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## AN ENUMERATION AND MAPPING OF SLUMS IN ALIGARH CITY

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### Abstract

*In this paper an attempt has been made to prepare a working definition of slums and on that basis slums were enumerated and mapped. The problem of slums has become so massive and vital not only in large / metropolitan cities, but also in small / medium sized cities that it has attracted the attention of social scientists, researchers and local authorities. For this reason Aligarh, a medium sized city located in the fertile Gangetic tract was selected as study area. On the basis of working definition prepared by the researchers, 77 slum spots (having 5 and > 5 households) located within the city municipal boundary were identified and mapped. This was the first map of its kind showing the distribution of slums in Aligarh city. Further in-depth investigations were carried out to collect information regarding the place of location, ownership of land, duration, area, population and number of households living in the slums. The result shows that enumeration and mapping of slums provided the information base for slum up-gradation programmes.*

### Introduction

'Slum is a dirty and overcrowded area of a city or town inhabited by poor people' (Oxford Dictionary, 2005). Twentieth century urbanization has brought in its wake an alarming, inevitable and persistent problem of 'slums'. India is urbanizing very fast and this has caused burgeoning of slums. With over 1 billion population, India will have 41 per cent of its population living in cities and towns by 2021 from the present level of 28 per cent (Census of India, 2001). The slum population will also constantly increase from 40 million in 2001 to 90.06 million in 2011 and 140 million by 2021. About 640 towns spreading over 26 states and union territories reported the existence of slums. This means that one out of

four persons resides in slums in our cities and towns (Singh, 2010).

Slums mostly originate because of poverty, social backwardness and unemployment of people living in the countryside who subsequently move to urban areas without any other option. Due to unfavorable conditions in the countryside like droughts and floods, little to earn their livelihoods, the people living in the countryside are left with no other option than to move towards urban areas with the main objective of eking out their livelihoods. So these poor migrants continuously keep on pouring in the cities and they occupy unauthorized, unhealthy, substandard vacant lands lacking in basic amenities, for living called 'slums'. On the



positive side, slums are the first stopping point for poor migrants because they provide low cost affordable housing.

In India, the slums initially sprouted forth in the metropolis cities like Calcutta, Bombay, Madras and Delhi, which attracted the rural migrants in ever increasing numbers. The *bustees* in Kolkata, *jhoad-patties* in Mumbai, *cherries* in Chennai and *jhuggi-jhomparies* in Delhi have become part of our cities and these threaten to remain with us for a long time to come (Maurya, 1989). Slums are prevalent in almost all the urban areas but their form and type varies. The problem of slums has become so massive and vital not only in large metropolitan cities but it has also seeped into small and medium sized cities and has attracted the attention of social scientists, researchers and local authorities due to the substandard conditions prevailing in the slums. Since, not much work has been done on the slums in small / medium sized cities and there is hardly any census/municipal data available on it, the first step would be to prepare a working definition of slums and then enumerate and map the distribution of slums which will provide the information base for slum up-gradation programmes. The Census of India, 2001 adopted the criteria that slum areas were those having at least 300 population or about 60-70 household clusters. This definition is mainly applicable in large/mega cities like Lucknow, Kanpur, Delhi etc. Therefore there is a need to prepare a working definition of slums for small/medium sized cities. Keeping these aspects in mind, Aligarh (27°53'N latitudes and 78°4'E longitudes), a medium sized city (44.82 sq. km. area, 0.7 millions population (Aligarh Nagar Nigam, 2009), located in the fertile tract of upper Ganga – Ymuna *doab*, about 130 km away from New Delhi was selected for this study.

### Database and Methodology

The study is mainly based on primary sources of data which have been collected from extensive field / slum spot surveys with the help of questionnaire and interviews. The following methods have been used:

- A working definition of slums for Aligarh city was prepared with the help of internationally accepted definitions and definitions adopted by various studies conducted for different Indian cities as well as field / slum spot surveys conducted for Aligarh city.
- On the basis of the working definition, city surveys were conducted to identify and map the slum spots.
- In-depth investigations were also conducted to examine their place of location, ownership of land on which these were located, duration of existence, areal extent, population and number of households living. The total sample size consisted of 1,140 slum households. Field work was conducted during the years 2009 and 2010.

### Discussion and Results

The population of Aligarh city is estimated to grow from the present 0.7 million (2001) to 0.9 million by 2011 and more than 1 million by 2021 (Census of India, 2001; ADA Master Plan, 2021). The annual growth rate is estimated to be 4 per cent of which, 1.8 per cent is natural growth and 2.2 per cent is migratory growth. The increase in city's population has been attributed less to natural increase and more to the migration of people from rural areas (Goi and Koi, 2008) This shows that migrants will keep on pouring in the city for eking out their livelihoods. The employment opportunities available in the industries and in other manufacturing sectors (small / large scale industrial / manufacturing units like in lock

industries, brass ware, brass and zinc polishing / processing, iron, aluminum, zinc and bronze products etc.), in processing of agricultural produce (flour milling, food processing, fruit and vegetable preservation, processing raw cotton, processing milk / butter etc.) and in constructional activities (in construction of buildings, apartments, malls, roads, etc.) have increased the requirement of skilled / unskilled labourers and construction workers many folds. The migrants are absorbed in these sectors. Being poor and having come to the city in search of employment, they go on putting some small, cheap and ugly sheds on land not belonging to them to get shelter from sun, rain and cold and make a place for sleeping and cooking. As the population increases the cluster of *jhuggi-jhoparies* also expands. Thus, slum formation will continue and the slum population will keep on growing as migration from the countryside, neighbouring districts and states is a continuous process and it cannot be stopped.

