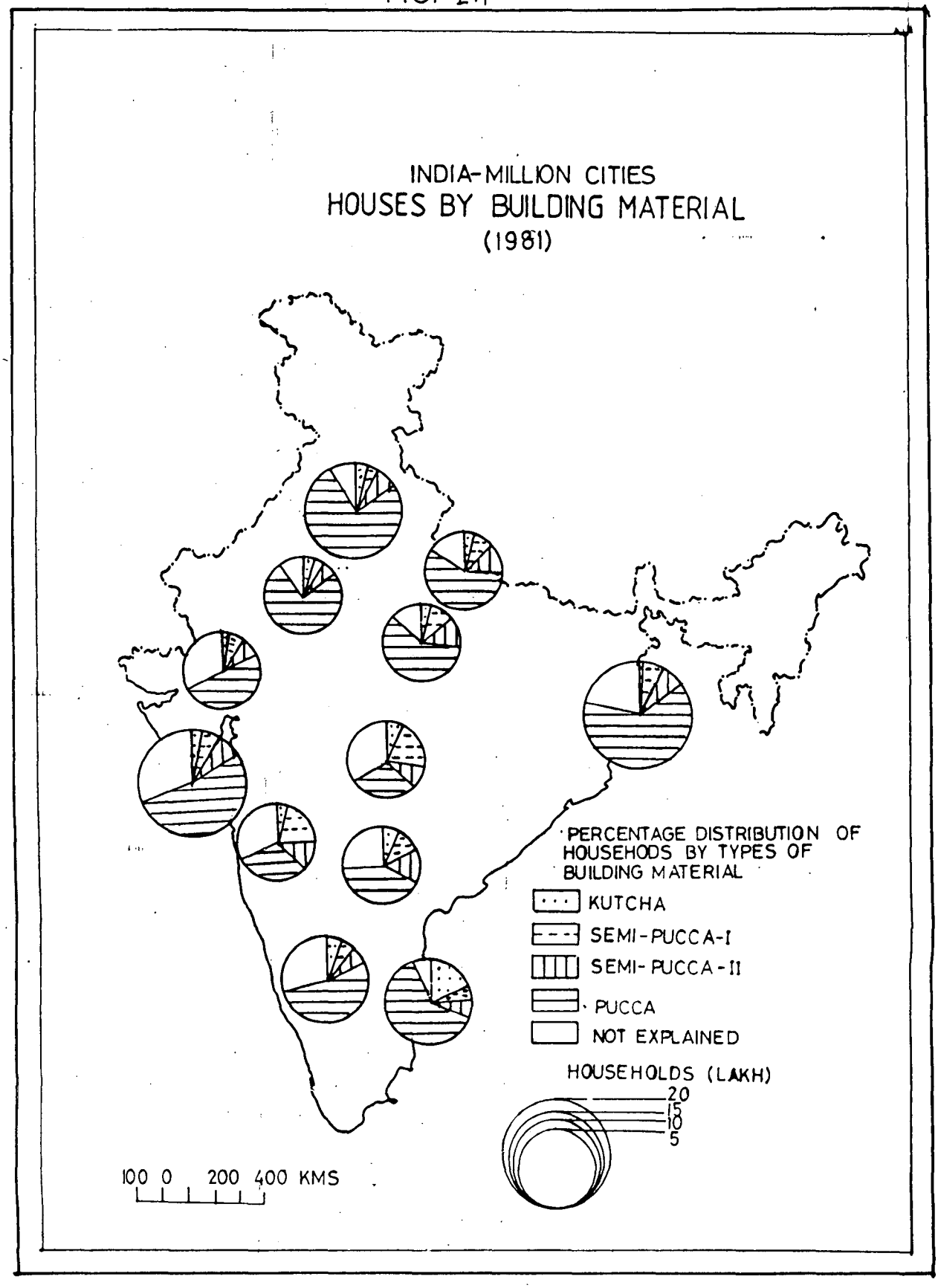
PERCENTAGE DISTRIBUTION OF HOUSEHOLDS
BY THE TYPE OF HOUSES
1981

Cities	Kutcha	Semi Pucca I	Semi Pucca II	Pucca	HH's Not Explained
Calcutta	1.16	7.02	7.54	63.75	20.52
Bombay	3.77	5.19	7.95	52.68	30.40
Delhi	3.60	3.85	8.14	75.70	8.72
Madras	18.54	5.39	6.75	62.56	6.73
Bangalore	5.24	5.70	7.11	53.63	28.3
Ahemdabad	2.00	7.55	8.64	50.31	31.49
Hyderabad	5.40	12.35	15.07	41.95	25.29
Pune	4.14	20.89	12.71	30.77	31.47
Kanpur	3.81	9.74	13.77	60.22	12.39
Nagpur	5.66	21.72	9.39	29.09	34.11
Jaipur	3.54	5.18	5.12	75.81	10.33
Lucknow	4.06	8.37	12.59	64.11	10.86
Million cities	5.07	9.41	9.56	55.04	20.88
India	9.60	14.33	12.78	46.03	16.84

quality of houses. The remaining cities fall in between the above two categories, just discussed. All cities, except Madras, have lower percentage of households in kutcha houses than the India's total urban kutcha houses average.

In the Semi Pucca I type of houses the situation of Madras is not as bad and in this category it is much below the 'million cities' average of 9.41 per cent. But Nagpur and Pune have a very high percentage of households residing in such type of houses (21.72 and 20.81 per cent respectively). Others having a high proportion of Semi Pucca I houses are Hyderabad (12.35 per cent) and Kanpur (9.74 per cent). All other cities have a percentage of households having Semi Pucca I type of houses between 3.85 and 8.37 per cent. The cities which have lower percentage of kutcha houses also have lower percentage of Semi-Pucca I houses. Though the 'Million Cities' average of 9.41 per cent is well below the average of 14.33 per cent of Semi Pucca I houses of India, still Nagpur and Pune have higher percentage than even the India's average. As Semi Pucca I type of houses consist of such materials whose durability is less, such type are associated more with kutcha houses than with pucca houses. Therefore, such houses should be considered of low quality.

FIG. 2.1


INDIA-MILLION CITIES
HOUSES BY BUILDING MATERIAL
(1981)
PERCENTAGE DISTRIBUTION OF HOUSEHODS BY TYPES OF BUILDING MATERIAL
KUTCHA
SEMI-PUCCA-I
SEMI-PUCCA-II
PUCCA
NOT EXPLAINED
HOUSEHOLDS (LAKH)
20
15
10
5
100 0 200 400 KMS

In the case of distribution of households by the Semi Pucca II type of houses, it is found that the cities which have a higher percentage of Semi Pucca I houses also have a higher percentage of Semi Pucca II type of houses. Though, in most of the cities the percentage of Semi Pucca II type houses are higher than the Semi Pucca I type, but that of Nagpur and Pune have come down from a high of 21.72 per cent and 20.89 per cent to 9.39 and 12.71 per cent respectively. Jaipur's percentage came down slightly from 5.18 to 5.12 per cent. Cities with a higher percentage of households living in Semi Pucca II type houses than the 'million cities' average of 9.56 per cent are Hyderabad (15.07 per cent), Kanpur (13.77 per cent), Pune (12.71 per cent) and Lucknow (12.59 per cent). Nagpur has 9.39 per cent of its households residing in Semi Pucca II type of houses. As the material used in the construction of Semi Pucca II type houses is of more durable nature i.e. proporation of pucca material is more than the kutcha material, cities with a higher percentage of Semi Pucca II type should be considered qualitatively better than others.

Overall the situation of India's urban Semi Pucca II type houses is better than the million cities average as India has 12.78 per cent of households in Semi Pucca II type

(urban) as against 9.56 per cent of 'million cities'. Other cities percentage in this category vary from 5.12 (Jaipur) to 8.64 per cent (Ahemdabad).

Pucca houses which are the most durable houses among the four categories reflects some interesting points. In most of the cities which have a higher percentage of Semi Pucca I and Semi Pucca II type of houses, the percentage of Pucca houses is lower whereas cities with a low percentage of households having Semi Pucca houses have higher percentage of Pucca houses. Six cities have lower percentage of pucca houses than the 'million cities' average of 55.04 per cent out of which three cities have very grave situation revealing the pathetic state of housing in these cities. Nagpur has a low of 29.00 per cent followed by Pune (30.77 per cent) and Hyderabad (41.95 per cent). The situation is also bad in Ahemdabad, Bombay and Bangalore - having low proporation of their households residing in pucca houses (50.31, 52.68, and 53.63 per cent respectively). Though these cities have more pucca houses than India's average pucca houses but it is lower than the 'million cities' average. Situation is comparatively satisfactory in Kanpur (60.22 per cent pucca houses), Madras (62.56 per cent), Calcutta (63.75 per cent), and Lucknow (64.11 per cent).

Only Jaipur and Delhi have a high percentage of 75.81 and 75.70 per cent respectively of their households having pucca type of houses reflecting good quality of houses. Situation of 'million cities' is much better than India's urban average (46.03 per cent) Pucca houses. Only Nagpur, Pune, and Hyderabad have lower percentage of households having Pucca houses than the average pucca houses in India.

From the above observations, it is also clear that the southern cities have a higher percentage of households having kutcha houses as compared to the north and the cities of the north have a higher percentage of households having pucca type of houses for example cities of south- Bangalore, Ahemdabad, Hyderabad, Bombay, Pune, and Nagpur have lower percentage of households having pucca houses as compared to Jaipur, Delhi, Lucknow, and Kanpur.

But the above observations can be highly questionable as seven out of the twelve cities do not explain a significant proportion of distribution of households by the type of houses. On an average 20.88 per cent of households of 'million cities' are not explained by the data. 34.11 per cent of households in Nagpur have no explanations as to their distribution. Likewise other cities also - Ahemdabad (31.49 per cent), Pune (31.47 per cent), Bombay (30.40 per cent),

Bangalore (28.31 per cent), Hyderabad (25.29 per cent) and Calcutta (20.52 per cent) - have no explanation of a significant proportion of their households residing in whatever type of houses. Only Delhi, Madras, Kanpur, Jaipur, and Lucknow have somewhat dependable data. Low percentage of houses in the Pucca category can be attributed to this factor also and this might be the case of kutcha houses as well. The percentage of households not being explained is due to the fact that some materials are not explained by the Census data for the materials used for the construction of roof, wall and floor.

Inter City Position :

If the Semi Pucca I is joined with Semi Pucca II type, as these two categories are of transitional nature from Kutcha to Pucca type of houses (Table 2.2) will give the following results.

It is clear from Table 2.2 that the percentabe of kutcha houses is the minimum vis-a-vis percentage of pucca and semi-pucca houses in all but one of the cities. The only exception here is the case of Madras which has a higher percentage of kutcha houses than its share of semi-pucca houses.

TABLE 2.2

PERCENTAGE OF HOUSES ACCORDING TO TYPES

City/M.C./Country	Kutcha House	Transitional Phase (Semi Pucca)	Pucca House
Calcutta	1.16	14.56	63.75
Bombay	3.77	13.14	52.68
Delhi	3.60	11.99	75.70
Madras	18.54	12.14	62.56
Bangalore	5.24	12.81	53.63
Ahemdabad	2.00	16.19	50.31
Hyderabad	5.40	27.42	41.95
Pune	4.14	33.60	30.77
Kanpur	3.81	23.51	60.22
Nagpur	5.66	31.11	29.09
Jaipur	3.54	10.30	75.81
Lucknow	4.06	20.96	64.11
M.C.	5.07	18.97	55.04
India	9.60	27.11	46.03

It is to be noted that the cities with lower population have more households owning semi-pucca houses than the households of larger cities exception being Jaipur which has the minimum percentage among all the cities. Another interesting feature here is the case of Pune and Nagpur which have very low percentage of their households living in pucca houses. In these two cities percentage of households living in semi-pucca houses is even more than the households living in pucca houses. Other cities having a higher percentage of their households residing in semi-pucca houses are Hyderabad, Kanpur and Lucknow.

Comparatively Jaipur, Delhi, and Calcutta have better living conditions as more of their households live in pucca houses vis-a-vis other cities.

Now to find out the overall housing condition in the 12 cities, as per the material used in the construction of the houses, each of the above three categories have been further divided (kutcha, pucca and semi-pucca) into four categories each according to the overall range and granted one point to the category having highest percentage in the kutcha and semi-pucca types (as higher percentage means poor housing conditions) and a maximum of four points to the category having lowest percentage. But in the case of pucca category, the reverse holds good i.e. category having low

percentage has been granted one point as lower percentage means poor housing conditions and the highest percentage has been given four points. Therefore, we get the following results in Table 2.3.

TABLE 2.3(a)

KUTCHA HOUSES

% Category	<5.50	5.51-9.85	9.86-14.19	14.20-18.54
Points Granted	4	3	2	1
	Calcutta, Bombay, Delhi, Bangalore, Hyderabad, Pune, Kanpur, Jaipur, Lucknow	Nagpur	-	Madras

TABLE 2.3(b)

SEMI PUCCA

% Category	<16.12	16.13-21.95	21.96-27.77	27.78-33.60
Points Granted	4	3	2	1
	Calcutta, Bombay Delhi, Madras, Bangalore, Jaipur	Ahemdabad, Lucknow	Hyderabad, Kanpur	Pune, Nagpur

TABLE 2.3(c)

PUCCA TYPE

% Category	<40.77	40.78-52.75	52.76-64.13	64.14-75.81
Points Granted	1	2	3	4
	Pune, Nagpur	Ahemdabad, Hyderabad	Calcutta, Bombay, Madras, Bangalore, Kanpur, Lucknow	Delhi, Jaipur

A consolidated score given to the three types of houses (by joining the points gained by each city in Table 2.3(a)(b)&(c)), gives Delhi and Jaipur the highest score followed by :

Calcutta, Bombay and Bangalore;

Lucknow;

Ahemdabad and Kanpur;

Hyderabad and Madras;

Pune; and

Nagpur;

as is evident by looking at Table 2.4.

TABLE 2.4

COMPOSITE SCORES

City ↓ / Houses →	Kutcha	Semi-pucca	Pucca	Total
Calcutta	4	4	3	11
Bombay	4	4	3	11
Delhi	4	4	4	12
Madras	1	4	3	8
Bangalore	4	4	3	11
Ahemdabad	4	3	2	9
Hyderabad	4	2	2	8
Pune	4	1	1	6
Kanpur	4	2	3	9
Nagpur	3	1	1	5
Jaipur	4	4	4	12
Lucknow	4	3	3	10

SUMMARY :

This chapter has analysed the housing conditions prevailing in the 12 'million cities' of India, according to the type of houses in which they live.

In this chapter, houses have been classified into four categories - Kutcha, Semi-Pucca I, Semi-Pucca II, and Pucca. This classification was made on the basis of material used for the construction of houses. The differences in the four types are that Kutcha houses are built totally of non-durable materials vis-a-vis pucca houses which are built with durable materials. Semi Pucca I houses are near to Kutcha type as a higher proportion of the material used in Kutcha type; semi-pucca II are less durable than pucca but more durable than kutcha and semi-pucca I type and are nearer to pucca houses.

It has been found that 55.04 per cent of households occupy pucca houses in 'million cities' against 5.07 per cent living in kutcha houses. A significant proportion also live in semi-pucca type (about 19 per cent).

Situation is bad in the case of pucca houses of the households living in Nagpur, Pune, and Hyderabad as very less percentage reside in pucca houses. Situation is also alarming in Madras where a huge percentage of its households is residing in Kutcha houses. Situa-

tion is also worrisome for the cities of Pune, Nagpur, Hyderabad, Kanpur and Lucknow as a big share of their households reside in semi-pucca houses.

Cities in the north have comparatively better quality houses vis-a-vis the cities of the south.

Better quality of housing is found in Delhi, Jaipur, Calcutta, Bombay, Bangalore and Lucknow vis-a-vis other cities.

CHAPTER III

DENSITY OF PERSONS PER ROOM

INTRODUCTION :

If one is to assess the quality of housing, only looking at the physical quality of a house would not present a correct picture. It might be that a household is living in a pucca house but the density is more than four persons per room. We cannot call such a house as suitable. Therefore, to get a correct picture we have to find out density of persons per room as well. One has to look into the size and number of rooms anthe number of persons occupying the rooms.

Overcrowding may lead to several problems - physical as well as psychological. In the physical sense - lack of movement inside a house, lack of airiness, etc. may cause health problems. Likewise lack of privacy, especially for the young boys, girls, and married couples can cause mental distress to many. Overcrowding also reflects the housing shortage in a particular city.

The definition of overcrowding adopted in recent years by the General Household Survey instead of counting all the rooms except small kitchen, bathrooms and toilets as available for sleeping accommodation, this only include bedrooms. Dwellings are defined as being overcrowded according to this 'bedroom standard' if any two people over the age of 21 (except a married couple) or any two people

of different sexes in the age group 10 to 20 or more than two children under the age of 10 have to share a bedroom.[1]

Main reasons for the overcrowding are the rapid population growth due to still high birth rates and declining mortality rates due to improvement in public health measures, migration from the rural to urban areas in large numbers in search of employment, slow pace of house building i.e. demand exceeding the supply of houses, lack of space for expansion of the housing area in the cities, etc.

Majority of the households are living in single rooms, extremely congested situation. According to National Sample Survey 34 per cent households had only one room while another 32 per cent had two rooms. The average per capita floor space worked to 59.5 sq. ft. and about 14.3 per cent households have a per capita floor space of 50 sq. ft.[2]

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1. Office of Population Census and Surveys, (1984), General Household Survey, 1982, HMSO, London.

