VOLUME - II

MASTER PLAN FOR DELHI

1957

PART - II

(CHAPTERS - SIX TO TEN)

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MASTER PLAN FOR DELHI

Volume Two

PART - II

CHAPTER - SIX

THE ROLE OF GOVERNMENT EMPLOYMENT

I. Role of Government of Employment

Delhi is par excellence a 'government city' Expressed in relationship to all working force, the role of government employment is striking. Employment in all Public Services as represented by working force data is only second to business & Commerce Sector and almost equal to that in Industry. @ In terms of income per capita, the income in this sector is estimated to be the second highest : second only to Business & Commerce.* The fact of Delhi being the seat of national government imparts to it certain very significant characteristics which must be taken in to account in any planning effort for this area. For one thing, its political and economic significance has -reaching repercussions on various policies regarding the physical development. Historically, lot of development in physical terms, has taken place because it has been the capital of India. Economically and politically its significance is now even more than ever. In the past, the growth of Delhi has always been affected by the expansion in Central Government activities and functions. Far more than any other city in India, the future growth of Delhi will still continue to be effected by the un-predictable events : international and national developments, and changes in the governmental function, polices and scope.

Delhi is rather unique in its relative lack of large-scale manufacturing activity : its economic activities are largely though not entirely, dependent upon governmental employment. It has been estimated that each new job in government employment means additional 6 to 9 people[++] in the metropolitan area: his own family including dependants, the service workers in ancillary trades and professional and their families. The impact of Delhi being a 'governmental city' is reflected in separate treatment even through per se government is, the simplest sector of the economy.

II. DELHI'S SHARE IN FEDERAL EMPLOYMENT

Due to the Limited range of function which were mainly confined to the maintenance of law and order and mainly confined to the maintenance of law and order and collection of revenues, expansion in the government employment prior to 1947 was of slight magnitude [$]. Even though, during the World War II period, there was considerable expansion in the governmental employment, yet this was to some extent offset by the curtailment of provincial autonomy under the Defence of India Rules. After the attainment of Independence in 1947, employment in the Central Government, as well as in the local and State Government received a fresh impetus. The immensity and the complex nature of problems faced by Government of India at the time of partition of the enlargement of governmental functions in other spheres of the national life, made the large scale increases inevitable in the Central Government employment. The following Table gives the number of people on the central and State government payroll. This information, thought not strictly comparable to Census figures and classifications nevertheless indicates the magnitude of change i the years following the year 1947.** respect to the central government employment in India as empared to United Kingdom and States of America.

@ 1951 employment for Public Service (Union, State and local and Indians employed in foreign mission) account for 107, 183; compared to that in Industry there were for 1951, according to Census data roughly 116,585 workers.

** for detailed treatment of Delhi's State Income (gross Geographic Product) See Tables 9 and 10 in Chapter III : Economy of Delhi. For 1955, annual income per worker in Public Service was Rs. 2,224 in industry it was Rs. 1,875 and in Business, Commerce and Trade it was indeed about the highest at Rs. 2,541. The top income of Rs. 2,592 per worker was however observed in "Professional and Liberal Arts".*

@ Wife 1, Children 2, Dependant 1, Ancillary 2.

$ In Fact, there was a fall in central government employment of undivided India During the decade 1921-31.

*** The figures in the Table include all people serving under the Central Government in the entire India. In the next line are the comparable figures for the Delhi State Administration. Employment here, unlike the Census occupational classification, includes professionals, educationists, doctors teachers, engineers etc., but it does not include Utilities and Services, Which are accounted for separately.*

TABLE - 1

Change in the Government Employment: Central Government & Delhi State Administration: 1948-57

Name	1948	1951	1953	1954	1957	1956	1957
Central Government Employment.	1,443,711	1,529,199	1,446,720	1,543,762	1,625,390	1,716,957	1,773,570
Annual Percentage increase.	-	(1.9)	(-2.7)	(6.7)	(5.3)	(5.6)	(3.3)
Delhi State (State Local Administration).	16,300	17,828	18,159	20,230	20,882	21,676	22,916*
Annual percentage increase.		(3.1)	(0.9)	(11.4)	(3.2)	(3.8)	(9.9)