In this context, the first step should be to prepare a working definition of slums and then on this basis enumeration and mapping of slums could be done. Enumeration is an essential part of any slum upgradation programme especially when there are no official data or maps available as in the case of Aligarh city. The enumeration seeks to provide basic information of the slums about their place of location, ownership of land on which these are located, duration of existence, size, population and number of households living there etc. The enumeration also provides detailed data on existing infrastructure and services. The planning of slum area could not be started without this basic information.

### **Preparation of a Working Definition of Slums**

The concept of slums and its

identification varies from country to country depending on the socio-economic condition of each society. So it is very essential that a working definition of slums should be prepared. For this, the researchers reviewed and examined the various definitions used by international and national studies.

According to USA Housing Act (1949), 'slum may include any predominantly residential area where the dwelling, which by reason of dilapidation, overcrowding, faulty arrangement of designs, lack ventilation, light or sanitary facilities or any combination of these factors which are detrimental to safety, health and morals' (Quoted in Verghese, 1985). According to UN experts, 'a slum is a contiguous settlement where the inhabitants are characterized as having inadequate housing and basic services. A slum is often not recognized and addressed by the public authorities as an integral part of the city'. Another household level definition given by these experts states that 'a slum household is that which lacks access to improved water, sanitation, security of tenure, durability of housing (including living in a non-hazardous location) and sufficient living area' (UN-HABITAT 2003). According to the Report of United Nations on Urban Land Policy, 'slum is a building, groups of buildings or an area characterized by overcrowding, deterioration in sanitary conditions or absence of facilities which endangers the health, safety or morals of its inhabitants' (Quoted in Rao, and Rao, 1985). Webster's New Dictionary defines slum as, 'a populous area characterized by poverty, poor housing etc.' (Quoted in Singh, and Pother, 1982). According to Gauder, 'a slum is an environment that lacks basic amenities of a good living condition and is regarded as the worst form of human habitation'. According to urban sociologist Cist and Halbert, 'slum is an area of poor houses and poor people. It is an

area of transition and decadence, a disorganized area, occupied by human derelicts and criminals' (Quoted in Mohanty, and Mohanty, 2005).

For the purpose of implementation of the Environment Improvement Programmes for Urban Slums, the Government of India (1985) adopted the following definitions; i) 'a slum means any area where such dwellers predominated which by reason of dilapidation, overcrowding, faulty arrangement of streets, lack of ventilation, light or sanitation facilities, inadequacy of open space and community facilities or any combination of these factors are detrimental to safety, health or morals'; ii) Similarly, Slum Area Improvement and Clearance Act (1956) defines slums as, 'areas where buildings are unfit for human habitation, dilapidation, overcrowding, faulty arrangement and design, narrowness, light, sanitation facilities or any condition of these factors which are detrimental to safety, health and morals'. iii) Census of India 2001, defined 'slum area as a compact area of at least 300 population or about 60-70 households of poorly built, congested tenements in unhygienic environment, usually having inadequate infrastructure and lacking proper sanitary and drinking water facilities'.

To estimate the slums of Madras city, a simple definition was given by the Commissioner of Madras Corporation (1933), 'a slum is taken to mean hutting areas with squalid surroundings. Huts are created in haphazard manner without proper access, minimum basic amenities like water supply and drainage arrangements do not exist in these areas; houses are built up in close proximity not allowing free air to get in. The number of persons living in the slum increases every day without restriction and condition of these areas is worsening day by day. A house where six tenants can live with comfort is occupied by

more than a dozen and this unhealthy and heavy congestion in the streets, houses make the area worse than the hutted slums. So the term 'slum' will also include such dwellings which has overcrowding' (Quoted in Nambiar, 1964). In the absence of any definite norms or legislation in defining the slum areas, the Ahmedabad Municipal Corporation has classified 'certain hutment and substandard housing areas' as slum which were located in various wards of Ahmedabad city (Quoted in Trivedi, 1961).

A socio-economic survey was conducted for the Slum Clearance and Urban Renewal programme in Dhaka city. For the identification of slum (*bustees*) a definition was adopted, '*Bustees* (slum) or an authorized or unorganized area and communities of very high area density (over 300 persons), as well as high room crowding (3 or more adult in a room) and poor housing (generally *shakes*, *kutchas* structure or *semi-pucca* flimsy structure or very old dilapidated buildings). The areas have inadequate water supply, poor sewerage and drainage facilities, little paved streets and lanes and irregular clearance of garbage. *Bustees* are inhabited by very poor people who are mostly engaged in various types of informal sector activities' (Dhaka Municipal Corporation, 1983).

On the basis of definitions adopted by international and national bodies as well as observations by the researchers during field surveys in Aligarh city, a working definition of slum for the present study has been prepared. In this study a slum has been taken as 'an area with dilapidated housing conditions (*kutchas* houses - made of straw, plastic, tin, thatched houses, etc) mostly having single multipurpose room, with no ventilation, inadequate water supply conditions, no latrine facilities, poor sewerage and drainage facilities, overcrowding, piles of garbage, and water logging condition in the neighbourhood, unpaved roads, unsafe

environment affecting the health of slum dwellers'. Thus, the slum clusters with a minimum concentration of at least 5 and > 5 households and satisfying the other criteria of the above definition were included in the inventory of slums.