2. National Sample Survey Report 1, Vol. 26, p. 50, 51, and 67.

It should be noted that, under certain cultures and under certain climatic conditions, a large number of persons per room is quite acceptable. In many countries, porches, verandahs and other outdoor spaces provide useful areas which are not defined as a room and, therefore, are not reflected in the calculations of this indicator.[3]

As the district and city level data is not available relating to the size of the room, the present study works out only the density of persons per room. As just the average number of persons per room does not provide a clear picture, the proportion of households who live in extremely congested position and of those who are in comfortable position, therefore, five categories of households according to the density of persons per room have been prepared. These are:

i) Percentage of households with a density of less than one person per room;

ii) One to two persons;

iii) Two to three persons;

iv) Three to four persons; and

v) Four and above persons.

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3. United Nations, (1976), Global Review of Human Settlements : A Support Paper for Habitat; UN Conference on Human Settlement, Pergamon Press, p. 94.

METHODOLOGY :

Density of persons per room has been compiled and computed by using the Household Tables, Part VIII A&B available for 1981 Census. Household Tables-2 (HH2) of the following states were taken into account - West Bengal, Maharashtra, Delhi, Tamil Nadu, Karnataka, Gujrat, Andhra Pradesh, Uttar Pradesh, and Rajasthan. HH2 Tables gives the distribution of household by the size of the household and the number of living rooms occupied by the household for rural and urban areas. As this study is based on only urban areas only Part A of HH2 Tables have been computed. HH2 Tables are based on 20 per cent sample data.

Classification of Households In Table HH2 :

The 1981 Census HH2 of Part VIII A classifies this table into seven ranges depending on the number of living rooms in occupation with the households. These are:

1) Households with no exclusive room.
2) Households with one room.
3) Households with two rooms.
4) Households with three rooms.
5) Households with four rooms

6) Households with five rooms.

7) Households with six rooms and above.

The households sizes used in the table are:

1) One member in the household .

2) Two members in the household.

3) Three members in the household.

4) Four members in the household.

5) Five members in the household.

6) Six and above members in the household.

Classification of Households by the Density of Persons Per Room:

In the present study, classification of households by the density of persons per room has been worked out in the following five categories:

i) Percentage of households having a room density of less than one person.

ii) Percentage of households with density of one to two persons per room.

iii) Percentage of households with a density of two to three persons per room.

iv) Percentage of households with a density of three to four persons per room.

v) Percentage of households with a density of four and above persons per room.

This percentage of households falling in each of the above mentioned five categories have been worked out by the following method (also see Appendix XI):

1) Households with Density of Less than one Person Per Room:= Total number of households occupying more rooms than the number of members in the household.

2) Households with Density of one to two persons per room:- This category includes the number of households where:

a) The number of occupied rooms and the number of members in the households are equal.

b) Occupying two rooms but having three members.

c) Occupying three rooms but having four and five members of the household.

d) Occupying four rooms but having five and six & above members of a household.

e) Occupying five rooms but having six and above members of a household.

3) Household with Density of two to three persons per Room:- Where the total number of households are:

a) Occupying one room but having two members.

b) Occupying two rooms but having four and five members.

c) Occupying three rooms but having six and above persons.

4) Households with Density of three to four persons per Room:- Total number of households:

a) Occupying only one room but having three members.

b) Occupying two rooms but having six and above members.

5) Households with Density of four and above persons per room:- Total number of households occupying only one room but having:

a) Four members.

b) Five members.

c) Six and above members.

Percentage of households falling in all the above mentioned categories has been worked out taking into account the total number of households excluding the institutional households, houseless households, no exclusive rooms, and unspecified rooms.

In the end an attempt has been made to find out the overall quality of housing in the 'Million Cities'. Each of the five categories mentioned above have been further divided into four parts and as per the range granted 1, 2, 3, & 4 points for example in the first three categories the households in the lowest percentage

category have been granted one point next percentage category two points, so on and so forth. But in the last two categories three to four, and four and above persons per room, cities with lowest percentage category have been granted highest i.e. four points. After that all the points secured by a city in all the five categories have been added up to get a composite score and the city which secured highest points has the best quality of housing according to the density of persons per room.

OBSERVATIONS :

The Table 3.1 reveals that on a whole the 'million cities' have 31.94 per cent of its households dwelling in houses having a density of four and above persons per room and a very small percentage (3.04) of its households living in houses having a density of less than one person per room. After the four and above density, it is one to two persons per room category which have the highest percentage of its households living in the category (21.09 per cent). As against this 20.53 per cent of households live in houses with density of two to three persons per room and 19.15 per cent live in houses with a density of three to four persons per room. It means that more than half of the

TABLE 3.1

PERCENTAGE DISTRIBUTION OF HOUSEHOLDS ACCORDING TO DENSITY PER ROOM - 1981

City	No. of Persons per Room					HH not Explained
	<1	1-2	2-3	3-4	4+	
Calcutta	1.38	20.72	21.19	20.07	31.37	5.25
Bombay	1.66	13.04	15.37	15.36	47.37	7.17
Delhi	2.43	21.16	21.66	20.00	33.05	1.67
Madras	3.96	23.41	22.75	19.91	29.60	0.35
Bangalore	3.98	21.68	20.14	18.79	31.57	3.81
Ahemdabad	3.92	21.29	19.85	19.71	32.65	2.56
Hyderabad	3.31	25.32	24.08	20.62	24.92	1.73
Pune	2.36	13.33	14.01	15.09	42.50	12.68
Kanpur	3.10	21.83	20.64	21.97	30.31	2.12
Nagpur	2.80	18.94	20.88	19.96	30.58	6.81
Jaipur	3.23	25.64	23.45	19.67	23.93	4.05
Lucknow	4.39	26.75	22.43	18.73	25.46	2.15
'Million Cities'	3.04	21.09	20.53	19.15	31.94	4.30
India	3.96	23.71	21.29	19.43	28.35	3.23

households in 'million cities' live in very congested conditions of three and above persons per room (51.09 per cent).

If these figures are compared with the all India total we find that the households living in <1, 1-2, 2-3, and 3-4 categories have more percentage than the 'million cities' average, but in the last category (four and above) the 'million city' percentage is more than that of India (28.35). On all India basis 3.23 per cent households have not been explained as against 4.30 per cent of 'million cities'. It is due to the fact that 'million cities' have more households with no exclusive room, more households with unspecified room and more institutional and houseless households (Appendix VIII) as compared to India. So, the condition of 'million cities' is bad as per the density vis-a-vis urban India which may be a result of higher industrialisation in 'million cities' and, therefore, higher density; higher immigration to these cities resulting in shortage of dwelling. It is due to this fact that slums have become a way of life for many in the 'million cities'.

The five categories can be termed as very low, low, medium, high, and very high densities.

Very Low Density:

In this category of less than one person per room it is to be noted that out of the 12 'million cities' 7 have higher percentage of its households having very low density than the 'million cities' average of 3.04 per cent signifying better housing conditions. But of these 7, three cities - Lucknow, Bangalore and Madras - have high percentage than even the national average of 3.96. Lucknow has the highest percentage (4.39) followed by Bangalore (3.98 per cent), Madras (3.96 per cent), Ahemdabad (3.92 per cent), Hyderabad (3.31 per cent), Jaipur (3.23 per cent) and Kanpur (3.10 per cent).

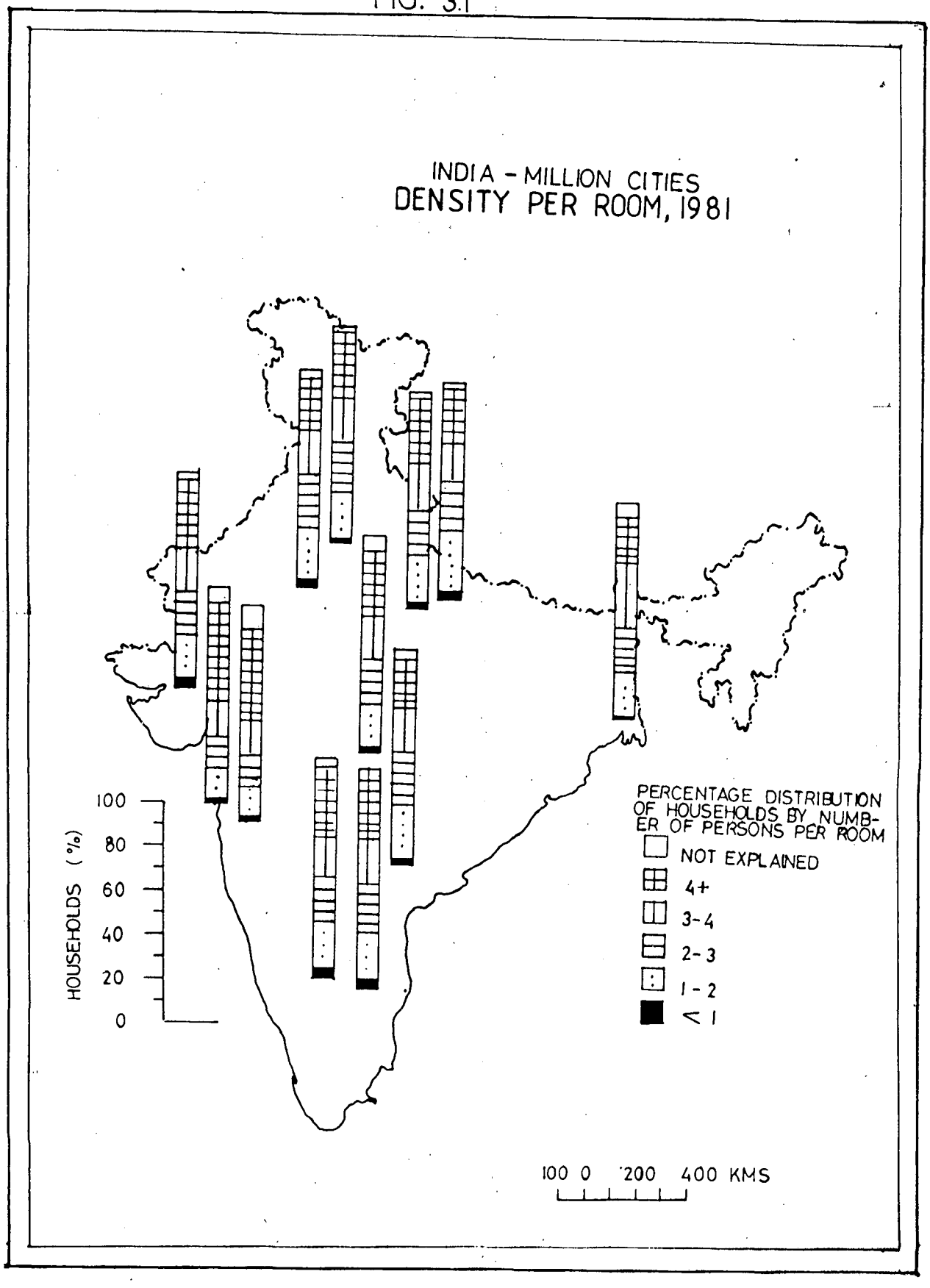
As against this Calcutta has the lowest percentage of households living in houses with a density of less than one person per room (1.38 per cent), followed by Bombay (1.66 per cent), Pune (2.36 per cent), Nagpur (2.80 per cent) and Delhi (2.43 per cent). Important to note here is that the cities having larger population have lesser percentage in this category meaning thereby a shortage of housing and cities having smaller population having larger percentage in this category denoting better conditions of housing as compared to former, notable exception being Pune and Nagpur.

Low Density :

All the cities, except Delhi which had low percentage in the very low density category still have low percentage than the 'million cities' average. All the three 'million cities' of Maharashtra; Bombay, Pune, Nagpur have low percentage of their households dwelling in houses with a density of 1 to 2 persons per room, having a percentage of 13.04, 13.33 and 18.94 respectively. Calcutta has only 20.72 per cent of its households in this category.

Lucknow, like in the very low density category, still tops the 'million cities' percentage with 26.75 per cent of its households in this category followed by Jaipur (25.64 per cent), and Hyderabad (25.32 per cent). Other cities which have high percentage of its households dwelling in houses with a density of 1-2 persons per room are Madras (23.41 per cent), Kanpur (21.83 per cent), Bangalore (21.68 per cent), Ahemdabad (21.29 per cent), and Delhi (21.16 per cent). It is clear from the data that, again like in the less than one person per room category, cities with higher populations have lower percentage of households living in this category of houses and vice-versa, again notable exceptions being Pune and Nagpur.

FIG. 3.1


INDIA - MILLION CITIES
DENSITY PER ROOM, 1981
HOUSEHOLDS (%)
100
80
60
40
20
0
PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY NUMBER OF PERSONS PER ROOM
NOT EXPLAINED
4+
3-4
2-3
1-2
<1
100 0 200 400 KMS

Medium Density :

In this category of 2 to 3 persons per room, percentage of households living in such houses of India (21.29 per cent) is more than the 'million cities' average (20.53 per cent). Eight cities have more percentage than the 'million cities' average. Hyderabad has the highest percentage of 24.08 per cent followed by Jaipur (23.45 per cent), Madras (22.75), Lucknow (22.43), Delhi (21.66), Calcutta (21.19), Nagpur (20.88) and Kanpur with 20.64 per cent. Bangalore has 20.14 per cent of its households living in houses with a density of 2-3 persons per room which is slightly below the 'million cities' average.

Pune has a very low percentage (14.01) in this category, closely followed by Bombay (15.33 per cent) and Ahemdabad (17.85 per cent). As against the first two categories of very low and low densities, we find that there is no fixed pattern as such in this category about the percentage of households living in houses with a density of 2-3 persons per room vis-a-vis population size of a city.

High Density :

Higher the number of persons per room, lower the quality (or condition) of housing of that particular

household.. Therefore, in 3 to 4 persons and 4 and above persons per room, lower the percentage of households, better is the housing condition.

Only four cities qualify as having lower percentage of households having a density of 3 to 4 persons per room than the 'million cities' average of 19.15 per cent. Only 15.09 per cent of households of Pune stay in such high density of persons per room. Others having lower percentage than the 'million cities' average are Bombay (15.36 per cent), Lucknow (18.73 per cent) and Bangalore (18.79 per cent). Percentage of Jaipur, Ahemdabad, Nagpur and Madras are very near to the 'million cities' average. Other remaining cities have more than 20 per cent of their households living in houses having a density of 3 to 4 persons per room. There is no fixed pattern of percentage variation in this category among the 12 cities.

Very High Density :

The category of 4 and above persons per room shows very highly congested conditions. Lesser percentage of households of India are living in congested conditions as compared to the 'million cities' signifying bad housing condition of the 'million cities'.

Bombay has a very sorry state of affairs with 47.37 per cent of their households living in very congested conditions. Pune is another case with 42.50 per cent of its households living in houses with a density of 4 and above persons per room. Other very high density cities having higher percentage than the 'million cities' average are Delhi (33.05 per cent) and Ahemdabad (32.65 per cent).

Five cities have slightly lower per cent of their households, than the 'million cities' average, living in 4 and above persons per room category. They are Bangalore (31.57 per cent), Calcutta (31.37), Nagpur (30.58), Kanpur (30.31), and Madras (29.60). The cities of Jaipur, Hyderabad, and Lucknow have even lower percentage than the Indian average of 28.35 of their households dwelling in this category of houses having a percentage of 23.93, 24.92 and 25.46 respectively (Figure 3.1).

Pune, Bombay, and Nagpur - all three in the Maharashtra state - have a very high percentage of their households not being explained (to the tune of 12.68, 7.17, and 6.81 per cent). This is due to the fact that Pune and Nagpur have a big percentage of unspecified

rooms, and also a big percentage of households having no exclusive rooms. Likewise, Bombay has not only a big percentage in the above two categories, it also has about 1.55 per cent of houseless households and 0.76 per cent of institutional households. For other cities this percentage of households not explained varies from a low of 0.35 per cent (of Madras) to 5.25 percent (of Calcutta).

To find out the overall housing conditions in 12 cities, the five categories have been further sub-divided into four groups according to the range of variation as given in Table 3.2.

TABLE 3.2

ROOM DENSITY

Points Granted	1	2	3	4
% Category	<2.13	2.14-2.88	2.89-3.63	3.64-4.39
Very Low Density	Calcutta, Bombay	Delhi, Pune, Nagpur,	Hyderabad, Kanpur, Jaipur	Madras, Bangalore, Ahemdabad, Lucknow.

Points Granted	1	2	3	4
% Category	<16.46	16.47-19.89	19.90-23.32	23.33-26.75
Low Density	Bombay, Pune	Nagpur	Calcutta, Delhi, Bangalore, Ahemdabad, Kanpur	Madras, Hyderabad, Jaipur, Lucknow,
% Category	<16.52	16.53-19.04	19.05-21.56	21.57-24.08
Medium Density	Bombay, Pune	-	Calcutta, Bangalore, Ahemdabad, Kanpur, Nagpur,	Delhi, Madras, Hyderabad, Jaipur, Lucknow
% Category	21.37-20.26	20.25-18.54	18.53-16.81	16.80 & below
High Density	Hyderabad, Kanpur	Calcutta, Delhi, Madras, Ahemdabad, Nagpur, Jaipur, Bangalore, Lucknow	-	Bombay, Pune

Points Granted	1	2	3	4
% Category	47.37-41.52	41.51-35.69	35.68-29.80	<29.79
Very High Density	Bombay, Pune	-	Calcutta, Delhi, Bangalore, Ahemdabad, Kanpur	Madras, Hyderabad, Jaipur, Lucknow

Now if the points gained by a city in the above five categories are added up , it gives the composite score as given in Table 3.3.