SOURCE: *figures for central Government Employment have been taken from "Census or Central Government Employment" issued by Central Statistical Organization. State Government figures include employment in municipal bodies and taken from the quarterly Digest of the Delhi Bureau of Economics & Statistics: figures for 1957 form the Report of Second Pay Commission 1957-59*

The increase in federal government employment as given in the above table corresponds to an annual growth of about 2.5 per cent. Although government employment has been playing an increasingly important employment has been playing an increasingly important role in the economy of the country, yet the overall growth of the Central Government has not been exceedingly high when compared to the similar figures of government employment in certain other countries. A comparison of the growth of Central Government Employment in India with countries fro which comparable data are available shows that even though some of these countries did not experience rapid expansion, they nevertheless witnessed faster rates of growth than India. Switzerland for example, experienced an increase of about 6 per cent per year in the federal government employment during 1938-55. In England during the same period there was an annual increase of 6.2 per cent.* Although, this comparison may not seem to be too fair or accurate because information on the inclusion of various activities, functions and the range of national responsibility of each government is not clearly know; it nevertheless gives an idea of The increase in federal government employment as given in the above table corresponds to an annual growth of about 2.5 per cent. Although government employment has been playing an increasingly important employment has been playing an increasingly important role in the economy of the country, yet the overall growth of the Central Government has not been exceedingly high when compared to the similar figures of government employment in certain other countries. A comparison of the growth of Central Government Employment in India with countries fro which comparable data are available shows that even though some of these countries did not experience rapid expansion, they nevertheless witnessed faster rates of growth than India. Switzerland for example, experienced an increase of about 6 per cent per year in the federal government employment during 1938-55. In England during the same period there was an annual increase of 6.2 per cent.* Although, this comparison may not seem to be too fair or accurate because information on the inclusion of various activities, functions and the range of national responsibility of each government is not clearly know; it nevertheless gives an idea of comparative rise in government employment figures.

An interesting comparison has recently been worked out by the Second pay Commission with respect to the central government employment in India as empared to United Kingdom and States of America. Percentage figures have been worked out of the central/federal government employees to the total number of wage-earners and salaried person employed outside Agriculture and allied professions. This interesting comparison is presented in Table 2 below:

TABLE - 2

Comparative figures of Central / Federal Government Employment : India, USA & UK

COUNTRY	Number of Wage-earners and salaried persons outside Agriculture	Number of Central / Federal / Employees.	3 as percentage of Col. 2
1	2	3	4
India	17.60 million	1.77 million	10.1
United Kingdom	21.63 million	1.05 million	4.8
United state of America	52.54 million	2.42 million	4.6

Source: *See P. 29 : Report of the Commission of Enquiry on Emoluments and Conditions of Service of Central Government Employees : 1957 - 59 published by the Ministry of Finance, Government of India, New Delhi.*

It may be Pointed out by way of explanation that out of an

* *See P. 4, 6 and 8 F.M. Marx : Administrative state, Published in 1957 by the University of Chicago Press.*

estimated total working force of 155 million in 1957 in India, roughly 112 millions were engaged in agriculture and allied occupations; the number in non-agricultural occupations was, however, only 17.60 million as of June 1957.* From the above Table, it appears that compared to UK and USA, India has more than twice the proportion of its urban working force in central government employment. However, this does not give an entirely correct picture. In the first place, both USA and UK are highly urbanised and have economics which support a predominantly urban population. The dependence of people on manufacturing and services is far greater than in an overwhelmingly rural economy such as India, Moreover, the substantially higher agricultural productivity in these countries achieved mainly due to mechanization of agriculture, makes it possible for a much smaller number of people to produce more. In contrast India, even though it has more than twice the total populations compared to USA, has an urban working force which hardly one -third of that of USA; in fact it is even less than that of UK although the entire population of UK is less than the total urban population of India which was about 62 million in 1951 and must be close to 80 million in 1959.