### Enumeration and Mapping of Slums

On the basis of working definition, field / city surveys were conducted during 2009-10 to enumerate and map the slum spots in Aligarh city. About 77 slum spots (having 5 and > 5 households) lying within the municipal limit of Aligarh city were identified and mapped (Fig. 1). This was the first map of its kind prepared by any body or any team showing the distribution of slums in a medium sized city – Aligarh. The New Delhi- Kanpur railway line divided the city into two parts, the old city (located on the eastern side, it is very congested, developed during the ancient and medieval period) and the new city (located on the western side, developed by the Britishers and is comparatively less congested). Of the 77 slum spots, 40 slum spots (52 per cent) were located in the old city in the 24 wards (namely, Ward No. 1- Indra Nagar Khair Road, 2- Sarai Garhi, 5- Sarai Kaba, 8- Naunar Gate, 10-Delhi Gate, 11- Beema Nagar, 12- Sarai Deen Dayal, 15-

Krishna Nagar, 19- Nai Basti, 23- Kalideh, 25- Sarai Hakim, 26- Sarai Nabab, 27- Kanwariganj, 30-Fire Brigade, 33- Kishore Nagar, 36- Avas Vikas colony, 41- Shiv puri, 42- Vikas Nagar (ADA colony), 47- Asok Nagar, 54- ADA colony, 57-Iglas Road Pumping station, 62- Shah Jamal, 65- Bhujpura, 70- Baniya Para). Nearly 37 slum spots (48 per cent) were located in new city in the 15 wards (namely ward no. 7- Dori Nagar, 17- Chawani, 28- Bhamola, 35- Dhodhpur, 39- Jiwangarh, 40- Badar Bagh, 46- Janakpuri, 49- Lekhraj Nagar, 51- Ghanshyampuri, 52- Firdaus Nagar, 58- Medical college, 60- University Area, 61- Kela Nagar, 66- Sir Syed Nagar, 68- Hamdard Nagar). The 77 slum spots covered 2.86 per cent of the total city area and had 1.88 per cent of the total city population (Table 1).

An in-depth investigation of the identified 77 slum spots provided detailed information regarding their place of location, ownership of land, duration of existence, size, population and number of households living in the slums.

It was observed that when migrants came to the city they created a new type of settlement either in the built up areas or they settled in open / vacant areas, along the railway

**Table 1**  
**Aligarh City: Location of Slums (2009-10)**

Slum Spots	Profile of Identified Slums		
	Old city	New city	City
Number	40 (51.95)	37 (48.05)	77 (100)
No. of Wards having Slums	24 (61.54)	15 (38.46)	39 (100)
Area (10 <sup>3</sup> ×m <sup>2</sup> )	706 (55.07)	576 (44.93)	1282 (2.86)*
Population	8,666 (68.93)	3,906 (31.07)	12,572 (1.88)*

Note: Figure in bracket indicates percentages

\* Percentages to the total city area i.e. 44820×10<sup>3</sup> (m<sup>2</sup>) and population (0.7 million)