TABLE 3.3

COMPOSITE SCORE

City ↓ / Density →	Very Low	Low	Medium	High	Very High	Total
Calcutta	1	3	3	2	3	12
Bombay	1	1	1	4	1	8
Delhi	2	3	4	2	3	14
Madras	4	4	4	2	4	18
Bangalore	4	3	3	2	3	15
Ahemdabad	4	3	3	2	3	15
Hyderabad	3	4	4	1	4	16
Pune	2	1	1	4	1	9
Kanpur	3	3	3	1	3	13
Nagpur	2	2	3	3	3	13
Jaipur	3	4	4	2	4	17
Lucknow	4	4	4	2	4	18

The composite score indicated that density per room is lowest in Madras and Lucknow which is followed by:

Jaipur
Hyderabad
Bangalore and Ahemdabad
Delhi
Kanpur and Nagpur
Calcutta
Pune
Bombay, in that order.

SUMMARY :

The housing conditions in the metropolitan cities according to density of persons per room reveal that more than half of the households have to dwell in extremely congested conditions whereas only an insignificant percentage of households dwell in houses with a density of less than one person per room.

The cities of Bombay, Pune, and Calcutta present a dismal picture as a very high percentage of population is living under high density conditions. Madras, Lucknow, Jaipur, and Hyderabad provide better condition compared to other cities in terms of density of persons per room.

CHAPTER IV

HOUSEHOLD AMENITIES

INTRODUCTION :

Three basic amenities - drinking water, electricity and toilet facility - are considered essential for any household. The availability/accessibility of three amenities have been analysed in this chapter to determine the quality of housing.

METHODOLOGY :

1. Drinking Water :

Data used for analysing the availability of drinking water have been taken from HH7 table of Household Tables, Part VIII A & B of the Census of India, 1981 for the 12 individual cities and urban India as a whole.

The HH7 table gives the distribution of the households by type of source of drinking water and location source, within or outside premises, separately for rural and urban areas. The various sources of drinking water for which the distribution of households has been given are: 1) Well, 2) Tap, 3) Handpump/Tubewell, 4) River/Canal, 5) Tank, and 6) others.

The Table excludes institutional and houseless household and is based on 20% sample data.[1]

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1. Census of India, 1981, Series 1, India, Part VIII A&B (V), Household Tables, p. 87.

CLASSIFICATION :

Drinking water, in this study, has been classified into four categories according to the source of the drinking water (i.e. whether within or outside premises). These four categories are:

1) Protected drinking water within premises.
2) Protected drinking water outside premises.
3) Unprotected drinking water within premises.
4) Unprotected drinking water outside premises.

Percentage of households falling in each of the above mentioned four categories have been worked out.

Out of the six sources of drinking water mentioned above the following are considered protected sources:

1) Tap (within and outside premises)
2) Handpump/Tubewell (within and outside premises).

Those which are considered unprotected sources of drinking water are:

1) Well (within and outside premises).
2) River/Canal (within and outside premises).
3) Tank (within and outside premises).
4) 'Others' (within and outside premises).

Accordingly the distribution of households by the drinking water facilities have been worked out by the following method:

A) Households to Whom Protected Drinking Water is Available Within Premises:-

Number of households receiving drinking water from taps and handpumps/tubewells within premises (or inside the house).

B) Households to Whom Protected Drinking Water is Available Outisde Premises:-

Number of households having access to drinking water from taps and handpumps/tubewells outside the premises (or outside the house).

C) Households to Whom Unprotected Drinking Water is Available Within Premises:-

Number of households receiving drinking water from wells, rivers/canals, tanks, and 'others' sources excluding tubewells/handpumps and taps, within premises.

D) Households to Whom Unprotected Drinking Water is Available Outside Premises:-

Number of households having access to drinking water from wells, rivers/canals, tanks, and other sources excluding taps, handpumps/tubewells, outside premises.

By using the above mentioned method percentage of households falling in each of the above mentioned category have been worked out for the total number of

households excluding institutional and houseless households.

In the end, an attempt have been made to find out the housing standard as per the availability of drinking water to the households by source and location. Each one of the four categories - protected drinking water within premises, protected outside premises, unprotected within premises, and unprotected outside premises - have been further divided into four parts thus making overall 16 parts as per the range of variation. In any particular category, the range has been found out and has been divided into 4 parts. These four parts have been granted points from 1 to 4.

In the case of protected drinking water (both within and outside premises) a maximum of 4 points have been given to a city which falls in the highest percentage category and one point to a city which has the lowest percentage . As against this in the case of unprotected drinking water (within and outside premises) maximum points (four) have been awarded to the category having lowest percentage and the least point (one) to a city falling in the highest percentage category. This have been done because protected drinking

water have more value and hence higher the percentage of protected drinking water better is the situation of housing whereas if water is unprotected - higher the percentage worse is the condition.

After this all points secured by a city in the 4 categories have been added up and city having the maximum composite score have the best housing situation as per drinking water facility.

2. Electricity :

Data for the availability of electricity to the households have been computed from HH6 of the Household Tables - Part VIII A&B, Census of India, 1981.

Part A, which is relevant here relates to urban areas and gives the distribution of households and their population by tenure status of house occupied.[2] This table excludes institutional and houseless households and is based on 20% sample data.

Percentage of households to whom electricity is available as well as to those it is not available have been worked out separately for total, owned houses and rented houses. Electricity by tenure status of the

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2. Census of India, 1981, Series 1, India, Part VIII A & B (V), p. 1.

households also tells us whether in a city the position of households is better in owned houses vis-a-vis rented houses or not.

3. Toilet Facilities :

Data have been analysed from HH6 of Household Tables, Part VIII A from the Census of India, 1981.[3] It gives the distribution of households and their population by tenure status of the house occupied. Table excludes institutional and houseless households and is based on 20% sample data.

Percentage of households to whom toilet facilities are available and to whom it is not available have been worked out separately for total and by tenure status of the house occupied (i.e. whether owned or rented).

OBSERVATIONS :

1. Drinking Water :

Leonardo da Vinci described water as "the driver of nature". It might look as an overstatement but still the fact remains that water makes life possible. And

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3. Ibid.

it is difficult to imagine any programme for human development or improvement that does not presuppose or require a readily available supply of water.

Reasonably safe supply of drinking water are unavailable for atleast one-fifth of the world's city dwellers and three quarters of its rural people; in many countries less than one-half of the urban population and less than one-tenth of rural population are served with adequate and safe water supply.[4]

Considering that without water life cannot survive it is a pity that more than 24 per cent of the urban households in India have to use unprotected drinking water facilities as is evident from Table 4.1; major sources of which are the wells (both within and outside premises) (Appendix XII). Though 75 per cent of the urban households have protected drinking water but even in this 32 per cent have to go and fetch water outside the premises of the house revealing the sorry state of affairs as far as availability of drinking water to the households is concerned. (Figure 4.1).

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4. United Nations Water Conference Secretariat, "Assessment of the World Water Situation", EKISTICS, Vol. 43, No. 254, January 1977, pp. 5-8.

TABLE 4.1

SUPPLY OF DRINKING WATER BY SOURCE AND LOCATION
1981

City	Protected Water		Unprotected Water	
	Within Premises	Outside Premises	Within Premises	Outside Premises
Calcutta	43.10	43.37	7.39	6.11
Bombay	58.38	33.97	2.03	5.60
Delhi	66.86	28.04	1.94	3.14
Madras	43.09	25.06	18.45	13.39
Bangalore	43.67	33.55	7.70	15.07
Ahemdabad	68.04	26.39	2.00	3.55
Hyderabad	49.62	25.33	11.00	13.93
Pune	55.46	38.05	2.43	4.05
Kanpur	52.33	24.77	6.34	16.54
Nagpur	43.81	27.27	11.48	17.42
Jaipur	67.33	20.60	3.15	8.89
Lucknow	58.19	22.84	6.38	12.57
'Million Cities'	54.15	29.10	6.69	10.02
India	42.99	32.06	9.17	15.76

As against this situation is comparatively better in the case of 'million cities' of India. Out of the total 83.25 per cent availing protected drinking water - 54.15 per cent avail this facility within the premises (vis-a-vis 42.99 per cent in the case of urban households of India). But still 10.02 per cent have to go outside their premises to fetch even unprotected drinking water with another 6.69 per cent having access to unprotected drinking water within premises.

Protected Drinking Water within Premises :

Among the cities - Ahemdabad, Jaipur, and Delhi have more than two-thirds of their households availing protected drinking water within premises. Three other cities have more percentage than the 'million cities' average (54.15 per cent). These are Bombay, Lucknow, and Pune with 58.38, 58.19 and 55.46 per cent respectively. Remaining six cities have less than the 'million cities' average. All these cities, except Kanpur, lie to the south of the tropic of cancer. Madras has the lowest percentage of households availing protected drinking water within premises. It is due to the fact that Madras generally faces scarcity of water. Others in equally bad conditions are Calcutta (43.10 per cent)

Bangalore (43.67 per cent), Nagpur (43.81 per cent), and Hyderabad (49.62 per cent). Kanpur also have a low of 52.33 per cent only.

It may be noted here that in the case of Delhi, Madras and Calcutta, a large proportion (15.65, 11.72, and 9.98 per cent respectively) rely on handpumps/tubewells inside the house as a source of protected drinking water (Appendix XII) which shows a low priority on the part of development authorities for tap water.

Protected Drinking Water Outside Premises:

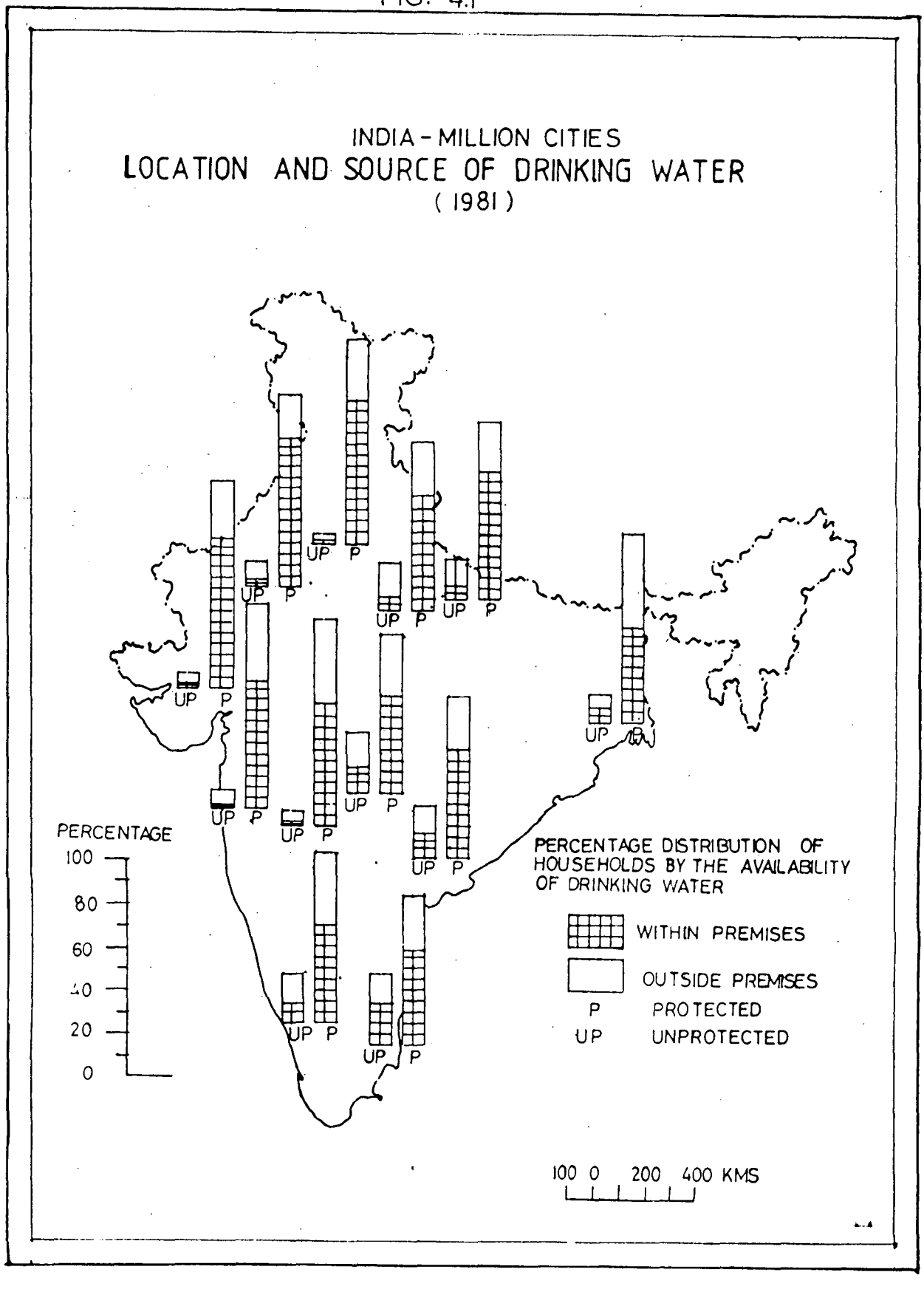
Though households falling in this category are getting protected drinking water (from taps and handpumps/tubewells), they have to fetch it from outside their houss. Calcutta has the highest percentage (43.37) of its households fetching protected drinking water outside premises followed by Pune (38.05 per cent), Bombay (33.97 per cent) and Bangalore (33.55 per cent). Rest of the cities have less than the 'million cities' average (29.10 per cent). Jaipur has the lowest percentage of its households fetching protected drinking water outside premises (20.60 per cent) followed by Lucknow (22.84 per cent) and Kanpur (24.77 per cent). Other cities percentage vary from 25.05 to 28.04.

It may be noted here that a large percentage of households in Calcutta (20.54) and Delhi (11.11) rely on handpump and tubewells as a protected source of drinking water outside their houses (Appendix XII).

Protected Drinking Water (Total):

Half of the city's have more than the 'million cities' average of 83.25 per cent with Delhi topping with 94.9 per cent of its households getting protected drinking water, while the lowest in this category is Madras with 68.00 per cent. But these figures can be quite misleading especially so in the case of Calcutta, Pune, and Bombay where quite a big percentage of their households have to go outside the houses to fetch protected drinking water. After Madras, cities having bad conditions are Nagpur, Kanpur, and Bangalore, one can imagine the plight of these cities residence, and the prevailing unhygenic conditions when all the people cannot even get protected drinking water within premises not to talk of water for other needs. These cities need immediate measures for protected drinking water to be supplied to the houses.

FIG. 4.1


INDIA - MILLION CITIES
LOCATION AND SOURCE OF DRINKING WATER
(1981)
PERCENTAGE
100
80
60
40
20
0
UP
P
PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY THE AVAILABILITY OF DRINKING WATER
WITHIN PREMISES
OUTSIDE PREMISES
P PROTECTED
UP UNPROTECTED
100 0 200 400 KMS

Unprotected Drinking Water Within Premises:

A total of 6.69 per cent of the households of the cities use unprotected drinking water within premises whereas 9.17 per cent of urban households in India consume unprotected drinking water within premises emphasising only slightly better condition of the 'million cities'.

It is notable that it is mainly the chief industrial centres of India where the large percentage of households are getting unprotected drinking water within premises. Madras has the highest percentage of households (18.45) receiving unprotected drinking water within premises. Nagpur and Pune have about 11 per cent each, and Bangalore and Calcutta have more than 7 per cent of their households using such water.

Major sources of unprotected drinking water, (within premises) for all the above mentioned cities are wells, the other sources contributing a negligible amount to the total. (Appendix XII).

Kanpur and Lucknow, though have lower percentage than the 'million cities' average but are still on the higher side. Only Delhi, Bombay, Ahemdabad, and Jaipur have very low percentage of their households using unprotected drinking water (within premises) meaning thereby that these cities have better conditions than the other cities.

Unprotected Drinking Water Outside Premises:

This category shows the worst of conditions as far as availability of drinking water to the households is concerned. About 15.76 per cent of urban households in India use unprotected drinking water fetched from outside their houses out of which the major source is well (outside premises) followed by the 'others' sources (outside premises) (Appendix XII). As against this in the case of 'million cities' 10.02 per cent of the households use unprotected drinking water outside premises where again the major source is well (outside premises) followed by the 'others' source (outside premises). Rest of the sources have negligible share except in Kanpur, Lucknow and Calcutta where more than 1.3 per cent of households use tank water outside premises as a source of drinking water.

Out of the 12 cities, 6 have very grave situation who are having higher percentage of their households fetching unprotected drinking water from outside premises then the 'million cities' average. Nagpur has the worst condition with 17.42 per cent of its households using unprotected drinking water from outside premises followed by Kanpur (16.54 per cent), Bangalore (15.07 per cent), Hyderabad (13.93 per cent), Madras (13.39 per cent), and Lucknow (12.57 per cent). Major sources of drinking water

Unprotected Drinking Water Within Premises:

A total of 6.69 per cent of the households of the cities use unprotected drinking water within premises whereas 9.17 per cent of urban households in India consume unprotected drinking water within premises emphasising only slightly better condition of the 'million cities'.

It is notable that it is mainly the chief industrial centres of India where the large percentage of households are getting unprotected drinking water within premises. Madras has the highest percentage of households (18.45) receiving unprotected drinking water within premises. Nagpur and Pune have about 11 per cent each, and Bangalore and Calcutta have more than 7 per cent of their households using such water.

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of all the cities in this case are wells (outside premises) but in the case of Hyderabad and Madras 'other' source also form a big share (5.04 and 4.16 percent respectively)

Unprotected Drinking Water (Total) :

In three cities percentage of households using unprotected drinking water is more than the percentage of households using the same in urban India (24.93 percent). The cities of Madras, Nagpur, and Hyderabad have a high percentage of 31.84, 28.9, and 24.93 respectively of households with unprotected drinking water supply out of which a huge share is of unprotected drinking water outside the premises. Three cities have higher percentage than the 'million cities' average (16.71 percent). These are Kanpur (22.88 percent), Bangalore (22.77 percent), and Lucknow (18.95 percent).