Secondly, the range of central government's functional responsibility in India is not quite comparable to that in the USA where railways, airways electricity, telephones, and telegraph and broadcasting: all are mostly privately owned and operated. In India, the central government has many more functions and responsibilities, whereas in the United States lots of subjects are the responsibility of the States. Moreover, with the initiation of five-year plans, the Government of India has assumed many more functions particularly in the field of production, and welfare, besides the fact that more than a million people are employed in the Railways, Communications and Post and Telegraphs. If the Railways are taken out of the total figure, the remaining figure is only 776,308 government employees, which constitutes only 4.4 per cent, and thus, is quite comparable to the figure in USA. Civil service statistics are difficult to analyse because there is no set standard of functions exercised by all governments. In countries where the provincial or local-self governments are strong, lot of federal share of responsibility is correspondingly reduced. In India, the case is different local government and municipal administration is in its infancy and the 'union' has all the "residuary powers" not specifically mentioned under "State's List".@

The details of the growth of employment under the Central Government of India during the Period : 1948-57 is given in Table 3 below:

TABLE - 3

CENTRAL GOVERNMENT EMPLOYMENT and its DISTRIBUTION IN MAJOR DEPARTMENTS: 1948 and 1957

Major Department	1948		1957		Percentage increase or decrease over the period
	Number	% to Total	Number	% to Total	
1. Railway	850,229	58.8	997,262	56.2	+ 17.3
2. Post and Telegraphs	143,250	9.9	204,840	11.6	++43.0
3. Civilians under Defence	294,659	20.4	270,912	15.3	-8.7
4. Other Ministries	156,192	10.9	300,556	16.9	+91.5
Total	**1,445,050**	**100.0**	**1,773,570**	**100.0**	**+22.7**

Source : *Ibid p.8*

It Will be observed from Table 3 that an overall increase of roughly 23 per cent took place over the nine-year period which means an average annual increase of 2.5 per cent or only 2.3 per cent annum, if a geometric average is taken. This, as pointed out before, is not a startling increment when it is considered that during this period the government of India have gone in the virtually un-touched field of industrial production, and there has been large-scale developmental activity under the two five year plans.* It is easy to see that, when a nation adopts the system of a welfare state, community development and social security forthwith needs additional man power to administer it. As a matter of fact, however, rising civil service figures are not readily explained in terms of personnel requirements for particular new functions alone. In addition, established agencies usually get bigger. The actual growth of civil service is thus the product of various factors. The interaction of these factors is both more complex and more obscure than a simple listing of new governmental activities.

It may be noted that the Central Government employment is by no means confined to Delhi alone. Several other cities of India share this honour, particularly Calcutta, Bombay, Nasik

@ See Articles : 246 (4) & 248, also 252 in the Constitution of India.

** Compare this with the increase in England between 1939 to 1952 which was from 46,000 to 132,000 or that of Switzerland from 63,000 in 1939 to 94,000 in 1953. Also, Canada has witnessed a growth rate which considerably exceeds even the above ones.*

SOURCE : *See p.4 F.M.Marx: The Administrative state 1957 Chicago*

and Dehra Dun[@]. According to the published figures in the Census of Central Government Employees by the Central Statistical Organization as of 1954, only 6 per cent of all the Central Government employment was located in Delhi. This low percentage is obviously due to the even Dispersion of a great majority (roughly 72%) of Central Government employees working in railway, airways, postal and telegraphs and communications throughout the country. Excluding these branches of the Central Government, Delhi's share in the central government employment comes to roughly 18 percent. But, if the civilian employees of the defence services are also excluded because they are also widely dispersed throughout India, then Delhi's share can be said to be roughly equal to 25 per cent. [£]

Of the total central Government employment in Delhi, which has been estimated at 116,645 in 1956[@2] with in 25 departments and agencies, nearly 66 per cent are employed under four departments of Defence, Communications, Railways and Works, Housing & Supply. All these departments with the exception of Defence, came into being only after 1925. Next to Defence, the highest employment has been noticed in the Ministry of Works, Housing and Supply. Within the last decade, the ministries which have experienced a substantial increase in numerical strength are those of Home Affairs, Health, Education and Community projects.

III. NATURE OF GOVERNMENT EMPLOYMENT

In Delhi, the Union Government is the largest: single employer and will remain so for decades to come. But then, the government employment is not only confined to the central Government alone. The scope of the government employment could be considered in three broad categories:

a. Union or Central
b. State Administration,
c. Local including Municipal and Statutory bodies and agencies.