Source: Aligarh Municipal Corporation, Aligarh, 2001

Aligarh Development Authority, Aligarh, 2001

Based on Field Survey, 2009-10



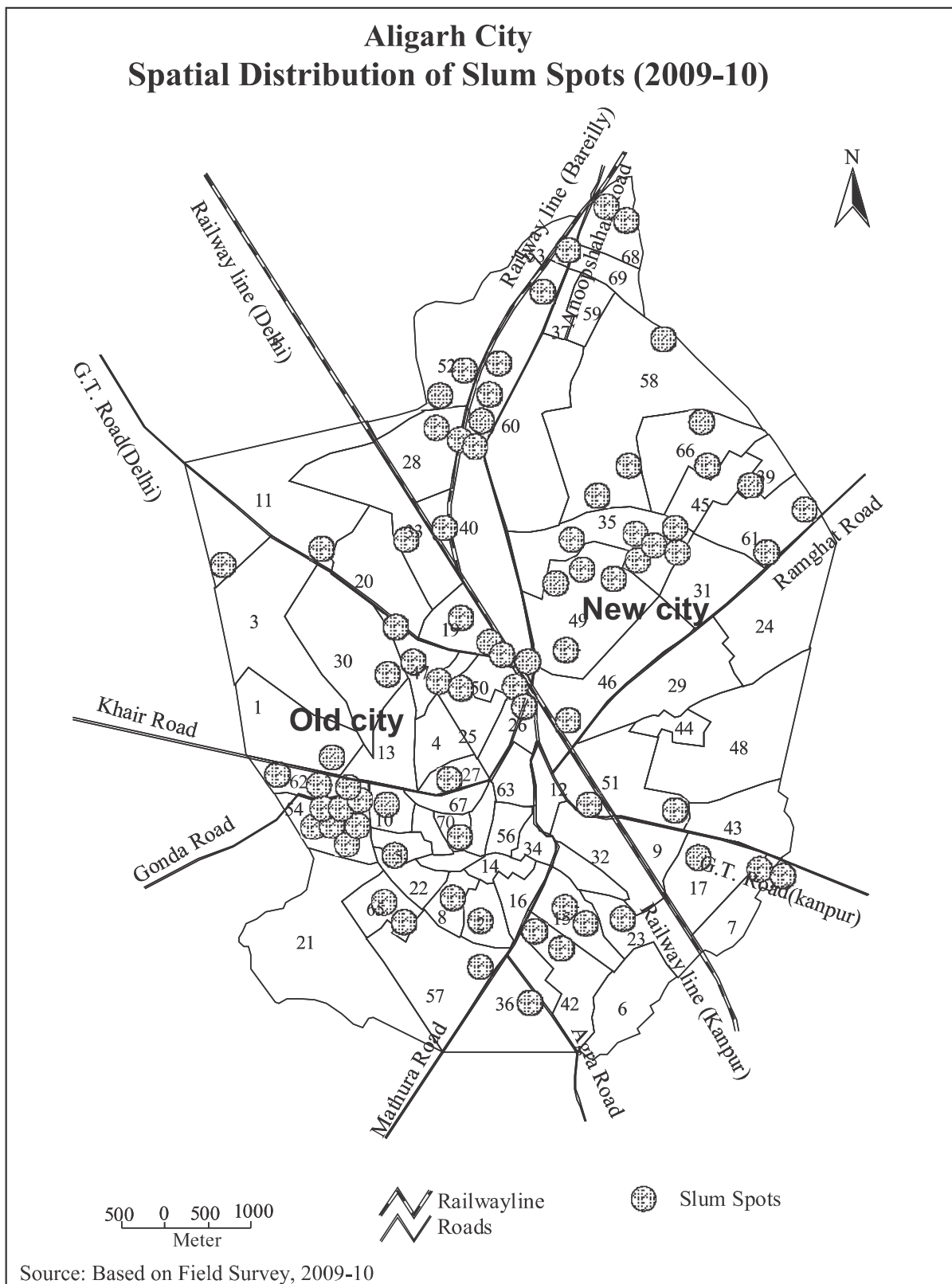


Fig. 1

line, along the roads, in open spaces and in market areas, etc. in and around the municipal boundary. Field surveys revealed that slums in Aligarh city are mostly located along the roads (43 per cent), in the residential areas (22 per cent), in other places (like in vacant plots, open

fields, near ponds and drains, 18 per cent), in market areas (9 per cent) and along railway line (8 per cent) (Table 2, Fig. 2). Slums occupy those areas where they have not to pay rent of that land. Thus, this tendency indirectly creates illegal occupancy over the land.

**Table 2**  
**Aligarh City: Distribution of Slums According to Place of Location**

Slum Spots	Along Railway Line	Along Roads	In Residential Colonies	In Market Areas	Other Places <sup>1</sup>	Total
Number of Slum Spots	6	33	17	7	14	77
Percentages	7.79	42.86	22.08	9.09	18.18	100
Rank	5	1	2	4	3	

Note: <sup>1</sup> Vacant plots, Open field, Near pond, Near drain

Source: Based on Field Survey, 2009-10

The socio-economic factors like religious homogeneity (92 per cent), regional homogeneity (85 per cent), nearness to work place (56 per cent), nearness to relatives (31 per cent), ease of transport (17 per cent) and other factors like cheap rent, availability of land, nature of work and social conflicts (33 per cent) were considered by the migrants while settling down in the slums (Table 3). Religious and regional homogeneity has emerged to be a very important factor, because the slum dwellers feel safe with their own people and are free to follow their own religion. Field investigation has shown that in Shamshad market area (Ward No. 40, Badarbagh), all the slum dwellers belongs to the same area i.e. Saharsa district of Bihar.

Similarly, in the Shahjamal area (Ward No. 54, ADA Colony) seven slum clusters were identified where people settled down on regional basis.

The slum dwellers do not want to mix their culture, traditions, language and norms with the people of other regions. It is a general practice that, people built up their dwellings near to their work place mainly because they do not have sufficient money to spend on transport. Since Shahjamal area provides a large market for the rags therefore, rag pickers reside in this area. Living near relatives is also an important factor, because most of rural migrants prefer to stay close to their relatives. Relatives also acted as a pull factor for these

**Table 3**  
**Aligarh City: Factors Considered by Migrants while Settling down in the Slums**

Slum Spots	Response of Slum Dwellers	Ease of Transport	Social Acceptance	Nearness to Relatives	Nearness to Workplace	Religious Homogeneity	Regional Homogeneity	Any Other <sup>1</sup>
Percentages		17.11	19.82	30.70	55.53	92.19	84.91	32.54
Rank	1,140	7	6	5	3	1	2	4

Note: Each Percentage is based on total response of the slum dwellers / respondents

<sup>1</sup> Cheap rent, Availability of place, Social conflicts

Source: Table is based on the response of the slum dwellers / respondents collected during field survey, 2009-10