Delhi has the lowest percentage of such households using unprotected drinking water (5.08 percent). Also having low percentage are Ahemdabad (5.55), Pune (6.48), and Bombay (7.63) showing better living conditions as compared to other cities.

To find out the overall housing standards according to the availability of drinking water to the households of the twelve cities the four categories have been further

sub-divided into four parts each as per the method described in the beginning of this chapter, which is presented in Table 4.2.

TABLE 4.2

SUPPLY OF DRINKING WATER BY LOCATION AND SOURCE AND POINTS SCORED BY EACH CITY

% of Households	<49.32	49.33-55.56	55.57-61.80	61.81-68.04
Points Granted	1	2	3	4
Protected Drinking Water Within Premises	Calcutta, Madras, Bangalore, Nagpur	Hyderabad, Pune, Kanpur	Bombay, Lucknow	Delhi, Ahemdabad, Jaipur
% of Households	<26.29	26.30-31.98	31.99-37.67	37.68-43.37
Points Granted	1	2	3	4
Protected Drinking Water Outside Premises	Madras, Hyderabad, Kanpur, Jaipur, Lucknow	Delhi, Ahemdabad, Nagpur	Bombay, Bangalore	Calcutta, Pune

% of Households	<6.06	6.07-10.19	10.20-14.32	14.33-18.45
Points Granted	4	3	2	1
Unprotected Drinking Water within Premises	Bombay, Delhi, Ahemdabad, Pune, Jaipur	Calcutta, Bangalore, Kanpur, Lucknow	Hyderabad, Nagpur	Madras

% of Households	<6.71	6.72-10.28	10.29-13.85	13.86-17.42
Points Granted	4	3	2	1
Unprotected Drinking Water Outside Premises	Calcutta, Bombay, Delhi, Ahemdabad, Pune	Jaipur	Madras, Lucknow	Bangalore, Hyderabad, Kanpur, Nagpur

Now, if points scored by a city are added up (from the above-mentioned four categories in the Table), the composite score as given in Table 4.3 is obtained.

According to the points scored by individual cities, they can be grouped/ranked into the following descending order as per drinking water facilities:

1. Delhi, Ahemdabad, Bombay and Pune;
2. Jaipur and Calcutta;
3. Lucknow;

4. Bangalore;

5. Kanpur;

6. Hyderabad and Nagpur; and

7. Madras.

TABLE 4.3

COMPOSITE SCORES

City / Drinking Water	Protected (WP)	Protected (OP)	Unprocted (WP)	Unprocted (OP)	Total Points
Calcutta	1	4	3	4	12
Bombay	3	3	4	4	14
Delhi	4	2	4	4	14
Madras	1	1	1	2	5
Bangalore	1	3	3	1	8
Ahemdabad	4	2	4	4	14
Hyderabad	2	1	2	1	6
Pune	2	4	4	4	14
Kanpur	2	1	3	1	7
Nagpur	1	2	2	1	6
Jaipur	4	1	4	3	12
Lucknow	3	1	3	2	9

WP = Within Premises;
OP = Outside Premises.

It is clear from the preceding observations that none of the cities have reached a condition where no further improvement is required, but comparatively speaking conditions of cities like Delhi, Ahemdabad and Bombay are still in manageable proportions vis-a-vis Madras, Hyderabad, Nagpur, etc. where if immediate measures are not implemented, growth of these cities and health of its residents will be seriously hampered.

2. Electricity :

With power failure, a city's life comes to a standstill. All kinds of work stops in factories, offices, shops, houses, etc. It shows the importance of electricity in urban areas.

Though a lot of publicity has been given to electrification programme (e.g. cent per cent electrification of all the villages in Haryana in 1979) still about 87.6 million households in the country do not have electricity in their houses. 62.0 per cent of the urban and 14.7 per cent rural households had electricity at the time of 1931 census. This shows the poor state of electrification programme in India.

These figures can also be very misleading as they do not show how much part of the house is electrified

Even if a house has one electric point, the whole house is counted as electrified by the Census which does not present a true picture. Moreover, there is no data about the regularity of the electric supply as well.

Percentage Distribution of Total Households by Availability of Electricity Facility:

TABLE 4.4

PERCENTAGE DISTRIBUTION OF TOTAL HOUSEHOLDS BY AVAILABILITY OF ELECTRICITY (1981)

City	Electricity	
	Available	Not Available
Calcutta	62.93	37.06
Bombay	77.57	22.43
Delhi	74.94	25.05
Madras	65.38	34.61
Bangalore	72.29	27.70
Ahemdabad	75.75	24.24
Hyderabad	71.71	28.28
Pune	76.08	23.91
Kanpur	62.53	37.46
Nagpur	69.78	30.21
Jaipur	78.64	21.35
Lucknow	66.70	33.22
'Million Cities'	71.19	28.71
India (Urban)	62.51	37.48

As is evident from Table 4.4, the 12 cities enjoy better electricity facilities than the urban India. In all only 62.51 per cent of urban households in India have access to electricity, while another 37.48 per cent have to live without it. As against this about 71.19 per cent of households in 'million cities' have access to electricity and to another 28.71 per cent it is not available.

If the figures of 'million cities' are compared with the figures of urban households of the states of West Bengal, Haryana, Punjab, and Kerala some startling facts are revealed. Though Punjab and Haryana have no big cities, the percentage of 85.44[5] and 82.22[6] per cent respectively are much higher compared to urban India or 'million cities' average where none of the cities have higher percentage than these two states. As against this studies of Kerala[7] and West Bengal[8] show that there the

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5. Roy, Subha, (1989), "Quality of Housing in Punjab (1981)", M.Phil. dissertation, CSRD, SSS, JNU, New Delhi.

6. Kumar, Pardeep, (1989), "Housing and Household Amenities in Haryana, 1981", M.Phil. dissertation, CSRD/SSS, JNU, New Delhi.

7. Kumar, R. Gopa, (1989), "Housing Stock and Household Amenities in Kerala, 1981", M.Phil. dissertation, CSRD, SSS, JNU, New Delhi.

8. Banerjee, Ishani (1989), "Housing and Household Amenities : West Bengal, 1981", M.Phil. dissertation, CSRD, SSS, JNU, New Delhi.

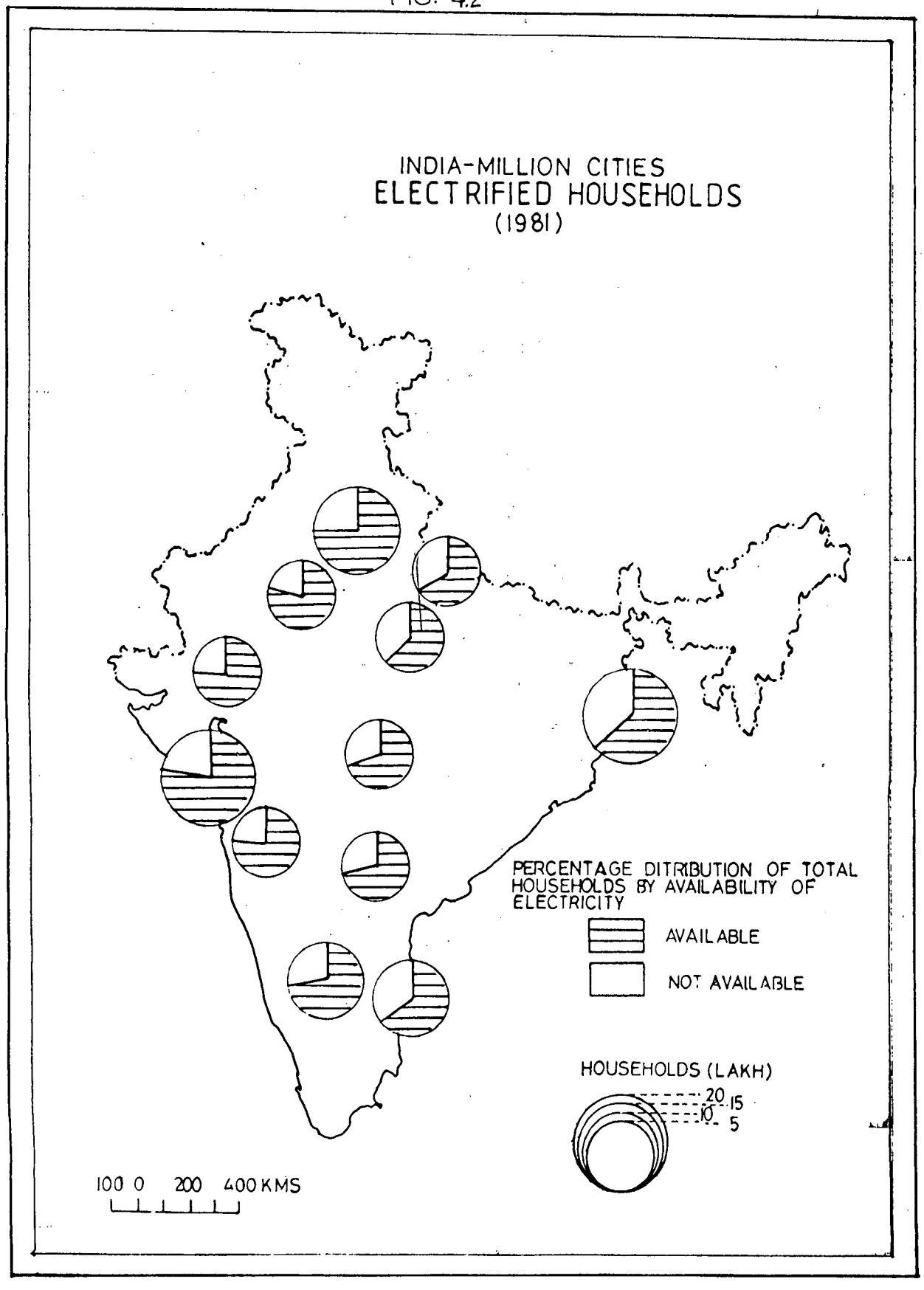
percentages are very low compared to 'million cities' or India as only 54.57 per cent of urban Kerala and 57.86 per cent of urban West Bengal households have got electricity.

Though none of the 12 cities have a lower percentage than the urban households of India, as far as availability of electricity is concerned, Kanpur has only 62.53 per cent of its households having electricity as against 62.51 per cent of India. Urban households in five cities have less than the 'million cities' average of 71.19 show the poor plight of their residents. These cities have a big part of their households not getting electricity like Kanpur (37.46 per cent), Calcutta (37.06 per cent), Madras (34.61 per cent), Lucknow (33.22 per cent) and Nagpur (30.21 per cent).

City having maximum percentage of its total households availing electricity facility is Jaipur as 78.64 per cent of its households have electricity which is followed by Bombay (77.57%), Pune (76.08%), Ahemdabad (75.75%) and Delhi (74.94%). Bangalore and Hyderabad also have more percentage of their households availing electricity (72.29 and 71.71 per cent respectively) compared to the 'million cities' average.

Here interesting point to note is that there is no fixed spatial pattern influencing the distribution of

FIG. 4.2


INDIA-MILLION CITIES
ELECTRIFIED HOUSEHOLDS
(1981)
PERCENTAGE DITRIBUTION OF TOTAL HOUSEHOLDS BY AVAILABILITY OF ELECTRICITY
AVAILABLE
NOT AVAILABLE
HOUSEHOLDS (LAKH)
20
15
10
5
100 0 200 400 KMS

electricity to the household of different cities. No relation is also visible of distribution being effected by city size or by the level of its industrialisation.

The availability of electric lighting in non-conventional dwellings is perhaps more difficult to gauge than any other housing facility because of countless illegal connections, the location of this type of housing within the city or in its outskirts, and the general condition of electricity supply which differs from one city to another. Thus, following the nature of a slum or squatter area, it is possible to find no electric lighting at all as well as to encounter some case studies indicating upto 80 per cent of the non-conventional dwellings of a specific area supplied with such a facility.[9]

An interesting comparison can be made here with the total households availing electricity in 8 of the major cities to the percentage of households in slum areas in these cities having access to electricity as per the NSSO data[10] as given in Table 4.5.

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9. United Nations (1976), "Global Review of Human Settlements - A Support paper for Habitat ", UN Conference on Human Settlement; Pargamon Press, pp. 106-7.

10. National Sample Survey Organisation, 31st Round, 1976-77.

TABLE 4.5

PERCENTAGE OF SLUM HOUSEHOLDS HAVING ACCESS TO ELECTRICITY

City	Households
Hyderabad	81.65
Ahemdabad	93.25
Bangalore	00.34
Bombay	56.75
Madras	90.43
Kanpur	96.09
Calcutta	88.26
Delhi	99.01

Source : NSSO 31st Round, 1976-77.

From the above table it is to be noted that of the 8 cities for which NSSO has data only two cities (Bangalore and Bombay) have very low percentage of slum households having electricity vis-a-vis these cities total percentage of electricity or as compared to the 'million cities' average (Table 4.4). Delhi have almost cent per cent of its slum population availing electricity and Kanpur, Ahemdabad and Madras also have more than 90 per cent of their slum households having access to

electricity. Bangalore is the only city where percentage of slum households having access to electricity is negligible.

The reason for this intra-city variation is clear. Though the population of slum areas is very poor and cannot afford electricity on their own, it is due to government schemes as these slum areas are big vote banks to the politicians. So to appease these dwellers, most of the slum households have been provided electricity.

It can be said that position of cities as per percentage of households having access to electricity is in the following descending order - Jaipur, Bombay, Pune, Ahemdabad, Delhi, Bangalore, Hyderabad, Nagpur, Lucknow, Madras, Calcutta and last Kanpur. (Figure 4.2).

Percentage Distribution of Households Having Electricity and Living in Owned Houses:

On an average only 56.11 per cent of urban households living in their own houses have electricity in India. Situation of house owners in 'million cities' is much better as against Indian total as about 66.90 per cent households (owned houses) have the facility of electricity (Table 4.6). It is much higher than the urban percentage

of households living in own houses in Kerala as only 41.74 per cent of such houses in Kerala have electricity.[11]

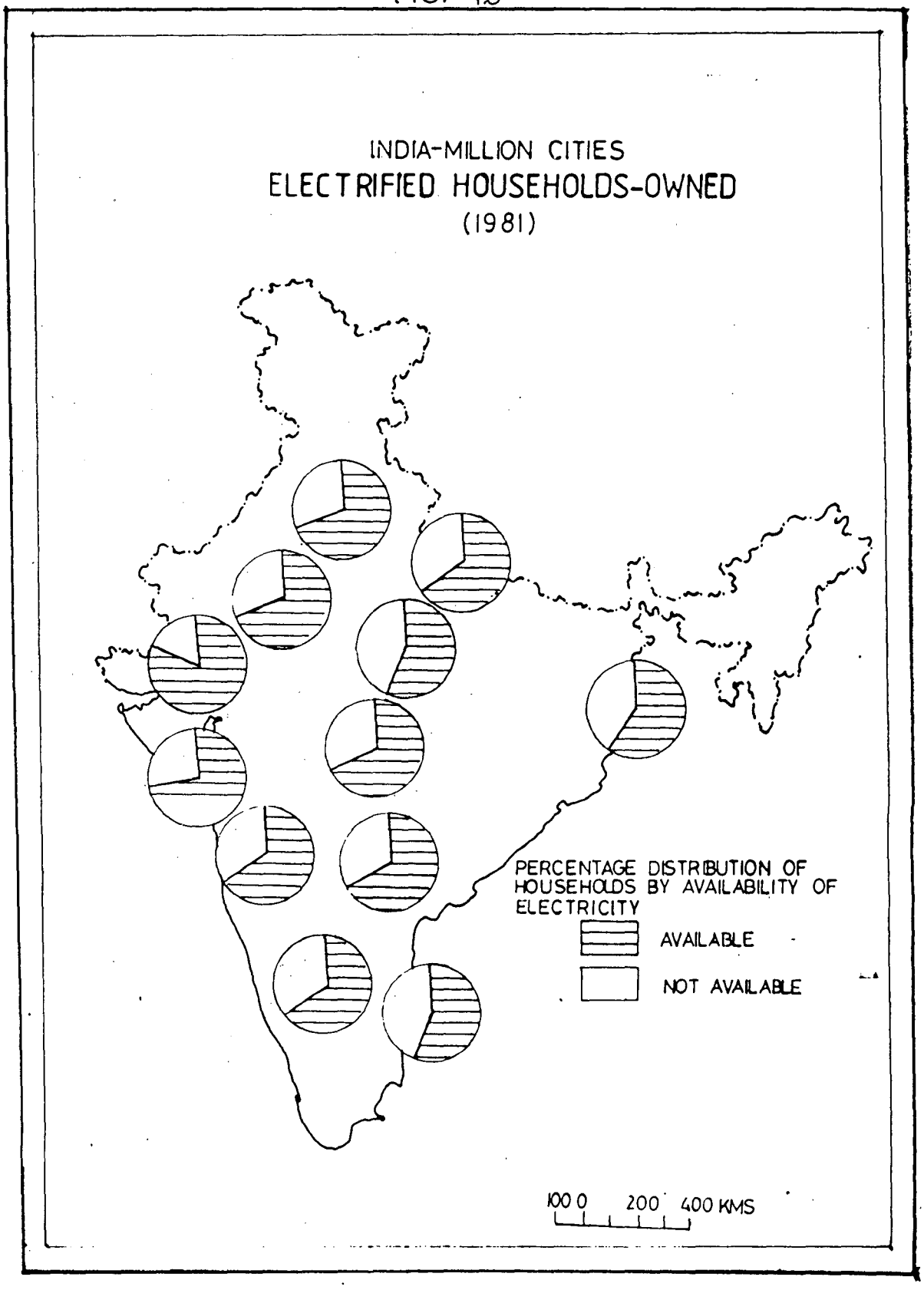
TABLE 4.6

PERCENTAGE DISTRIBUTION OF HOUSEHOLDS HAVING ELECTRICITY LIVING IN OWN HOUSES (1981)

City	Electricity	
	Available	Not Available
Calcutta	59.81	40.18
Bombay	72.73	27.26
Delhi	69.83	30.16
Madras	55.95	44.04
Bangalore	66.62	33.37
Ahemdabad	82.61	17.38
Hyderabad	67.61	32.38
Pune	66.24	33.75
Kanpur	56.81	43.18
Nagpur	68.48	31.51
Jaipur	70.32	29.67
Lucknow	65.83	34.16
'Million Cities'	66.90	33.10
India	56.11	43.88

11. Kumar, R. Gopa, (1989), op. cit., p . 97.

FIG. 4.3


INDIA-MILLION CITIES
ELECTRIFIED HOUSEHOLDS-OWNED
(1981)
PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY AVAILABILITY OF ELECTRICITY
AVAILABLE
NOT AVAILABLE
100 0 200 400 KMS

Six cities have lower percentage than the 'million cities' average and six have higher percentage. Best situation is in Ahemdabad where as much as 82.61 per cent of households living in owned houses have electricity and the worst condition is that of Madras where 44.04 per cent of the households living in owned houses do not have access to electricity facility. Other cities having a higher percentage than the 'million cities' average are Bombay (72.73%), Jaipur (70.32%), Delhi (69.83%), Nagpur (68.48%) and Hyderabad (67.61%). Bangalore and Pune have almost equal percentage as that of 'million cities' average.