However, within this sector of working force, the percentage of Union Government employment was close to 90 per cent of all government employment. According to 1951 census data on Delhi, the total working force in public Services Sector comes to 105, 387 of which 87,559 were Union Government; 10,639 in local-self Government and the remaining 7,189 were counted in the Delhi Administration figures compiled over the previous three decades reveal that there have been sharp increases during the last thirty years. From less than eleven thousand in 1921, the figure of government employment has now increased to more than a lakh. Estimate for 1956 were roughly 138,300.

Table 4 : gives the employment distribution in public Service in its three main components:

TABLE - 4

DISTRIBUTION OF WORKING FORCE IN PUBLIC SERVICES IN DELHI : 1921 - 51

	1921	1931	1941	1951	1956@
Central Government	7,895	11,172	25,649	87,559	116,645
Delhi (State) Administration:	1,244	2,572	3,158	7,189	9,770
Local Government:	1,774	1,278	1,492	10,639	11,906
Total:	**10,913**	**15,022**	**30,299**	**105,387**	**138,321**

SOURCE: *Delhi District Census Handbook 1951. employment figures for 1956 are TPO estimates.*

It may be observed from the Table that during 1921 to 1951 government employment had a more than tenfold increase in Delhi, and the Central Government employment in this overall picture has, in fact, increased more than twelve times. It will also be observed that major changes in the central government employment have taken place since 1931, and again after 1941 during which period New Delhi started functioning as the Imperial Capital and later, after 1947 when Delhi became the capital of free India.

These two events brought significant changes in the structure of government employment. On the attainment of independence, the central government of India assumed many more responsibilities than the previous central governments. Moreover, since then, a considerable expansion in the governmental function itself has led to increase in the

@ For instance, the civilian employees in the Directorate, Ordanance Factory, Calcutta alone had a strength of 67,184 person in 1955. Similarly, out of total strength of 5,125 persons in the Ministry of Scientific Research, there were 3,531 working in DehraDun and another thousand in Calcutta.

£ For details, see Census Central Government Employees : 1954 and for subsequent years published By "the Central Statistical Organization, New Delhi.

@2 Total estimated employment in the Public Service Sector, as of 1956, was 138, 321 which includes Delhi State Administration and local municipal bodies, but does' not include utilities, services, electricity, education and health functions of various governments: these are normally accounted by the Census Authorities under respective occupational classification.

@ See Table 5 in Chapter IV : ECONOMY OF DELHI

£ Preliminary tabulations only, subject to corrections and checking.

central government. Socialistic planning and economic and industrial development has added to the numberical strength of the central government employment. In fact, during the last decades this sector of the economy has expanded more than any other single sector in the general economy of Delhi.[@]

There has also been a remarkable increase in the number of people working for local self-government which included various municipal agencies in Delhi. This increase has mainly come after 1947 with the expansion of certain civic functions by local bodies which they did not have before.

The expansion in government employment had a corresponding reflection in the net acreage of land in use by tie various governmental agencies. According to the Land Use Survey carried out by the Town Planning civilization, it has been estimated that the total land under government offices, but excluding Defence Areas president's Estate as of 1958 - 1959 was about 500 acres including area under circulation, parking etc. in Delhi urban area. [L/] Not taken in this acreage is, of course, the area of Various buildings and land which have either been rented, acquired or requisitioned for government use. Preliminary tabulations of the Comprehensive Land Use Survey indicate that as of 1958-59, the area actually in use by various types of government offices was 473 acres exclusive of circulation etc. A detailed breakdown of this is shown in Table 5 : (presented on the next page).

TABLE - 5

DISTRIBUTION OF LAND IN USE BY GOVERNMENT OFFICES IN DELHI.

Planning Divisions.	A Old City	B Karol Bagh Patel Nagar	C Civil lines	D New Delhi	@ EFGH	TOTAL	%
Government Bodies	(acres)	(acres)	(acres)	(acres)	(acres)	(acres)	%
1. Central Government Offices.	10.73	4.53	22.01	359.97	-	397.24	84.0
2. Delhi Administration Offices.	3.15	2.13	59.75	1.92	-	66.95	14.2
3. Local Municipal Offices.	4.19	0.01	3.14	1.33	-	8.67	1.8
TOTAL:	**18.07**	**6.67**	**84.90**	**363.22**	**-**	**472.86**	**100.0**
	% 3.8	**1.4**	**17.9**	**76.9**	**-**	**100.0**	**-**

@ Tabulation for these divisions is not yet complete. Except for Defence installation and Cantonments, land under Government offices is insignificant here.