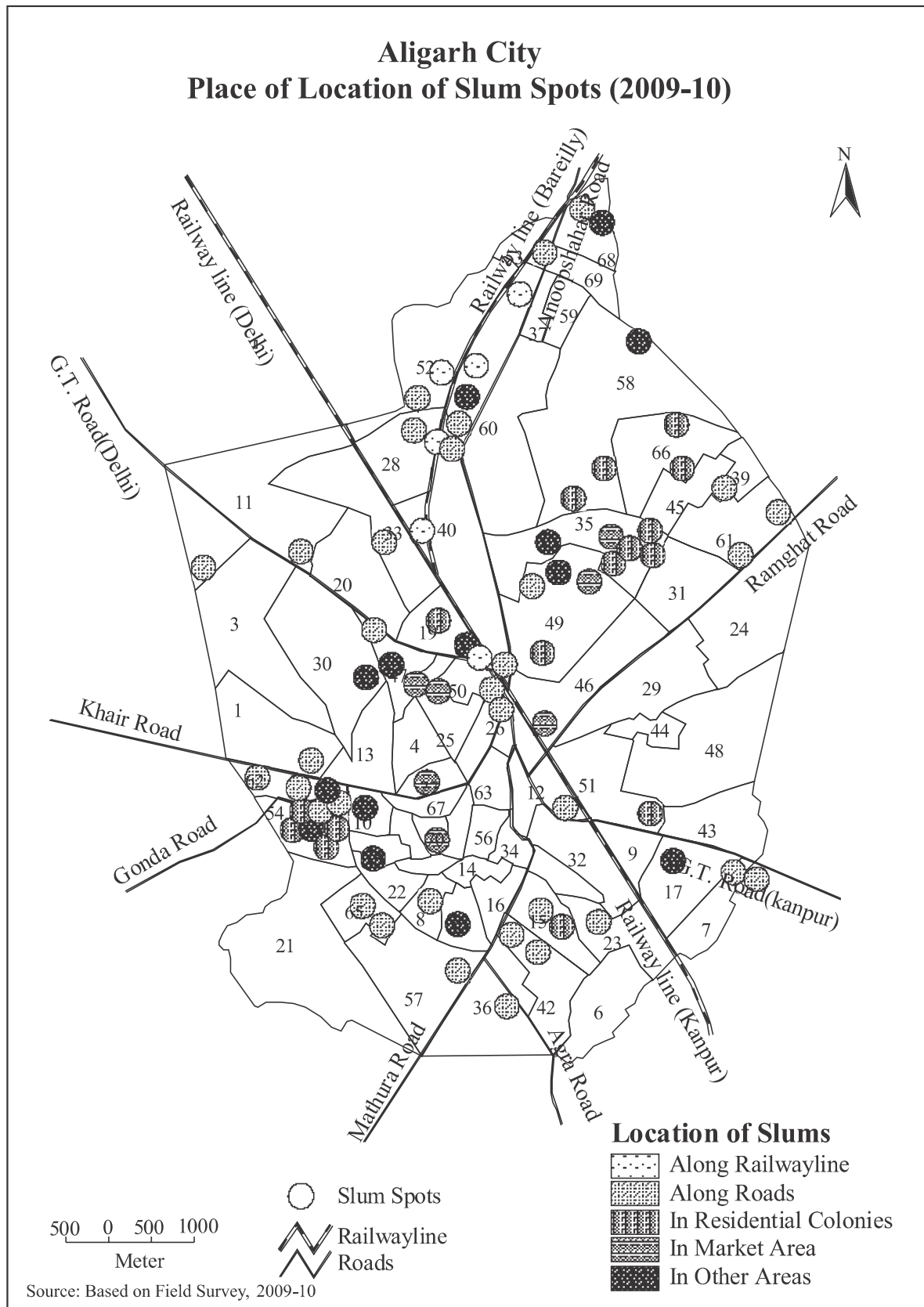


Fig. 2

migrants. Social requirements like demand for domestic workers created by high income society also encourage the development of slums. The social environment of the city provides more opportunities of employment for both husband and wife. Since there is need for cheap domestic helpers, the wife also gets

employed.

Field surveys revealed that most of the slum spots (38 per cent) were located on private land, which gives more space for development of slums in comparison to other identified categories.

**Table 4**  
**Aligarh city: Categorization of Slums on the Basis of Land Ownership**

Slum Spots	Government*	Municipality	Private	Community	Disputed	Total
Number	18	13	29	5	12	77
Percentages	23.38	16.88	37.66	6.49	15.58	100
Rank	2	3	1	5	4	

Note: \*Railway Authority, State Authority and Aligarh Development Authority land

Source: Based on Field Survey, 2009-10

About 23 per cent slums were located on the government land belonging to Railway Authority, State Authority and Aligarh Development Authority, followed by 17 per cent and 16 per cent on municipal land and on disputed land respectively (Table 4, Fig. 3).

Regarding the duration of existence of slum spots, it was observed that it varied between less than 5 years to more than 24 years mainly because of availability of land for establishment of slums, social acceptance and employment opportunities. Out of the total slum spots, about 29 per cent were 5 to 9 years old, while 21 per cent were 15 to 19 years old. Similarly, 9 slums comprising 12 per cent of the total were of more than 24 years of existence

(Table 5, Fig. 4). This shows that 60 per cent of the slum spots were comparatively younger in age i.e. less than 14 years old while rest of 40 per cent were more than 14 years old.

Field surveys revealed that the size/area of the slum spots varied between less than  $5 \times 10^3 \text{ m}^2$  to more than  $34 \times 10^3 \text{ m}^2$ . The size of slum spot depends on the availability of land, social acceptance and employment opportunities. About 83 per cent slum spots were small in size i.e. less than  $24 \times 10^3 \text{ m}^2$ , while about 17 per cent slum spots were large in size i.e. more than  $24 \times 10^3 \text{ m}^2$ . It shows that slums in the city are in growing stage (Table 6, Fig. 5).