Madras and Kanpur have a low of 55.95 and 56.81 per cent of their households living in owned houses having electricity followed by Calcutta (59.81 per cent), and Lucknow (65.83 per cent) (Figure 4.3). Madras is the only city whose percentage of households having electricity is even lower than the Indian average for owned houses.

Percentage Distribution of Households with Electricity Living in Rented Houses:

Table 4.7 reveals that compared to 69.87 per cent of urban households living in rented houses in India having electricity, households living in rented houses

in million cities have a better position as 74.53 per cent have access to electricity. If it is compared to a study done on Kerala by R. Gopa Kumar,[12] it is found that 'million cities' households living in rented houses have a much better situation against the urban households (rented houses) living in Kerala. In Kerala only 12.83 per cent have electricity as against 74.53 per cent for 'million cities'.

TABLE 4.7

PERCENTAGE DISTRIBUTION OF HOUSEHOLDS HAVING ELECTRICITY LIVING IN RENTED HOUSES (1981)

City	Electricity	
	Available	Not Available
Calcutta	64.88	35.11
Bombay	80.59	19.41
Delhi	80.31	19.68
Madras	71.05	28.94
Bangalore	75.36	24.63
Ahemdabad	70.49	29.50
Hyderabad	75.08	24.91
Pune	80.83	19.16
Kanpur	65.03	34.96
Nagpur	71.16	28.83
Jaipur	90.45	9.54
Lucknow	68.68	31.31
'Million Cities'	74.53	25.47
India	69.87	30.12

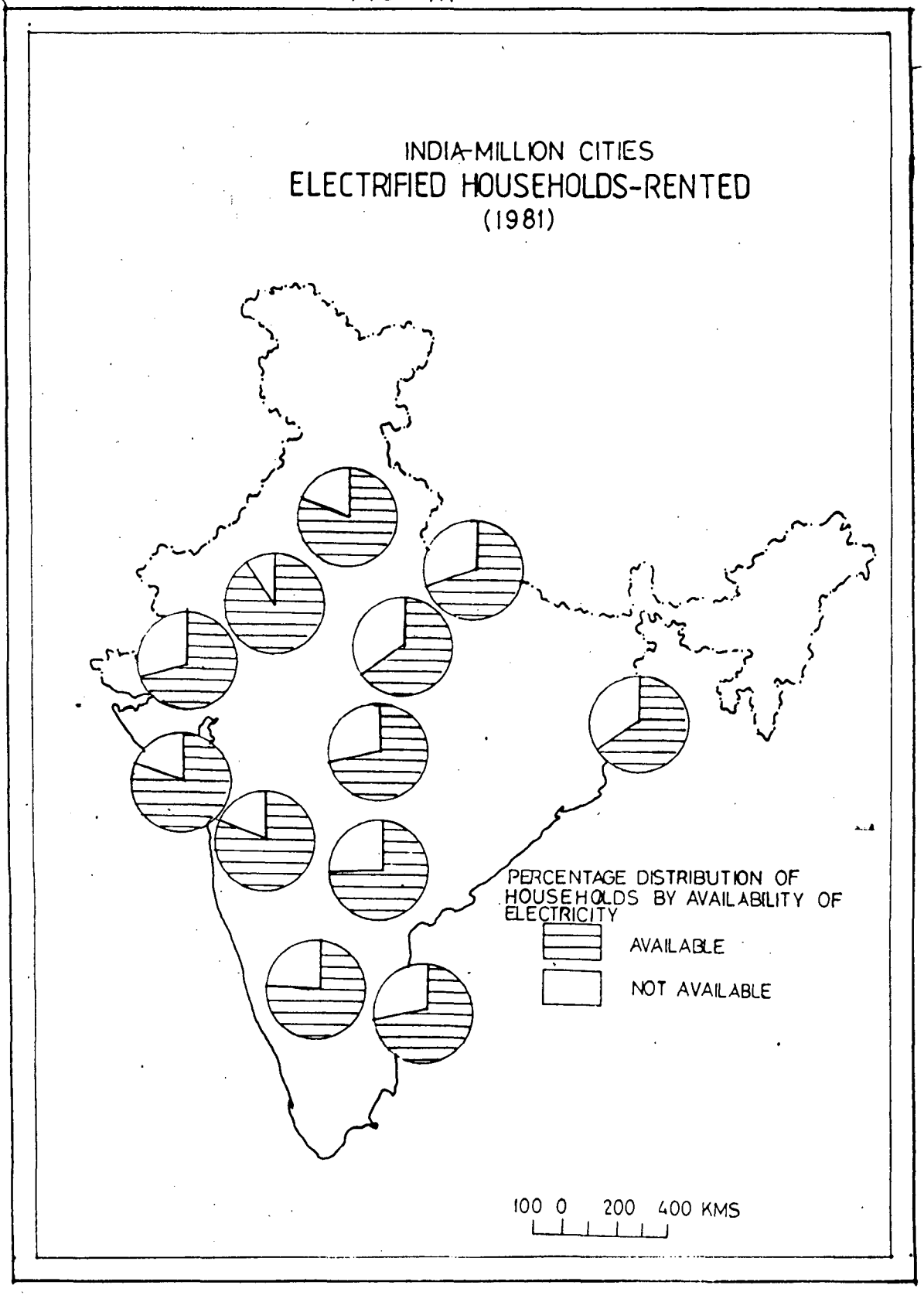
12. Ibid., p. 97.

Three cities have a very pathetic condition as far as access to electricity to its households living in rented houses is concerned. These cities have lower percentage then even the total average percentage for households living in rented houses in India. About 35.11 per cent of households (rented houses) do not have access to electricity in Calcutta. Likewise Kanpur and Lucknow have 34.96 and 31.31 per cent of their households living in rented houses having no access to electricity. (Figure 4.4).

As against this in Jaipur as much as 90.45 per cent of households living in rented houses have access to electricity which is the highest among the 12 cities. Other cities where the percentage of households living in rented houses having electricity is higher than the 'million cities' average are Pune (80.83%), Bombay (80.59%), Delhi (80.31%), Bangalore (75.36%), and Hyderabad (75.08%).

The cities having lower percentage of their households living in rented houses availing electricity then the 'million cities' average besides Calcutta, Lucknow and Kanpur, are Nagpur (71.96%), Madras (71.05%) and Ahemdabad (70.49%).

FIG. 44


INDIA-MILLION CITIES
ELECTRIFIED HOUSEHOLDS-RENTED
(1981)
PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY AVAILABILITY OF ELECTRICITY
AVAILABLE
NOT AVAILABLE
100 0 200 400 KMS

There is no indication as to the cause of this variation of percentage among cities neither the variation is being affected by location of a city in a particular region nor due to a city's size or due to its level of industrialisation.

Percentage Distribution of Households with Electricity by Tenure Status : A Comparison :

TABLE 4.3

PERCENTAGE DISTRIBUTION OF HOUSEHOLDS WITH ELECTRICITY BY TENURE STATUS (1981)

City	Electricity	
	Owned Houses	Rented Houses
Calcutta	59.81	64.88
Bombay	72.73	80.59
Delhi	69.83	80.31
Madras	55.95	71.05
Bangalore	66.62	75.36
Ahemdabad	82.61	70.49
Hyderabad	67.61	75.08
Pune	66.24	80.83
Kanpur	56.31	65.03
Nagpur	68.48	71.16
Jaipur	70.32	90.45
Lucknow	65.83	68.68
'Million Cities'	66.90	74.53
India	56.11	69.87

It is clear from Table 4.3 that more percentage of households living in rented houses have access to electricity then the households living in their own houses in India as a whole as well as in the 'million cities'. It means that households living in rented houses have a better condition of housing (as far as electricity criteria is concerned) then those living in owned houses.

The reason of this might be traced to the fact that households who have to live in rented houses are from a higher income group and, therefore, ask for amenities to be present in the house in which they intend to stay. Whereas those who owned the houses might do without even the basic amenities as it is found that most of the owners are from lower income groups.

Better amenities to the households living in rented houses is also important from the point that in most of the 'million cities' except Jaipur, Nagpur, Lucknow, and Delhi, percentage of households living in rented houses is much more than the percentage of households living in their own houses. (Appendix XIII).

All cities, except Ahemdabad, have more households living in rented houses having access to electricity as compared to households living in owned houses. Ahemdabad

is the only city where households living in owned housed have more percentage (82.61) then those living in rented houses (70.49) having access to electricity. In other cities though the differences in percentage varies like rented houses having more electricity (from a low of 3 to a high of 20 per cent) than the owned houses but the fact remains that households living in rented houses have more electricity available to them than those living in their own houses proving our hypothesis wrong.

3. Toilet Facility :

Though toilet facility is not a very important indicator for standard of living in rural areas as the density in rural areas is not high, and there are open spaces around but it becomes one of the most important factors in cities due to a very high density of population, no open spaces etc. leading to unhygenic condition - if toilet facility and proper sewerage system do not exist within the premises of the households.

Percentage of Total Households Having Access to Toilet Facility

A look at the Table 4.9 will show that more than two-fifth of urban total households living in India

TABLE 4.9

PERCENTAGE DISTRIBUTION OF TOTAL HOUSEHOLDS HAVING ACCESS TO TOILET FACILITY - 1981

City	Toilet Facility	
	Available	Not Available
Calcutta	85.98	14.01
Bombay	73.41	26.58
Delhi	68.01	31.98
Madras	69.71	30.28
Bangalore	73.92	26.07
Ahemdabad	73.93	26.06
Hyderabad	69.55	30.44
Pune	68.59	31.40
Kanpur	63.73	36.26
Nagpur	59.90	40.09
Jaipur	75.08	24.91
Lucknow	65.59	34.40
'Million Cities'	70.38	29.35
India	58.14	41.85

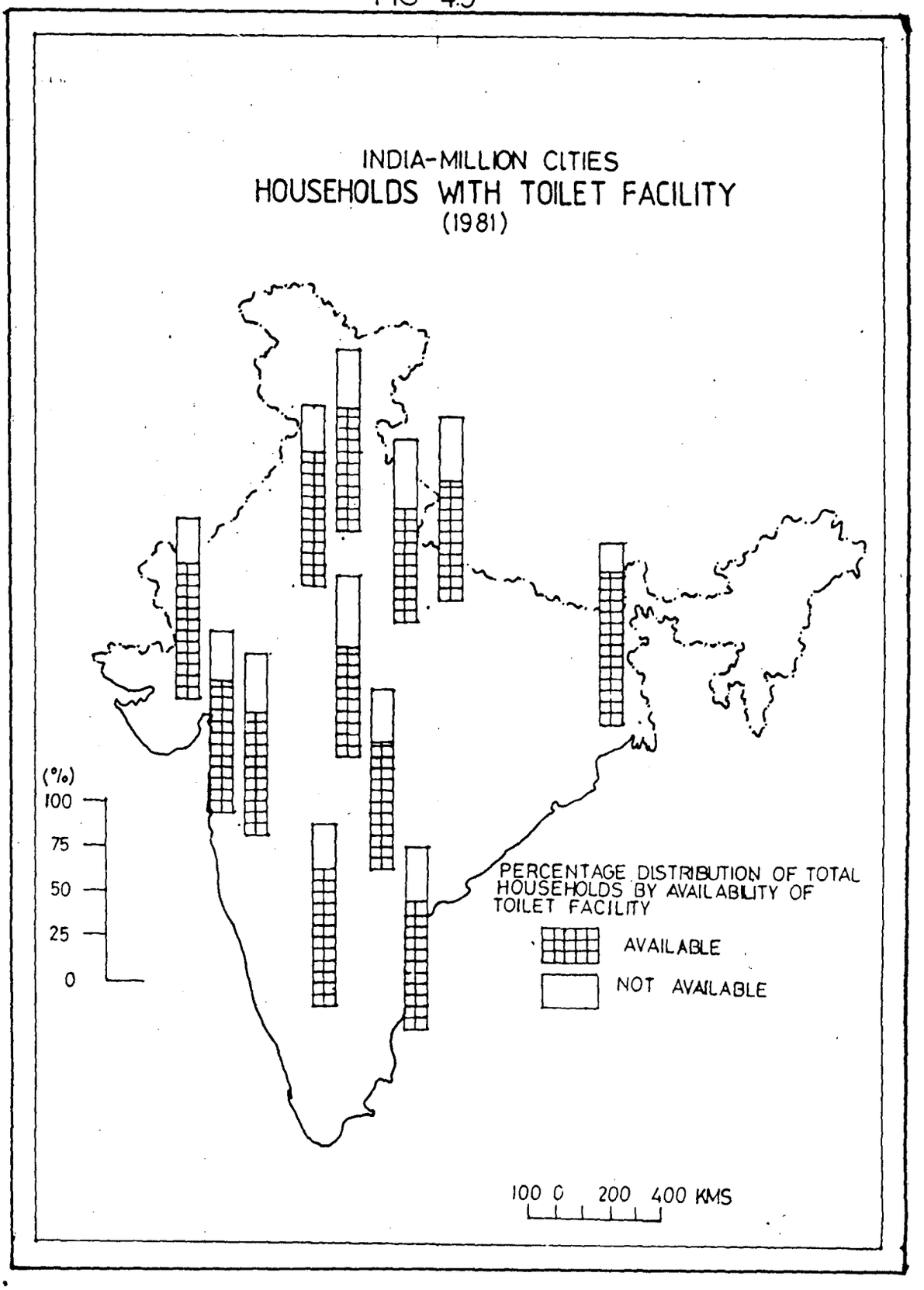
do not have access to toilet facility. Situation is comparatively better in million cities as 70.38 per cent of total households have access to toilet facility. But even this figure is not reassuring as the 12 cities are the main

cities of India and if here about 30 per cent do not have access to toilet facilities what happens at other places is just frightening to even think about. Govt. should provide toilet facilities especially to poor sections as this group mainly do not have this facility creating unhygenic conditions in the core of the city.

Nagpur has the worst condition as only 59.90 per cent of its households have access to toilet facilities. It is also a pity that seven out of the twelve cities have less than 70 per cent of their households having access to toilet facilities and another 30 per cent doing without it. Other cities having low percentage of their households having access to toilet facilities are - Kanpur (63.73%), Lucknow (65.59%), Delhi (68.01%), Pune (68.59%), Hyderabad (69.55%), and Madras (69.71%) (Figure 4.5). Delhi's condition is more worrisome as it is the capital of the nation.

Calcutta has the highest percentage of households having access to toilet facilities (85.98%) which is 25 per cent more than that of Nagpur. Others having slightly better condition than other cities and higher than the 'million cities' average are Jaipur (75.08%), Ahemdabad (73.93%), Bangalore (73.92%) and Bombay (73.41%).

FIG 4.5


INDIA-MILLION CITIES
HOUSEHOLDS WITH TOILET FACILITY
(1981)
(%)
100
75
50
25
0
PERCENTAGE DISTRIBUTION OF TOTAL HOUSEHOLDS BY AVAILABILITY OF TOILET FACILITY
AVAILABLE
NOT AVAILABLE
100 0 200 400 KMS

This variation of percentage is neither the effect of location of a city in either north or south nor by the level of industrialization or city size for example Calcutta and Jaipur have better toilet facilities whereas Delhi, Madras, Pune, etc. have poor toilet facilities.

These figures do not present true picture of all sections living in a city as the population living in slums have almost very negligible percentage of their households having access to toilet facility. This will be clear from the data of NSSO given in Table 4.10.

TABLE 4.10

PERCENTAGE OF SLUM HOUSEHOLDS HAVING ACCESS TO TOILET FACILITY

City	Separate Toilet	
	Sanitary	Others
Hyderabad	5.93	15.25
Ahemdabad	4.35	0.00
Bangalore	4.06	5.07
Bombay	0.07	1.96
Madras	10.22	1.57
Kanpur	4.03	18.68
Calcutta	1.34	0.37
Delhi	7.49	1.13

Source : NSSO, 31st Round (1976-77).

Though Table 4.10 presents data for eight cities only, it serves the purpose to show the condition of amenities in slum households. It is clear from the above data that the highest percentage is just about 22.0 (for Kanpur) whereas overall Kanpur have about 63.0% of its households having access to toilet facility (Table 4.9). Calcutta and Bombay slum households have less than two per cent of their households having access to toilet facilities speaking volumes of the pathetic condition of these dwellers.