E = Shahdara
F = South Delhi
G = West Delhi
H = North-West Canal Zone.

SOURCE: *Comprehensive Land Use Survey 1958/, 59 : Town Planning Organization.*

From Table 5, it may be observed that the ideation of various types of government offices is confined to the Planning Divisions : A, B, C and D, but mainly D, which is the New Delhi planning Division. In this Division, almost 77% of all offices are located, and it contains 363 acres of all Government Offices. The only other area which has any substantial a-creage in government offices next to New Delhi is the Planning Division C or Civil Lines which contain about 85 acres or 18 per cent of the land in government office use.

Delhi Administration has, in use about 67 acres, of which about 60 acres are in the Civil Lines area itself. Local Government offices claim very little acreage : less than 10 per cent and this is mainly confined to old established municipal offices and the land under those plots.

These three major categories do not include the number of buildings which are in the public utility (electric and water supply, sanitation) concerns or which are hired by the various government agencies. This information is still being processed. Besides, there are several buildings, the first and subsequent floors of which are under hire or requisitioned, by the government and these have not been accounted for in the Land Use Survey which has taken care of the 'predominant use' on ground floor only. In the total acreage of land use by Government there are certain areas in hutments which ware built temporarily, during the war years, but still continue to be used. Most of these areas are unsuitable locations for government offices, and moreover the use of land is far from optimum. Most of these building are single storey structures, and congestion is reported. On the other hand, the design of the buildings is rather wasteful so that the full use of the land is not being made. The employment densities are not more than a hundred workers per acre. As such a good acreage of land is being put to inefficient use.

The relationship of present government work centres with

the residences of its employees is far from satisfactory. A good number of government servants/employees live in Karol Bagh, west of Ridge and down far South, but their places of work are far apart. The original New Delhi was developed on different principles : large plots where high government officials were to reside were almost at a stone's throw from) their places of work; but low-paid government servants were relegated to far-off places. The result is that the high salaried government employees - (all invariably have private automobiles) are living very close i.e. one or two miles from their places of work. On the other hand, the low paid employees, the junior officers, clerks and peons have to live far away and either cycle long distances or rely on the inadequate public transit system This naturally results in an uneconomic and disadvantageous home-to-work relationship and puts a lot of avoidable strain on them and on the transport system.

Data on floor space used by government offices are not yet available but calculations on the basis of information on the Central Secretariat Complex and certain other important designed offices have been made. Although CPWD planners use as a rule-of-thumb carpet area @ 50 square feet per worker, the average appears to be between 70 to 80 square feet per worker.

TABLE 6 : DATA on USE of FLOOR AREA IN RELATION TO EMPLOYMENT FOR SELECTED OFFICES IN DELHI AND NEW DELHI : 1959-60.

Name of Office	Site Area	Coverage	Number of floors	Floor area in 100 sq. ft.	Employees @	Floor* Area per employee	Floor area per employee excluding class IV.
1	2	3	4	5	6	7	8
Krishi Bhawan	6.43	28.6	6	250	4467	56 sft.	75 sft.
Udyog Bhawan	6.43	28.6	6	250	4674	53	67
Central Revenue Building.	5.55	27.6	5	127	3136	40	54
Account General's Office	3.12	26.1	6	125	2244	56	65
Old Secretariat	36.53	13.0	1	186	3212	58	72
Town Planning Organisation.	-	-	-	13	188	69	101

@ including class IV employees

* The actual floor area per employee is much less than indicated here, because of large areas being used for Committee Rooms, Visitor's Room , Libraries and Recreation Rooms, in these building.

NOTE:

(1) Figures for Employees are based on Survey by TPO; for site area coverage and Floor Area, information was supplied from the office of Chief Architect and Town Planner CPWD.

(2) Data for Old Secretariat exclude figures on area and number of employees in the Army Survey Co. Unit.