The total population of each slum spots

**Table 5**  
**Aligarh City: Duration of Existence of Slums (Years)**

Slum Spots	<5	5 – 9	10 - 14	15 – 19	20 – 24	> 24 Years	Total
Number	12	22	13	16	5	9	77
Percentages	15.58	28.57	16.88	20.78	6.49	11.69	100
Rank	4	1	3	2	6	5	

Source: Based on field survey, 2009-10

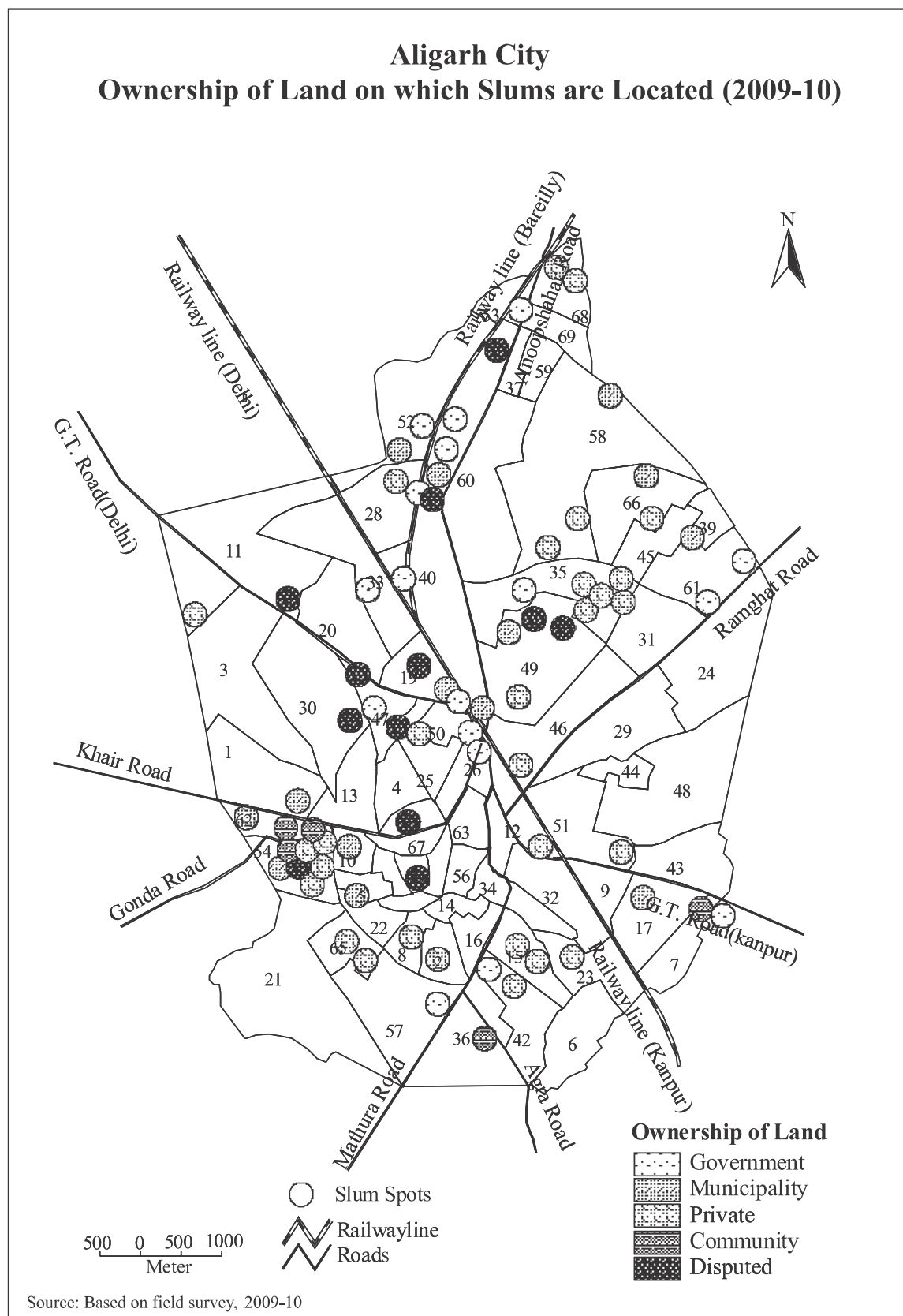


Fig. 3

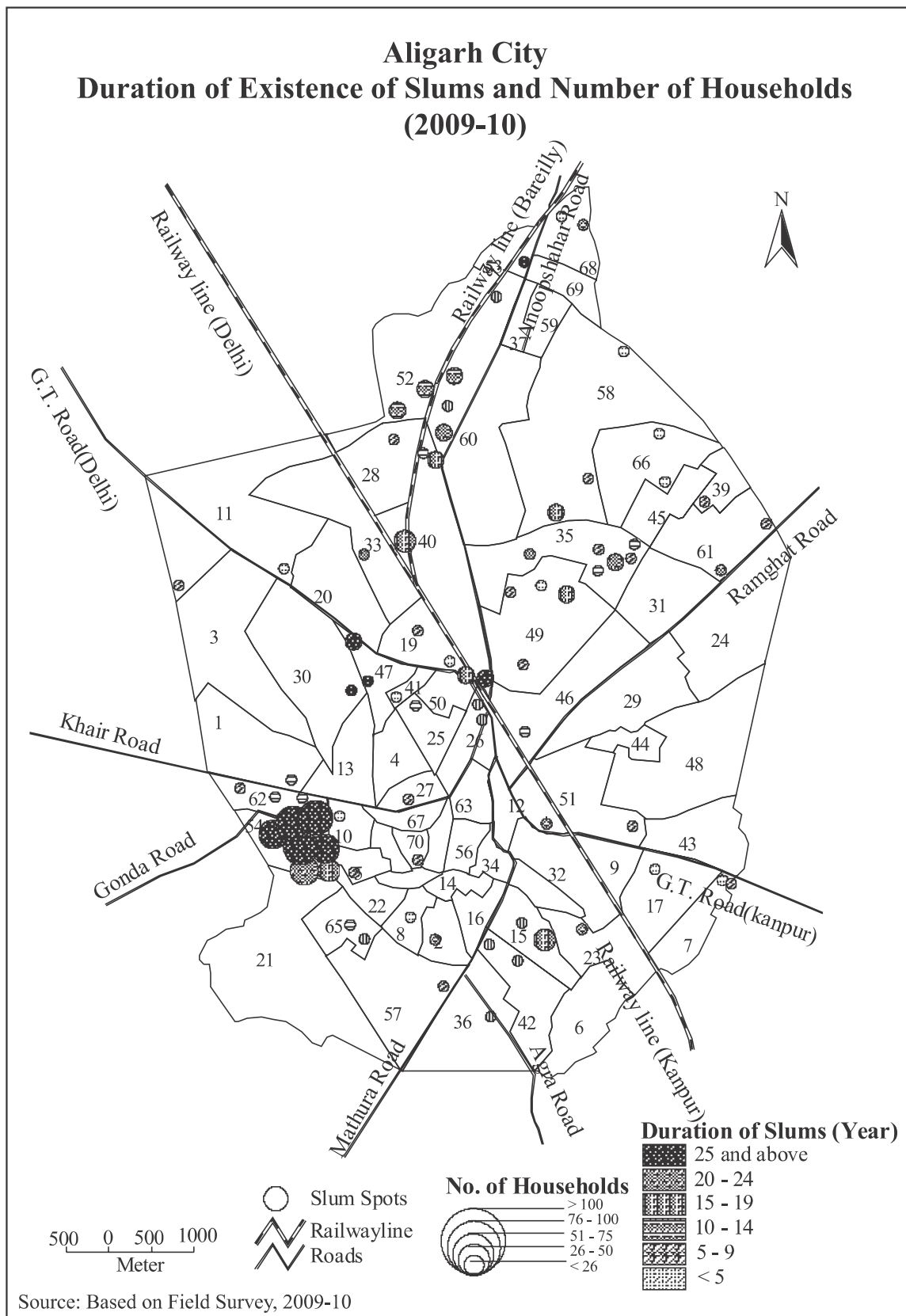


Fig. 4



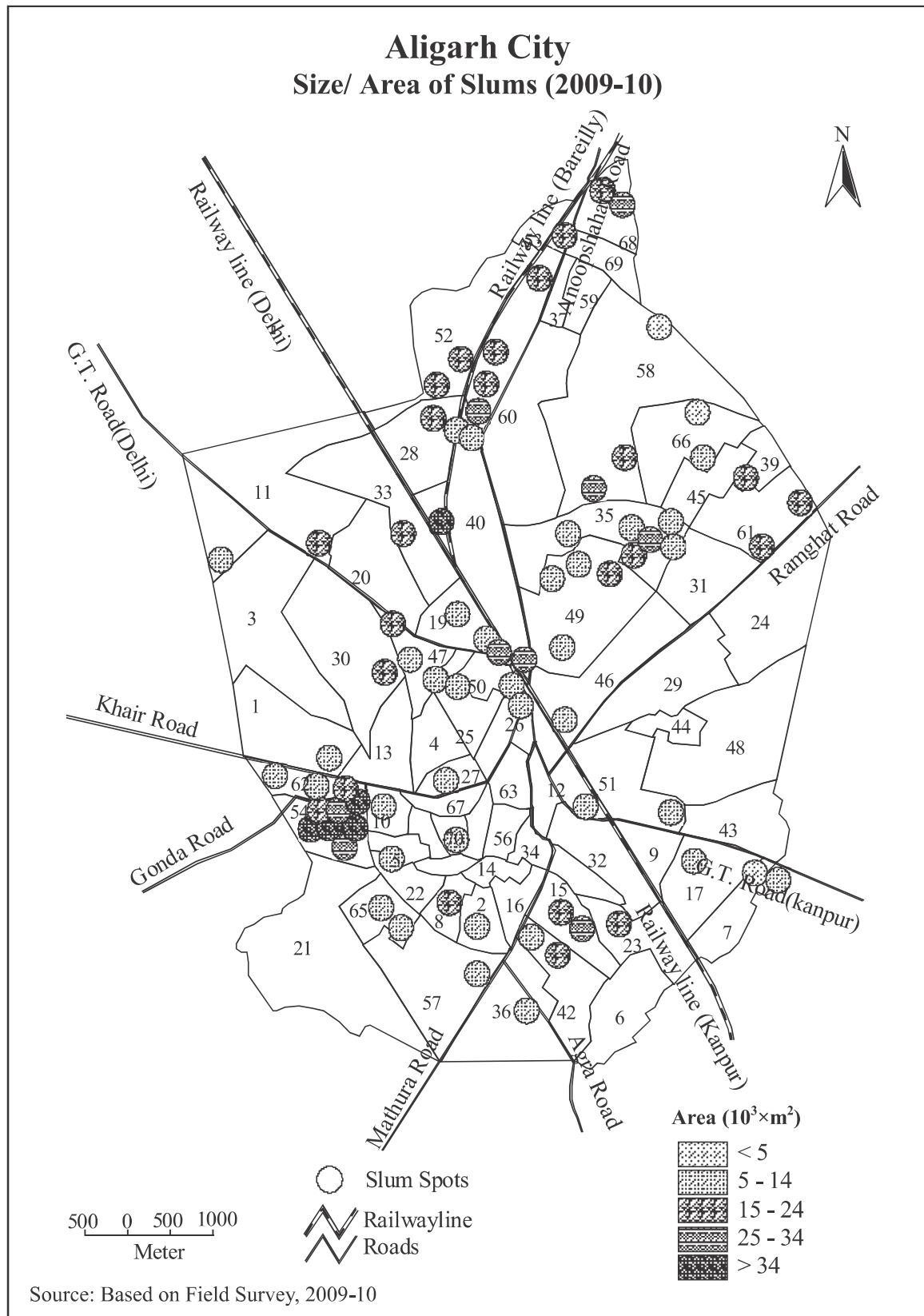


Fig. 5

**Table 6**  
**Aligarh City: Size / Area of Slums**

Slum Spots	Area of each Slum Spot ( $10^3 \times m^2$ )					Total
	< 5	5 – 14	15 - 24	25 - 34	> 34	
Number	3	36	25	8	5	77
Percentages	3.90	46.75	32.47	10.39	6.49	100
Rank	5	1	2	3	4	

Source: Based on Field Survey, 2009-10

varied between less than 50 to more than 450 persons. Most of the slum spots, 42 (55 per cent) had 50 to 149 persons living in each spots. Where as 15 slum spots (19 per cent) have less than 50 persons living in each spots. High density of population (more than 5000 persons per Sq. km) was observed in 20 slum spots comprising 26 per cent of the total slums indicating overcrowdings in these areas (Table

7).

During the field surveys it was found that there were nearly 2,000 households living in the total 77 slum spots. The number of households varied between less than 26 to more than 100 in each slum spots. In each of 57 slum spots comprising 74 per cent of the total slum spots lived less than 26 households. While only in 3 slum spots more than 100 households were

**Table 7**  
**Aligarh City: Population (Number and Density) of Slums**

Slum Spots	< 50	50 – 149	150 - 299	300 – 449	450 & Above Persons	Total