The position of cities as per the percentage of households, having toilet facilities in descending order is as under - Calcutta, Jaipur, Ahemdabad, Bangalore, Bombay, Madras, Hyderabad, Pune, Delhi, Lucknow, Kanpur and Nagpur.

Percentage Distribution of Households Having Access to Toilet Facility Living in Owned Houses:

Only about half the urban households living in their own houses in India had access to toilet facilities in 1981 (Table 4.11). Situation is slightly better for households living in own houses in 'million cities' as about 65.39 per cent were having access to toilet facilities.

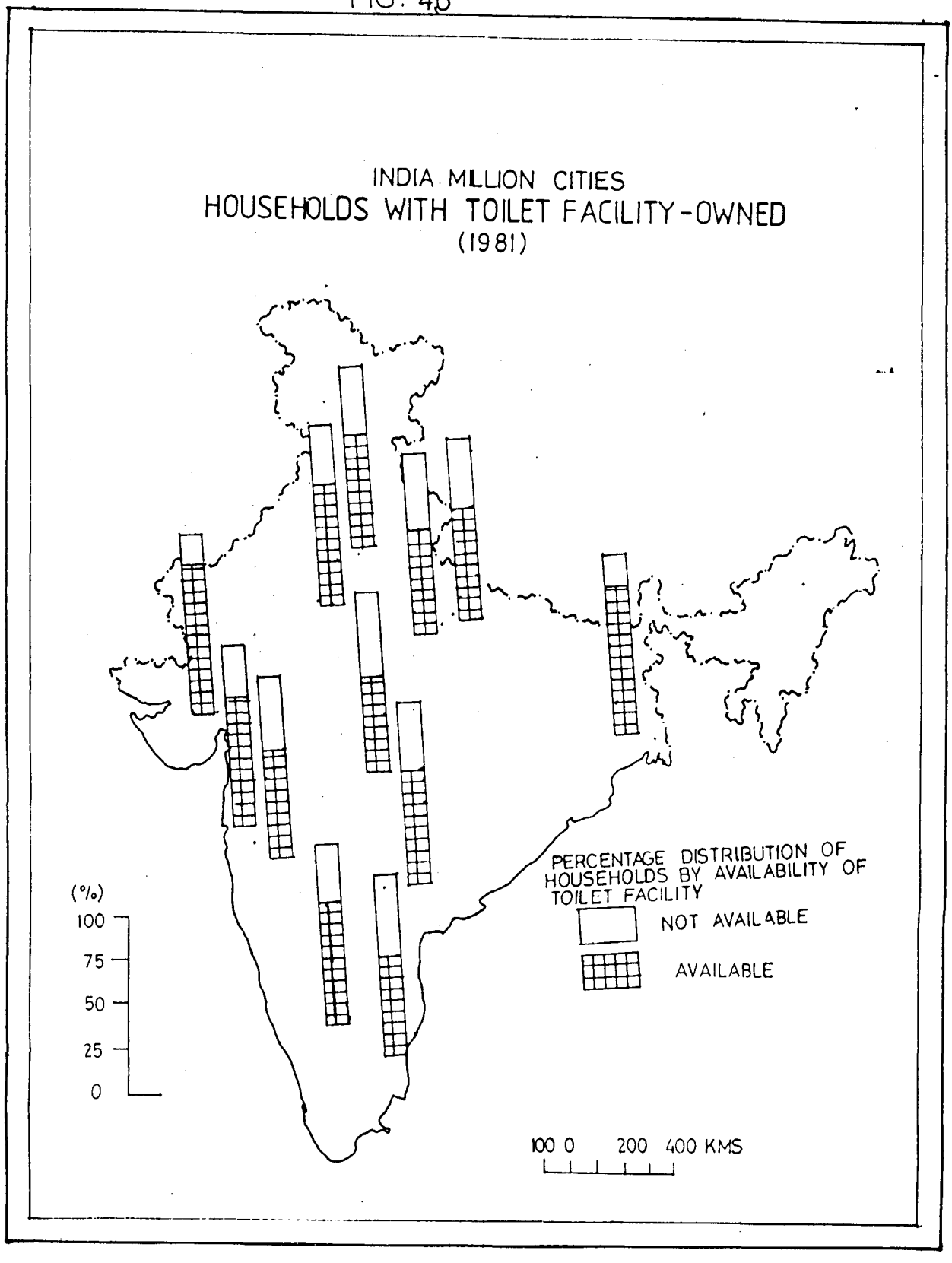
TABLE 4.11

PERCENTAGE DISTRIBUTION OF HOUSEHOLDS HAVING ACCESS TO TOILET FACILITY LIVING IN THEIR OWN HOUSES - 1981

City	Toilet Facility	
	Available	Not Available
Calcutta	83.43	16.56
Bombay	70.69	29.30
Delhi	61.98	38.01
Madras	54.96	45.03
Bangalore	66.72	33.27
Ahemdabad	82.05	17.94
Hyderabad	63.51	36.48
Pune	60.90	39.09
Kanpur	57.44	42.55
Nagpur	53.35	46.64
Jaipur	66.28	33.71
Lucknow	63.40	36.59
'Million Cities'	65.39	34.61
India	51.14	48.85

Calcutta have the highest percentage of its households living in their own houses having access to toilet facilities (as much as 83.43 per cent). Ahemdabad also have a high of 82.05 per cent of its households living in owned houses having access to toilet

FIG. 46


INDIA MILLION CITIES
HOUSEHOLDS WITH TOILET FACILITY-OWNED
(1981)
PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY AVAILABILITY OF TOILET FACILITY
NOT AVAILABLE
AVAILABLE
(%)
100
75
50
25
0
100 0 200 400 KMS

facilities. Though Bombay, Bangalore, and Jaipur are far below these two cities in percentage but still they have a higher percentage of households (own houses) having access to toilet facilities as compared to 'million cities' average. Bombay have 70.69 per cent followed by Banglore having 66.72 per cent and Jaipur having 66.28 per cent.

Nagpur's situation is the worst with 46.64 per cent of households not having access to toilet facilities who are living in their own houses. About 45 and 42 per cent of households living in own houses in Madras and Kanpur also did not have access to toilet facilities. Other cities having lower percentage than the 'million cities' average are Pune (60.90 per cent), Delhi (61.98 per cent), Lucknow (63.40 per cent), and Hyderabad (63.51 per cent). (Figure 4.6).

Percentage Distribution of Households Having Access to Toilet Facilities Living in Rented Houses :

About two-third of urban households living in rented houses in India have access to toilet facilities as per the Table 4.12. Percentage of 'million cities' is much higher comparatively as about 74.90 per cent of households living in rented houses having access to toilet facilities.

TABLE 4.12

PERCENTAGE DISTRIBUTION OF HOUSEHOLDS HAVING ACCESS TO TOILET FACILITY LIVING IN RENTED HOUSES - 1981

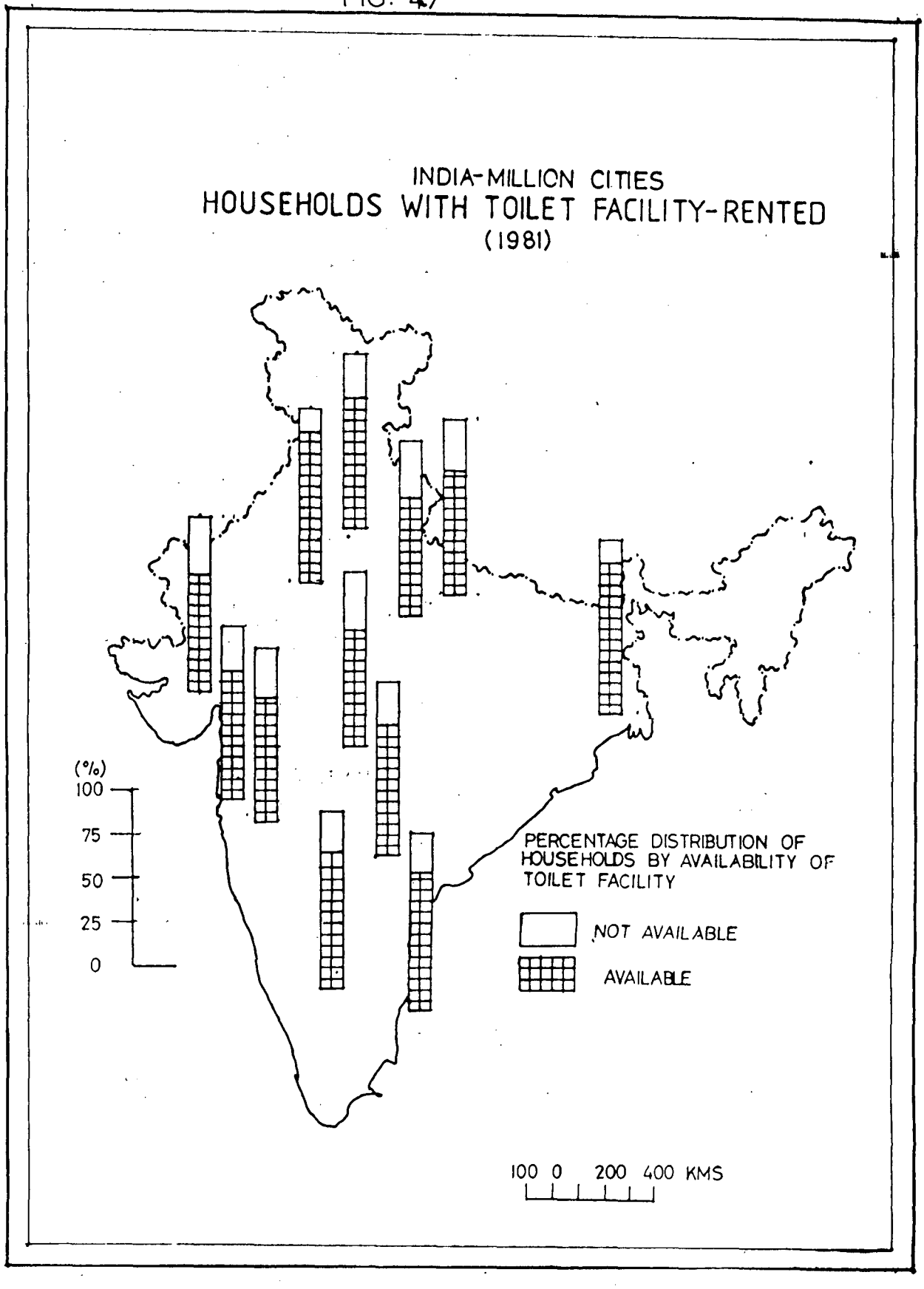
City	Toilet Facility	
	Available	Not Available
Calcutta	87.57	12.42
Bombay	75.11	24.88
Delhi	74.36	25.63
Madras	78.58	21.41
Banglore	77.83	22.16
Ahemdabad	67.70	32.29
Hyderabad	74.52	25.47
Pune	72.30	27.69
Kanpur	66.48	33.51
Nagpur	66.88	33.11
Jaipur	87.58	12.41
Lucknow	70.04	29.95
'Million Cities'	74.90	25.10
India	66.20	33.79

Maximum toilet facilities are being availed by the households living in rented houses in Jaipur and Calcutta as 87.58 and 87.57 per cent of household living

in rented houses respectively have access to toilet facilities. Madras, whose situation was very bad in the case of owned houses have much better condition of toilet facilities for households living in rented houses as about 78.58 per cent (compared to 54.96 per cent of owned houses) have access to toilet facilities. Others faring better than the 'million cities' average are Bangalore (77.83 per cent) and Bombay (75.11 per cent).

Among the cities having a low percentage, Ahemdabad is the city which had much better percentage in owned houses category (82.05 per cent) but for households living in rented houses only 67.70 per cent have access to toilet facilities which is among the lowest. The reason cannot be known unless some primary studies are done on it. Cities having lower percentage of its households living in rented houses having access to toilet facilities than the 'million cities' average are - Hyderabad (74.52 per cent), Delhi (74.36 per cent), Pune (72.30 per cent), Lucknow (70.04 per cent), Nagpur (66.88 per cent), and Kanpur (66.48 per cent). (Figure 4.7).

FIG. 47


INDIA-MILLION CITIES
HOUSEHOLDS WITH TOILET FACILITY-RENTED
(1981)
(%)
100
75
50
25
0
PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY AVAILABILITY OF TOILET FACILITY
NOT AVAILABLE
AVAILABLE
100 0 200 400 KMS

Percentage Distribution of Households Having Access to Toilet Facilities by Tenure Status : A Comparison :

TABLE 4.13

PERCENTAGE DISTRIBUTION OF HOUSEHOLDS HAVING ACCESS TO TOILET FACILITIES BY TENURE STATUS - 1981

City	Toilet Facility	
	Owned House	Rented House
Calcutta	83.43	87.57
Bombay	70.69	75.11
Delhi	61.98	74.36
Madras	54.96	78.58
Bangalore	66.72	77.83
Ahemdabad	82.05	67.70
Hyderabad	63.51	74.52
Pune	60.90	72.30
Kanpur	57.44	66.48
Nagpur	53.35	66.88
Jaipur	66.28	87.58
Lucknow	63.40	70.04
'Million Cities'	65.39	74.90
India	51.14	66.20

It is clear from Table 4.13 that in India as a whole as well as 'million cities' of India households living in rented houses have better and more access to toilet facilities vis-a-vis households living in their own houses.

The same is true for all the 'million cities' individually, except Ahemdabad. Ahemdabad is the only city where households living in owned houses have better toilet facilities than the households living in rented houses.

The better condition of households living in rented houses can be explained as a preference by people who are living in rented houses for better amenities like toilet facilities as most of them are in higher income group. As against this people living in their own houses - whether they have toilet facility or not - they have to live in that very house (a household not owning a house may move to different place in a city in search of better amenities) due to several financial and other compulsions as a major proportion of owners are from poor income group category.

SUMMARY :

This chaper focussed on the availability of three basic amenities viz. drinking water, electricity, and toilet facilities.

These amenities are very essential from the point of prevention of communicable diseases as well as for the cleanliness and general comfort of the occupants.

It has been found that though less percentage of households living in 'million cities' consume unprotected drinking water(as compared to situation in urban India) still the condition is not satisfactory as out of about 83 per cent who consume protected drinking water more than 29 per cent have to fetch it from outside the premises of their houses. Madras has an alarming situation in respect of provision of protected drinking water and needs some programmes on war footing by the government to remove this situation. Likewise much remains to be desired in the cities of Nagpur, Hyderabad, Kanpur and Bangalore. Situation is comparatively much better in cities of Delhi, Ahemdabad, Bombay and Pune where less than 7 per cent of households consume unprotected drinking water. Though in Calcutta 86.47 per cent of households use protected drinking water but half of them have to go outside their premises to fetch it. Likewise Pune, Bombay and Bangalore have a large share of its households fetching water from outside their houses.

In the case of provision of electricity it has been noted that more than 71 per cent of the total

households have access to electricity in 'million cities'. There is no great variation within the cities and the range varies from 62 per cent to 78 per cent. Comparatively situation is bad in Calcutta, Madras, Kanpur and Lucknow and better in Jaipur, Bombay, Ahemdabad and Delhi. No regional influences, city size or level of industrialization have a very direct effect on the distribution of electricity to the households, as is evident from the data. In the case of households living in owned houses having access to electricity. Ahemdabad, Bombay, and Jaipur have comparatively better situation. Kanpur and Madras have the worst condition. Overall 66 per cent of households living in owned houses have access to electricity. As against this in the case of households living in rented houses it has been found that 74.53 per cent have access to electricity with Jaipur, Bombay, Pune and Delhi having more than 80 per cent while Calcutta has the lowest percentage (64.88%). Situation by tenure status of the houses occupied points to the fact that households living in rented houses have more access to electricity than those living in their own houses, only exception being Ahemdabad where the reverse is true.

In the case of toilet facilities it has been found that about 30 per cent of the households in million cities do not have access to toilet facilities. Worst situation is in Nagpur, Kanpur, Lucknow, and Delhi and cities of Calcutta, Bombay, Jaipur, Bangalore and Ahemdabad have better situation. Slum households have a very pathetic condition as very less to almost negligible percentage of their households have access to electricity. Only 65 per cent of households living in their own houses have access to toilet facilities showing the poor housing standards. Situation is alarming in Madras, Nagpur, Kanpur and Pune where more than 40 per cent do not have access to toilet facilities. Calcutta and Ahemdabad only have more than 80 per cent of their households owning houses having access to toilet facilities. In the case of households living in rented houses more than 74 per cent have access to toilet facilities. Situation is comparatively better in Jaipur and Calcutta where more than 87 per cent of their households have access to toilet facilities. Comparatively satisfactory conditions exist in Madras, Bangalore, Bombay, Delhi and Pune. Immediate attention is required in rest of the cities. It has been found that like in

the case of electricity facility here also condition of households living in rented houses is better compared to those living in owned houses, again only exception being Ahemdabad proving the hypothesis wrong.

CHAPTER V

CONCLUSION

The present study have been done to examine the quality of housing and household amenities with the help of city-wise data for the cities of India having a population of a million or more. Only secondary data was relied upon for the present study.

In this study "household" is considered as the unit of analysis housing stock is categorised as Kutcha, Semi-Pucca I, Semi-Pucca II, and Pucca based on the materials used for the construction of wall, roof, and floor of a house.

The extent of crowding is analysed in this study by finding out number of persons in a room.

Household amenities taken into consideration are:

a) Drinking water by its location and source;

b) Availability of electricity by tenure status; and

c) Availability of toilet facility by tenure status.

Following are the main findings of the study:-

1) A majority of the households in the 'million cities' are living in pucca houses (5 5 per cent) followed by semi-pucca and kutcha houses. Quality of houses as per the material used for the construction of wall, roof, and floor is the worst in Nagpur and Pune followed by Madras and Hyderabad. Situation is comparatively better in Delhi, Jaipur, Calcutta, Bombay and Bangalore.