IV. PROSPECTIVE EMPLOYMENT IN GOVERNMENT:

Although it is comparatively easy to analyse and assess the land requirements for the governmental type of land Use, once the magnitude of the future employment is determined, yet it is extremely difficult to predict the prospective employment in this sector. Unlike manufacturing, business or commerce where the projections of the past trends sometimes help to indicate the scale of the things to come, it is extremely difficult to anticipate the quantum of government employment when the factors influencing it are so unpredictable. For one thing, here the past trends do not offer any adequate guidance; public services counted only 5.52 percent of the working force in 1921; it was 5.7 percent in 1931, then it jumped to 8.8 percent in 1941, but according to 1951 census figures, it was 16.87 percent of all the working force in Delhi. The structural changes which are likely to occur in future in working force of Delhi in government employment are most uncertain. Moreover the experts in the field of public administration are of the view that the growth of government employment is a product of so many different and complex factors that it is not possible to predict in any precise manner as to what Is likely to happen in the next twenty or twenty five years. The growing (trend towards socialism) responsibilities of a Social Welfare State has led to an enlargement in the role of government in many hitherto' un-touched spheres of economy. This is bound to have significant repercussions on the overall employment figures.

On the other hand, in the case of Delhi, more than any other city, the future working force structure is, within wide limits,

subject to measures of public policy. An attempt, therefore, has been made, to achieve for Delhi, what is considered a balanced economic base in which various components of the urban economy contribute a proportionate share, in the well-being of the National Capital. For detailed projections: of Delhi's working force in 1981, a reference may be made to the Chapter on: Economy of Delhi. According to these projections by 1981, Delhi is expected to have roughly 310,000 persons in the public Services Sector. Although, the share of this sector will be proportionately somewhat less compared, to present figure, it will then be roughly 13 percent of the working force as to about 17 percent now, yet there would be a numerical increase of more than three times : to the 1951 figure. This forecasts is based on the assumption that the sharp rise which occurred during the decade 1941-51 in the government employment is not likely to repeat; nevertheless there would be a steady and substantial increase in the government employment . However, the-economy of Delhi, at the close of the twenty five year period will have strong props in other spheres too, and the government employment, even though it would remain an important component, will be balanced, by industry, commerce and professional services. This will give a balanced texture to the present rather lop-sided economy of Delhi.

From the planning point of view, there is a limit to the total effective size of government workers in Delhi, and as the governmental functions expand, a certain amount of decentralization Is not only desirable but inevitable. It has been the experience in certain countries of the West that, with the growth and expansion of governmental activities, a tendency for de-centralization and for better locational distribution within the respective National Capital Regions becomes stronger. Ottawa (Canada), Washington D.C., (USA), and even Moscow (USSR) offer illustrations* of this. In Delhi, even for the present, there is strong case for the decentralization of the government offices. For instance, the headquarters of the various industrial and managing corporations in the public sector like the State Trading Corporation, Central Warehousing Corporation, Hindustan Steel, National Project Construction Corporation, Heavy Electricals, Social Security Administration, Indian Airlines Corporation, Life Insurance, etc. could as well, operate from anywhere in India. Similarly, there are several government or semi-government agencies, boards of offices which could also be located out of Delhi. Then there are certain obvious advantages in effectuating a better distribution and location of governmental offices even within the Delhi Metropolitan Area itself. This fact has also been exphasied in the Report of the Second Pay Commission about the cities of Bombay, Calcutta and particularly for Delhi.

It is appropriate to point out here that unless de-centralisation of Central Government offices in Calcutta and Bombay is undertaken, and further concentration of offices in central portions of Delhi avoided; the problem of residential accommodation for, and transport of, central government employees in these cities may not admit of any satisfactory solution, and may, in fact, get aggravated as years pass by. At present, the bulk of the central government offices are located in the Central Secretariat Complex. It is obvious that there would not be enough space to cater for the anticipated employees over three lakhs in any area. Neither It Is desirable when the questions of housing, traffic etc. are considered. A study conducted by TPO Indicated that at the most an additional area of 200 acres which would accommodate 70,000 workers in the Central Secretariat was available. This therefore, makes the case of a more balanced distribution within Delhi urban complex stronger. Examples of this kind of de-concentration can be taken from USA where the headquarters of their Defence services are located in Pantagon building which is roughly 5 miles from the Capital Complex. Example is also given of the entries US Social Security Administration which was moved out of Washington D.C. to Philadelphia about fifty miles away, and of the Bureau of internal Revenue which was located further fifty miles in Baltimore, Maryland.