Number of slum spots	15	42	11	3	6	77
Percentages	19.48	54.55	14.29	3.90	7.79	100
Rank	2	1	3	5	4	
<b>Density (persons / km<sup>2</sup>)</b>	<b>4513</b>	<b>6227</b>	<b>5315</b>	<b>8290</b>	<b>11204</b>	

Source: Based on Field Survey, 2009-10

found to be living (Table 8, Fig. 4). Variation in the concentration of slum households was mainly because of uneven distribution of occupational opportunities and availability of land in various parts of the city.

Field investigation shows that in general

all the slums were located on hazardous, fragile, dangerous or polluted land which no one else wants. These lands are recipients of city's nuisances including noxious waste / garbage, waste water and industrial effluents. These have the most intolerable, unsafe *kutchha*

**Table 8**  
**Aligarh City: Number of Households in each Slum Spot**

Slum Spots	< 26	26 – 50	51 – 75	76 – 100	> 100 Households	Total
Number	57	11	3	3	3	77
Percentages	74.02	14.28	3.89	3.89	3.89	100
Rank	1	2	3	3	3	

Source: Based on Field Survey, 2009-10

housing structures with leaking roofs, dampness, overcrowding and insecurity of tenures. These lack basic services especially water and sanitation. In addition slum areas have high concentration of poverty and social and economic deprivation which may include broken families, unemployment and crowdedness. These were lacking in basic infrastructure facilities like drinking water, toilets, garbage and waste water disposal facilities, paved roads and street lights. A deteriorating social environment in the slums was observed due to involvement in different criminal activities, drinking, gambling, hooliganism, by the local rowdies.

### Conclusion

This study has shown that enumeration and mapping of slums provide basic information of the slums regarding their place of location, ownership of occupied land, duration of existence, area covered, population and number of households living there etc. The enumeration also provides detailed data which will help for slum up-gradation programmes.

The study suggests that slums are not confined only to large and metropolitan cities but these also develop in small and medium sized cities, however, their form, type and size may differ from the large cities. Most of the slums are located on hazardous, fragile and degraded lands mostly found along the roads and railway lines. Religious and regional homogeneity has emerged to be a very important factor for the concentration of slum dwellers and development of slums. Regarding the duration of existence it was found that more than 60 per cent were less than 15 years old, while rest were more than 15 years duration. Regarding the population and number of households, half of them had a population ranging between 50 to 149 persons and in three fourth of the slum spots less than 26 households

lived.

Cities are heavens of opportunities for those having little chance of development in rural areas. Slums are entry points for the poor migrants who cannot dream of buying urban land. Migration cannot be stopped. It is continuous process and so is the development of slums in all cities whether large or small. So the need of the hour is to enumerate and map all the slums so that they can be improved and upgraded.

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