2) Cities in the north have better quality of houses (pucca) vis-a-vis houses of the south. More households in cities of Delhi, Jaipur, Lucknow and Kanpur reside in pucca houses than those residing in cities of Nagpur, Pune, Hyderabad, Ahemdabad, Bangalore, etc.

3) A large percentage of data is not explained rendering the data for several cities unreliable for classification of households by the type of houses. This is so due to the fact that in all the categories of wall, roof, and floor a huge percentage is placed in 'others' category in the census data which cannot be put in either of the kutcha, semi-pucca or pucca categories.

4) The situation is very grave as far as density of persons per room or the extent of crowding is concerned in all the cities of the present study as more than half of the households dwell in extremely congested conditions (in 3-4 and 4 and above persons per room categories) as against only 3.04 per cent of households living as less than one person per room. Situation is very grim in Bombay, Pune, Calcutta, Delhi, Kanpur, and Nagpur. Comparatively Madras, Lucknow, Jaipur, and Hyderabad have lesser density and hence better living conditions.

It has been noted that high density of population per room effects the quality of housing adversely. Higher the density lower will be the quality and vice-versa.

5) Only 54 per cent of the households avail protected drinking water within premises. A significant proportion (39.0 per cent) of the households have to go outside their premises to fetch either protected or unprotected drinking water.

Situation is better in Delhi, Ahemdabad, Bombay and Pune as more households have get protected drinking water. Situation is alarming in Madras where 31.84 per cent of the households consume unprotected drinking water. Conditions are also bad in Nagpur, Hyderabad, Kanpur and Bangalore.

6) In the case of availability of electricity it has been noted that 71.0 per cent of the total households have access to this amenity. Situation is bad in Calcutta, Madras, Kanpur, and Lucknow vis-a-vis Jaipur, Bombay, Ahemdabad, and Delhi.

7) No regional influence, city size or level of industrialization seems to have a direct effect on the distribution of electricity.

8) In the case of households living in owned houses (tenure status) situation is better in Ahemdabad, Bombay

and Jaipur whereas Kanpur and Madras have worst conditions. Overall 66 per cent of the households living in owned houses have access to electricity.

9) About 74.53 per cent of the households living in rented houses have access to electricity. Jaipur, Bombay, Pune, and Delhi have more than 80 per cent of their households living in rented houses availing electricity while Calcutta has the lowest percentage (64.88).

10) It has been found that households living in rented houses have more access to electricity vis-a-vis households living in owned houses pointing thereby the preference for more and better amenities for their living by households living in rented houses. Only exception to this case is Ahemdabad where the reverse is true.

11) A significant proportion (30.0%) of the households do not have access to toilet facilities. Situation is shocking in the case of Nagpur, Kanpur, Lucknow, and Delhi as between 31 to 40 per cent of their households do not have toilet facility (may be due to a huge rural immigration to these cities) though cities of Calcutta, Bombay, Jaipur, Bangalore and Ahemdabad have comparatively better conditions.

12) Only 65 per cent of the households living in their own houses can avail toilet facilities. Worst situation is in Madras, Nagpur, Kanpur, and Pune where more than 40 per cent do not have access to this amenity. Calcutta and Ahemdabad have the best conditions.

13) In the case of households living in rented houses 74 per cent have access to toilet facilities. Conditions are better in Jaipur and Calcutta but comparatively bad in Nagpur, Kanpur, and Ahemdabad.

14) Households living in rented houses have more access to toilet facilities compared to the households living in owned houses again the only exception coming to notice is Ahemdabad.

15) In four of the five variables - type of houses, drinking water, toilet facility, and electricity - the condition of households is much better in 'million cities' than the households living in other cities of India. Only in the case of density of persons per room, it has been found that the 'million cities' are more crowded than the other urban areas of India proving the hypothesis correct.

16) If the five variables in the study are jointly taken into consideration quality of housing is found to be in the following descending order: a) Jaipur, b) Delhi, c) Ahemdabad, d) Calcutta, Bombay, Bangalore, and Lucknow,

e) Hyderabad and Pune, f) Madras, g) Kanpur, and h) Nagpur.

17) The hypothesis that larger the population size of a city higher will be the percentage of households living in pucca houses is correct to some extent but Jaipur, Lucknow and Kanpur defy this hypothesis.

18) The hypothesis that density will be more in larger cities also does not hold good as no such pattern have been observed.

19) The hypothesis that higher the percentage of households living in pucca houses, higher will be the availability of electricity has also not proved itself in this study.

20) The hypothesis stands invalid that households living in owned houses have better amenities vis-a-vis households living in rented houses as it has been found that just the opposite of this hypothesis is true, only exception being Ahemdabad.

21) The hypothesis that 'million cities' have better housing quality vis-a-vis other urban areas of India holds good in four of the five variables, notable exception being the case of density of persons per room where the situation in 'million cities' is comparatively bad.

22) The hypothesis that in 'million cities' households enjoy more pucca houses but also more congested conditions vis-a-vis other urban areas has been found correct.

SUGGESTIONS :

The following few suggestions may be put forward to improve the quality of housing in the metropolitan cities of India.

1) As it has been found that still quite a big percentage of households still live in kutcha and semi-pucca houses, the authorities should provide pucca building material at concessional rates especially to economically weaker sections of the society.

2) As most of the money is spent on buying land due to spiralling prices, the money spent on construction work with most of the people is meagre. Hence it is suggested that the land prices should be checked.

3) As it is estimated that the total shortage of houses (leading to congestion) in the country in 1981 was of the order of 23.3 million units which would increase to 41 million by 2001, as per National Buildings Organisation projections, it asks for drastic changes in the role of government and its agencies especially in the big cities. Private and co-operative sectors have a vast potential to mobilise resources and initiative of the individual households to build houses for themselves which should be tapped.

4) As the congestion in 'million cities' is a direct result of the magnetic effect which they have on their hinterland due to the job opportunities, there should be a process of decentralisation. More and more small scale and cottage industries should be set up in rural and backward areas to check the huge immigration to these big cities. Moreover, more job opportunities should be provided in smaller towns and cities which will ease the housing situation to quite some extent.

5) As has been found by experience, - unprotected drinking water, lack of toilet and sewerage system and electricity and other amenities leads to serious epidemics in the metropolitan cities, a commitment is required at the local level to provide infrastructural services and amenities without which improvement in the condition of housing would not be possible. Areas which fall below a desired level of livability should be marked and programmes should be implemented to overcome these problems. It is the duty of local administration to provide basic amenities.

6) As yet only the basic amenities like drinking water, toilet facility and electricity have been given some attention. Now there is need to look into the aspects like proper ventilation in the houses, and green belts in

the localities which are very essential for providing clean air to its citizens.

7) As the cost of doing all these above mentioned works are usually well beyond the means of owners and tenants themselves, it is only possible if the state supports and promotes improvement programmes and if the results are to be achieved then all government and other agencies will have to work in close co-operation.

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APPENDICES

APPENDIX I

CENSUS OF INDIA 1981 | **HOUSEHOLD SCHEDULE** | Book No. _____ **CONFIDENTIAL**

Part I Household Particulars | Form No. _____

Location Code _____ Serial number of household (Col. 7 of abridged houselist) _____ Type of household, whether institutional or houseless _____

1. Name of head of household _____
2. Religion of the head of household _____
**3. Whether head of household belongs to S.C. or S.T. If scheduled caste write (1)/If scheduled tribe write (2) _____
4. Name of caste/tribe of head of household _____
5. Language mainly spoken in the household _____
6. Does the household live in owned house ? Yes (1)/No (2) _____
7. If 'No' in 6 does the household own a house or house site in the village or town of enumeration ? Yes (1)/No (2) _____
8. Predominant construction material of the house occupied by household :

(a) WALL — Grass, leaves, reeds or bamboo (1) | Mud (2) | Unburnt bricks (3) | Wood (4) | Burnt bricks (5) | G.I. sheets or other metal sheets (6) | Stone (7) | Cement concrete (8) | Ekra (9) | Others (0) _____

(b) ROOF — Grass, leaves, reeds, thatch, wood, mud, unburnt bricks or bamboo (1) | Tiles, slate or shingle (2) | Corrugated iron, zinc or other metal sheets (3) | Asbestos cement sheets (4) | Brick, stone and lime (5) | Stone (6) | Concrete P.B.C., R.C.C. (7) | Others (8) _____

(c) FLOOR — Mud (1) | Wood/planks (2) | Bamboo or logs (3) | Brick, stone and lime (4) | Cement (5) | Mosaic/tiles (6) | Others (7) _____

9. FACILITIES AVAILABLE TO THE HOUSEHOLD :

(a) Drinking water supply (i) Source : Well (1) | Tap (2) | Hand pump/tube well (3) | River/canal (4) | Tank (5) | Others (6) _____

(ii) Within premises (1)/Outside premises (2) _____

(b) Electricity : Yes (1)/No (2) _____ : (c) Toilet (for Urban areas only) Yes (1)/No (2) _____

10. Number of living rooms in occupation of household _____
11. Number of married couples usually living in the household _____
12. Does the household cultivate land ? Yes (1)/No (2) _____ 13. If 'Yes' in 12, category — Owned (1) | Rented (2) | Owned and rented (3) _____
14. If Rented, enter local name of tenancy _____
15. Total population of the household (Total of Col. 2 of part II Population Record) _____

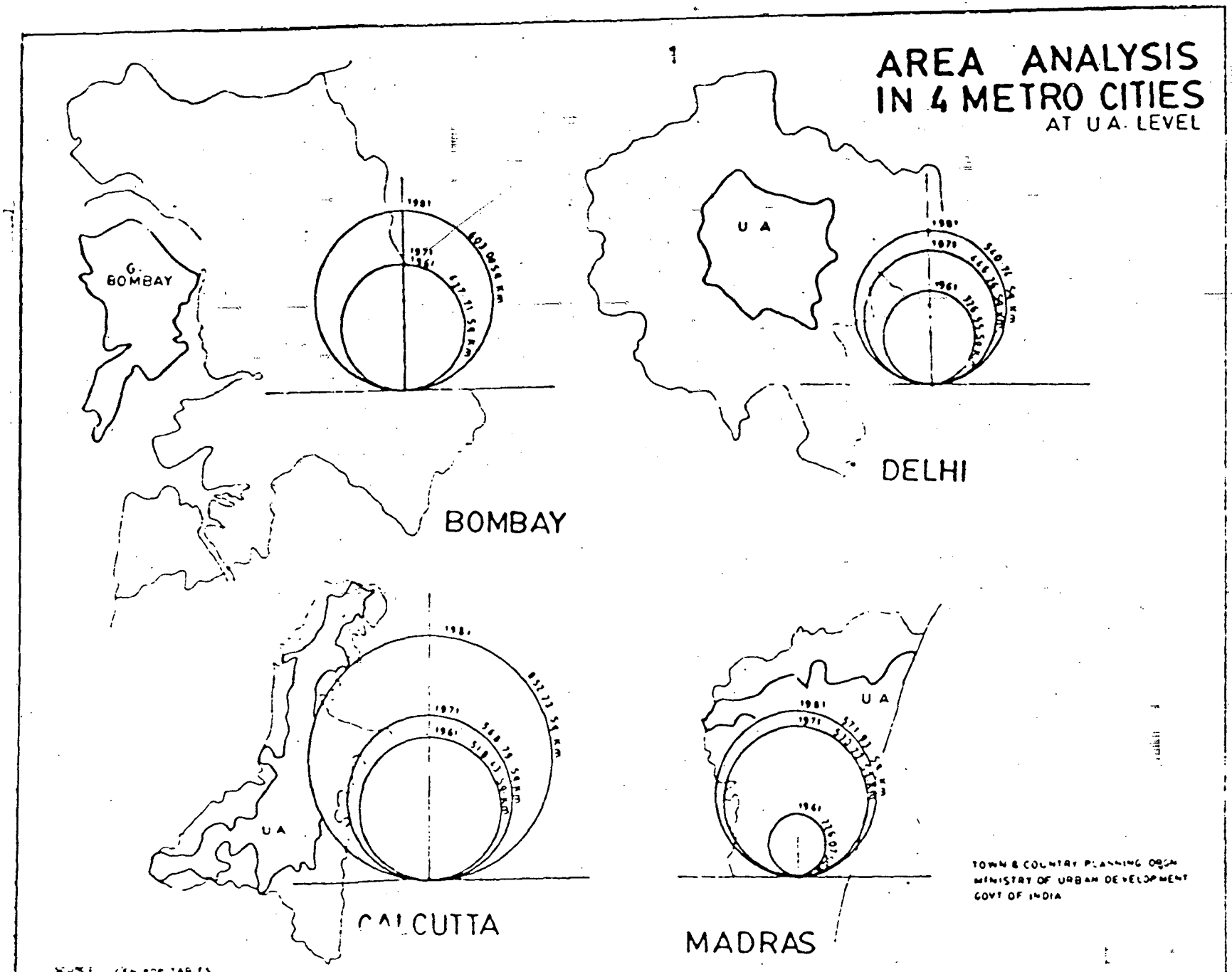
---

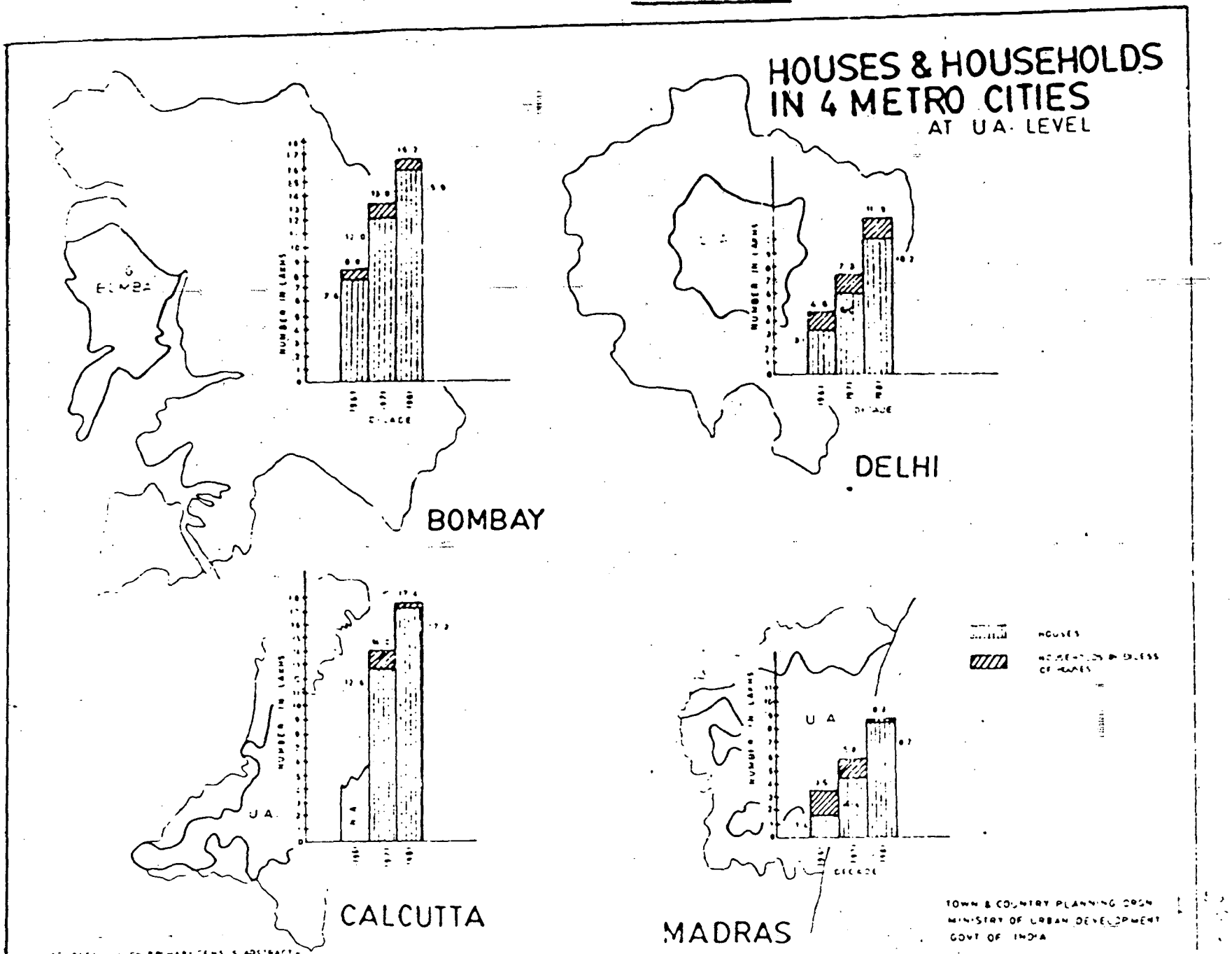
*For institutional write '1', for houseless write '0'