In an analysis of the cost structure of housing facilities provided by the Government of India, particularly in the metropolitan cities of Calcutta, Bombay and Delhi, some significant pointers have been indicated in the Report of the Second Pay Commission. The report highlights the high costs of land in the central portion of the large cities and the problems of transportation created by the location of the housing in far away suburbs while still maintaining the offices in the central core.

An important suggestion made calls for a planned de-concentration of the Union Government offices within the

* In facet, the greatest amount of decentralization has taken place in USSR in the recent decades. As a result, it is reported that over 200 new towns came into being since the end of World War II in the eastern USSR. More recently the Ministry of Interior (MVD) has been abolished, and some of its functions assigned to the constituent State republics.

@ See pages : 474 and 475 : Report of the Commission of Enquiry on Emoluments and Conditions of Service of Central Government Employees : 1957-1959 published on November, 11/1959 by Ministry of Finance, Government of India, New Delhi.

urban complex and de-centralization into smaller towns and cities around these large metropolitan agglomerations. The following quotations seem to be of particular relevance with respect to the de-centralization of Union Government offices in the 'ring towns' of Delhi:

"The de-concentration need not be to distant places; if one is to go by the fate of attempted de-concentration of this kind of offices at Delhi, any such attempt would, in all probability, founder at the opposition of employees, backed by strong local interests. It is de- concentration within some 5 to 30 miles of the cities where these offices are presentedly situated that is contemplated.@"

Many existing offices of the Union Government of India,* examples of which are given below in a foot note, which are mainly research, cultural health, educational and community projects and social administration etc. could either be located in the outlying areas within Delhi Urban area, or, in some cases, preferably in the selected Ring Towns of Ghaziabad, Faridabad, Gurgaon and Narela. Some of them could even be located entirely away from the Delhi Metropolitan Area either in the National Capital Region or almost anywhere in India.

To a limited extent, a relative decline in the Union Government Employment will be offset by a more rapid growth of local government services such as education, health, sanitation and in consequence, both the composition and geographic distribution of the total government employment in Delhi will be altered. The Union Government, however, will still remain overwhelmingly the most important government employer in the metropolitan area. Together with a share of Delhi's anticipated 1981 Manufacturing employment which has been suggested for the Ring Towns, it has also been considered feasible to recommend deflecting roughly 50,000 persons in the governmental employment to the towns of Ghaziabad, Faridabad, Narela and Gurgaon.* All of these towns are roughly 12 to 20 miles, and with the improvement in communications and the building of new bridges over River Yamuna, it will be possible to locate certain government offices in these towns which will be, in all cases, about 30 minutes travel time from Delhi. More over, the provisions of the government employment and housing enlarged to will go far to give to these substantially enlarged towns, a more balanced and diversified economic base. It will give encouragement to business men and private entrepreneurs to locate in these Ring Towns, thereby it will reduce the population pressure on Delhi.

IV. FUTURE LAND REQUIREMENTS AND LOCATIONS:

According to the projections and estimates already discussed, Delhi will have roughly fifteen percent of its working force in government employment which will be, in numerical terms, about 310,000 persons. The distribution and location of this employment is given in Table 7 :

TABLE 7: Proposed distribution of government employment in the Delhi Metropolitan Area : 1981.

Type of location	Number of Location	Acres	Average employment density/ worker / (per acre)	Anticipated employment.
a. Major Government employment centres	5	566	350	200,000
b. Minor Government employment centres	10	334	200	60,000
Sub - Total	**15**	**900**	**290**	**260,000**
c. In the four Ring Towns	5	270	200	50,000
Ghaziabad *	2	100	200	20,000
Faridabad	1	100	150	15,000
Gurgaon	1	20	250	5,000
Narela	1	50	200	10,000
Total : Government employment	**20**	**1,170**	**265**	**310,000**

* *The T.P.O. of the U.P. Government proposes to have approximately 200 acres for the central government offices in Ghaziabad in accordance with their plan for this town. However, in the above table, only 100 acres have been taken into account.*

@ See p. 475. Ibid

* *(1) Department of Lighthouse & Light ships; (2) Textile & Leather Directorate. (3) Central Tractor Organisation. (4) Defence Service Laboratory. (5) National project construction Corporation. (6)*