** Consult list supplied to you. If not belonging to S.C./S.T., put cross (×) in the box.

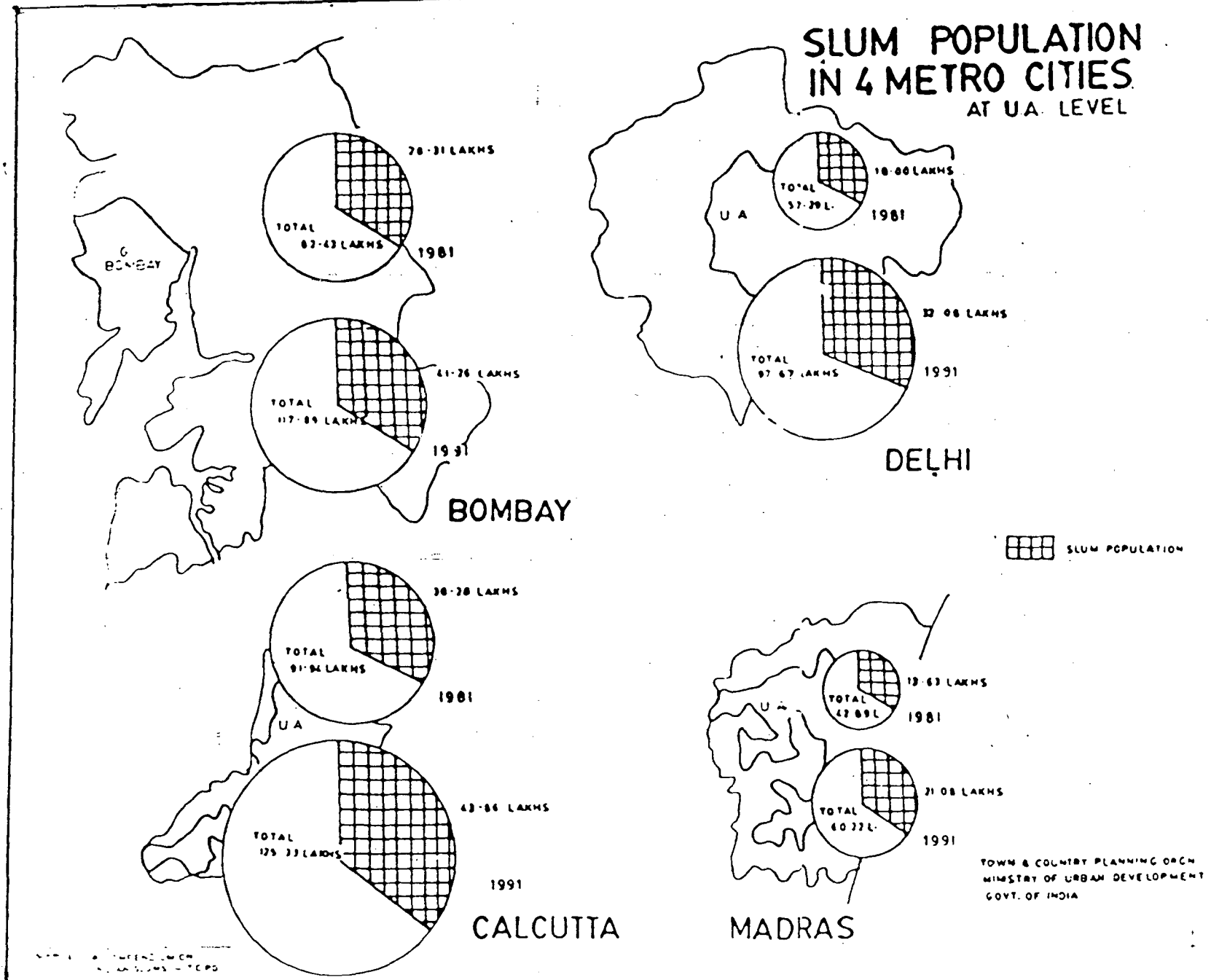
222

APPENDIX II


AREA ANALYSIS
IN 4 METRO CITIES
AT U.A. LEVEL
G. BOMBAY
1981
1971
1961
BOMBAY
U A
DELHI
U A
CALCUTTA
U A
MADRAS
TOWN & COUNTRY PLANNING ORGN.
MINISTRY OF URBAN DEVELOPMENT
GOVT OF INDIA

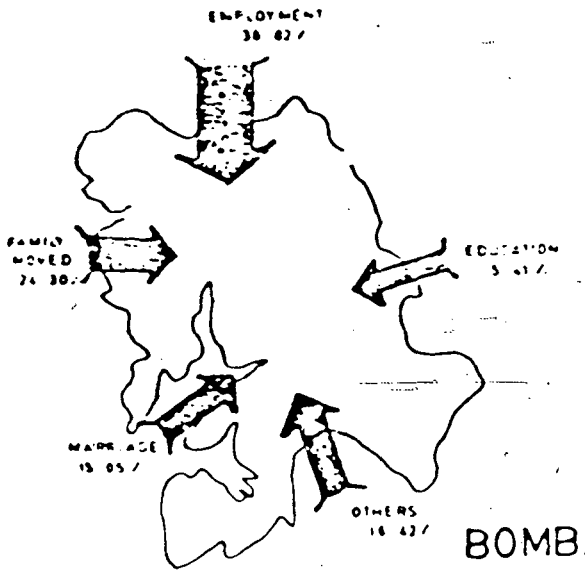

HOUSES & HOUSEHOLDS
IN 4 METRO CITIES
AT U.A. LEVEL
BOMBAY
DELHI
CALCUTTA
MADRAS
HOUSES
TOWN & COUNTRY PLANNING ORGN
MINISTRY OF URBAN DEVELOPMENT
GOVT OF INDIA

APPENDIX IV

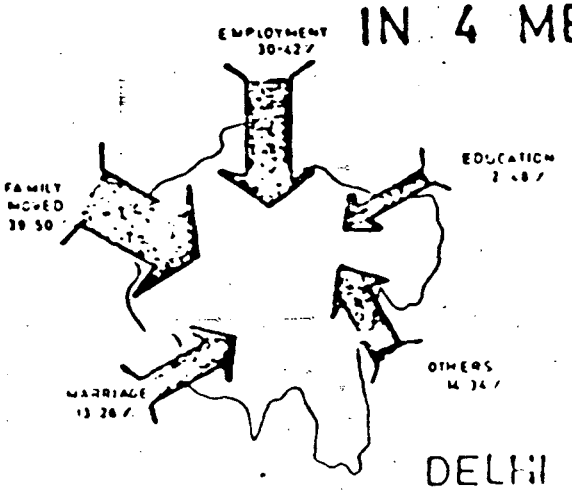

SLUM POPULATION
IN 4 METRO CITIES
AT U.A. LEVEL
BOMBAY
78·31 LAKHS
TOTAL
83·43 LAKHS
1981
41·26 LAKHS
TOTAL
117·89 LAKHS
1991
DELHI
18·00 LAKHS
TOTAL
57·29 L·
U A
1981
32·08 LAKHS
TOTAL
97·67 LAKHS
1991
SLUM POPULATION
CALCUTTA
36·28 LAKHS
TOTAL
91·56 LAKHS
1981
U A
43·66 LAKHS
TOTAL
135·33 LAKHS
1991
MADRAS
13·63 LAKHS
TOTAL
47·89 L
1981
U A
21·08 LAKHS
TOTAL
60·32 L·
1991
TOWN & COUNTRY PLANNING ORGN
MINISTRY OF URBAN DEVELOPMENT
GOVT. OF INDIA

REASONS FOR MIGRATION IN 4 METRO CITIES

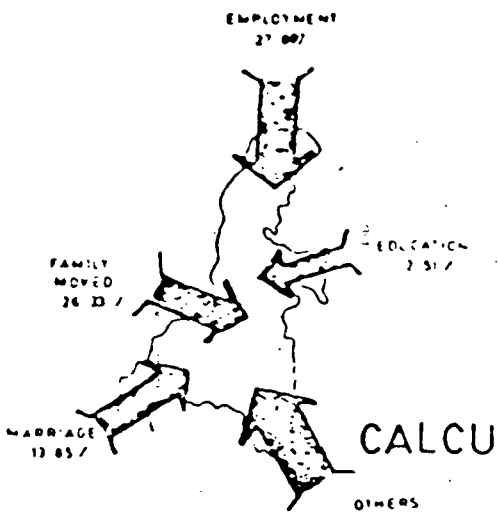
AT U.A. LEVEL



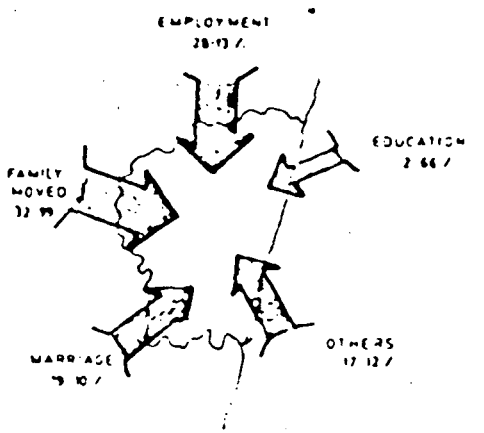
BOMBAY



DELHI



CALCUTTA



MADRAS

TOWN & COUNTRY PLANNING ORGN
MINISTRY OF URBAN DEVELOPMENT
GOVERNMENT OF INDIA

SOURCE CENSUS OF INDIA 1981
STATE MIGRATION TABLES PART V D & D

Appendix :- VI

AREA AND DENSITY OF POPULATION

City	Area (sq.km) 1981	Density per sq km 1961	1971	1981
Calcutta	852.23	11066	12362	10788
Bombay	603.00	9486	13640	13671
Delhi	540.74	7225	8172	10595
Madras	571.93	8601	5972	7500
Banglore	365.65	2407	9466	7991
Ahemdabad	123.88	9735	14058	20568
Hyderabad	220.35	5688	6018	11553
Pune	344.18	2802	3498	4899
Kanpur	298.98	3273	4265	5482
Nagpur	236.93	2893	3929	5496
Jaipur	210.09	3931	2463	4832
Lucknow	145.94	4841	6376	6904
Urban India	525642*	142	177	216*

Source:- Census of India 1961, 1971 and 1981 (General Population Tables)

* Excludes Assam

Appendix :- VII

TOTAL HOUSEHOLDS (1981)

City	Total Households
Calcutta	1751005
Bombay	1617610
Delhi	1140575
Madras	834445
Bangalore	521550
Ahemdabad	471740
Hyderabad	432855
Pune	326645
Kanpur	309405
Nagpur	235425
Jaipur	182800
Lucknow	183385
India	28868830

Source:- Census of India (1981)
India Series - 1
Household Tables, Part VIII A&B.

Appendix :- VIII

INSTITUTIONAL AND HOUSELESS HOUSEHOLDS
(In Percentage) 1981

City	Institutional	Houseless
Calcutta	1.12	1.03
Bombay	0.76	1.55
Delhi	0.17	1.35
Madras	0.10	0.24
Bangalore	0.42	1.09
Ahemadabad	0.05	0.28
Hyderabad	0.13	0.60
Pune	0.35	0.52
Kanpur	0.14	0.05
Nagpur	0.19	0.60
Jaipur	0.18	0.37
Lucknow	0.03	0.42
India	0.42	0.70

Source:- Compiled from Census of India (1981) Series-1, India Household Tables, Part VIII A&B.

Appendix:- IX

WALL ROOF AND FLOOR MATERIAL

A) Wall Materials -

1. Grass, leaves, reeds or bamboo (a)
2. Mud (b)
3. Unburnt Bricks (c)
4. Wood (d)
5. Burnt Bricks (e)
6. G I Sheets or other metal sheets (f)
7. Stone (g)
8. Cement Concrete (h)

B) Roof Materials -

1. Grass leaves, reeds, thatch, wood, mud, unburnt bricks or bamboo (A)
2. Tiles, slate, shingle (B)
3. Corrugated Iron, Zinc or other metal sheets (C)
4. Asbestos cement sheets (D)
5. Bricks, stone and lime (F)
6. Stone (F)
7. Cement RBC/RCC (G)

C) Floor Materials -

1. Mud (I)
2. Wood/Plank (II)
3. Bamboo or logs (III)
4. Brick, stone and lime (IV)
5. Cement (V)
6. Mosaic / Tiles (VI)

Appendix :- X

HOUSE TYPES

House Type	Material of wall	Material of roof	Material of floor
1. Kutcha	a,b	A	I
2. Semi-Pucca-I	a,b	A	II,III
	a,b	A	IV,V,VI
	a,b	C,D	I
	a,b	C,D	II,III
	a,b	B,E,F,G	I
	c,d,f	A	I
	c,d,f	A	II,III
	c,d,f	C, D	I
	e,g,h	A	I
	e,g,h	C,D	II,III
3. Semi-Pucca II	a,b	B,E,F,G	V,VI
	c,d,f	C,D	II,III
	c,d,f	C,D	IV,V,VI
	c,d,f	B,E,F,G	II,III
	e,g,h	A	IV,V,VI
	e,g,h	C,D	I
	e,g,h	C,D	II,III
	e,g,h	B,E,F,G	I
4. Pucca	e,g,h	B,E,F,G	IV,V,VI

Appendix :- XI

ROOM DENSITY

Members	1 Room	2 Rooms	3 Rooms	4 Rooms	5 Rooms	6+rooms
1	a	g	m	s	y	E
2	b	h	n	t	z	F
3	c	i	o	u	A	G
4	d	j	p	v	B	H
5	e	k	q	w	C	I
6+	f	l	r	x	D	J

Less than one person per room - g + m + s + y + E + n + t + z + F + u + A + G + B + H + I

One to Two persons per room - a + h + o + v + C + J + i + p + q + w + x + D

Two to Three persons per room - b + j + k + r

Three to Four Persons per room - c + l

Four and above persons per room - d + e + f

APPENDIX XII

PERCENTAGE OF HOUSEHOLDS HAVING DRINKING WATER BY LOCATION AND SOURCE
1981

City	Well		Tap		Handpump/Tube Well		River/Canal		Tank		Others	
	W.P.	O.P.	W.P.	O.P.	W.P.	O.P.	W.P.	O.P.	W.P.	O.P.	W.P.	O.P.
Calcutta	6.53	1.74	33.12	22.83	9.98	20.54	-	0.13	0.86	1.3	-	2.83
Bombay	1.88	3.25	58.28	33.83	0.10	0.13	-	0.07	0.14	0.24	-	2.02
Delhi	1.83	1.14	51.21	16.92	15.65	11.11	-	0.06	0.11	0.19	-	1.73
Madras	18.32	8.82	31.37	21.19	11.72	3.85	-	0.04	0.12	0.35	-	4.16
Bangalore	7.65	12.68	43.54	32.56	0.12	0.98	-	0.02	0.05	0.15	-	2.20
Ahemdabad	1.96	0.84	66.86	24.50	1.18	1.87	-	0.11	0.03	0.12	-	2.46
Hyderabad	11.04	8.48	49.33	23.92	0.28	1.41	-	0.30	0.05	0.10	-	5.04
Pune	2.41	2.04	55.37	37.93	0.08	0.11	-	0.76	0.01	0.02	-	1.22
Kanpur	6.10	13.80	48.31	22.10	4.02	2.67	-	0.33	0.23	1.33	-	1.06
Nagpur	11.45	14.67	43.73	27.23	0.08	0.04	-	0.10	0.03	0.14	-	2.49
Jaipur	3.08	5.51	66.88	20.16	0.44	0.43	-	0.13	0.06	0.25	-	2.99
Lucknow	6.10	9.40	52.57	21.19	5.61	1.65	-	0.51	0.28	1.40	-	1.24
'Million Cities'	6.09	4.86	47.17	25.43	6.04	6.88	-	0.14	0.27	0.53	-	2.53
India	8.95	11.44	36.09	27.14	6.90	4.92	0.002	0.73	0.21	0.64	0.004	2.93

W.P. = Within Premises
O.P. = Outside Premises

Source : Compiled from Census of India, 1981, Household Tables, Part VIII A&B.

Appendix :- XIII

PERCENTAGE OF HOUSEHOLDS BY TENURE STATES OF HOUSE OCCUPIED

	1981		1971	
	% of hh's living in owned houses	% of hh's living in rented houses	Owners	Tenants
Calcutta	38.50	61.49	18.62	81.38
Bombay	38.52	61.47	14.45	85.55
Delhi	51.26	48.73	41.54	58.46
Madras	37.56	62.43	26.77	73.23
Bangalore	35.15	64.84	29.40	70.60
Ahemdabad	43.35	56.64	28.24	71.76
Hyderabad	45.12	54.87	39.65	60.35
Pune	32.59	67.40	19.08	80.92
Kanpur	30.41	69.58	16.90	83.10
Nagpur	51.56	48.43	48.82	51.18
Jaipur	58.68	41.31	54.21	45.79
Lucknow	67.08	32.91	40.29	59.71
Million City	41.60	58.39	23.72	76.28
India	53.50	46.49	47.10	52.90

Source:- Complied from census of India (1981 Hpusehold Tables Part VIII A & B and National Buildings Organisation, New Delhi.

APPENDIX XIV

ESTIMATES/PROJECTIONS OF HOUSING SHORTAGE

(in lakhs)

Particulars	1990			1995			2001		
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
1. No. of House-holds	151.7	115.7	36.0	167.8	127.9	39.90	187.30	142.8	44.5
2. Housing Stock									
a) Pucca	41.2	19.8	21.4	45.1	21.7	23.4	49.8	23.9	25.9
b) Semi-Pucca	46.9	39.2	7.7	51.5	43.0	9.5	56.7	47.1	9.3
c) Serviceable Kutcha	34.9	34.4	0.5	38.2	37.6	0.6	42.4	41.7	0.7
d) Unservice-able Kutcha	15.1	11.9	3.2	16.4	13.0	3.4	18.1	14.3	3.8
Total Housing Stock	139.1	105.3	32.8	151.2	115.3	35.9	167.0	127.3	39.7
3. Usable Housing Stock	122.5	93.4	29.1	134.2	102.3	31.9	148.2	113.0	35.2
4. Housing Shortage (1-3)	29.2	22.3	6.9	33.6	25.6	8.0	39.1	29.8	9.3

1. Housing Stock comprises residences, shop-cum-residences and Workshop-cum-residences including household industry.

2. Figures have been estimated by applying decential growth rate for households, housing stock etc.

3. Projections are based on the assumption that every household whether in the urban or rural areas should have a housing unit of itself.

Source : National Building Organisations, New Delhi.