Malaria Institute of India. (7) National Defence College. (8) Research, Design & Standardization under Ministry of Railways. (9) Northern Railway Headquarters. (10) National Mineral Development Corporation. (11) National Building Organization. (12) National Sample Survey. (13) National Small Industries Corporation. (14) Ganga - Brahamputra Water Board. (15) Central Social Welfare Board. (16) Council of Gosam Vardhan. (17) Directorate of Plan protection. (18) Directorate of Health Services. (19) National Fundamental Education Centre. (20) National Institute of Audio Visual Education. (21) Directorate of Sugar & Vanaspati. (22) National Industries Development Corporation. (23) Indian Council of Agricultural Research. (24) Indian agricultural research Institute, (Pusa Institute). (25) National Productivity Council.

The Space requirements for government employment are set largely by the existing practice of government design and employment standards. In some case, minor adjustments have been made to reflect obvious needs for changes in standards. In some cases, minor adjustments have been made to reflect obvious needs for changes In standards. In Planning studies for the Central Vista, the figure of fifty square feet per person, net carpet area,[@] for government employment in office space was used. Under the present design standards, in use by CPWD, not more than 45 percent of the space in a building is in actual use as office space; the balance is' occupied by bathrooms, closets, corridors, stairways, walls, and other uses. Government employment therefore, requires 111 square feet of total constructed space per employee. Allowing for adequate parking space, circulation and landscaping, the Floor Area Ratio (FAR) for the government, office construction should not normally exceed 150. This means that a six-storey building should occupy not more than about 25 percent of the plot area, including 5 percent of covered parking or a five-storey building 30 percent of the plot area. Each acre of ground therefore, provides 66,000 square feet of total floor area and can include the accommodation for class IV employees: daftries, office boys, peons and other service employees, so that 550 workers per net acre could be accommodated at the standards set forth before. These are the standards which are taken as the maximum for the distribution of government employees discussed later in this section. Space standards for clerical and related managerial tasks such as are performed in government offices are very difficult to establish and project in a rapidly changing economy like that of India. There are, however, two indications to show that the standards currently used by the CPWD are extremely conservative. Firstly, space for government employment generally exceeds this level in a large number of more developed economies. The excess is not minor, and rather represents multiplication by a factor of something between two and four The implication that government employment in Delhi may move in the direct ion of these higher standards as work becomes slightly more mechanized and as the productivity of government employees increases is borne out by the fact that similar higher standards already exist in commercial activities in the city. If such higher standards for space utilization in government employment eventuate, there are a number of different ways in which they might be satisfied through modifications of their component parts as stated above in establishing the standards for the balance of this study. Continued improvements in design and construction may increase the percentage of us-able office space within the government office buildings. Modifications of site design may increase the floor area ratio.* Finally, at a later date a further de-centralization of government offices within the Delhi Metropolitan Area may become feasible owing to higher standards of transport and communication which will facilitate easy contact between government offices.

In fact, with different Standards of Space per worker and Floor Area Ratios ranging between 125 to 175 the employment density would range between 150 to 450 persons per acre. Many technical offices of the Government would actually need twice and thrice the standards of 50 sq. feet per worker now in use by CPWD. An office which will have substantial drafting space will need space at the rate of 200 to 300 feet per worker of more. Similarly, in a research organization with a large proportion of senior officials, the floor space per employee may be between 150 to 200 square feet per worker.

Within the general framework of a need for the accommodation of 310,000 government employees, and space standards of a maximum of 450 employees per net acre, and in conformity with other aspects of the land development set forth in this report, the locations proposed for total government employment are given in Table 8:

. @ Carpet areas is quite similar to the floor area in actual use, but it does not include space in circulation and services etc.

** The redevelopment of low-density residential or commercial areas, especially those adjacent to public open space, will always be a possible source for the expansion of a government building programme, and will be economically more feasible in later years as income rises.*

TABLE - 8

DISTRIBUTION and future land requirements for government offices in Delhi, 1981*1

Location	Acres Existing	Proposed	Proposed employment density/ workers per acre	Anticipated employment
a. 1. Major Government Employment Centres				
G. 1. Central Secretariat complex (including Parliament Street.)	185	237	300	71,000
2. Lodi Road near wireless Station	-	141	450	64,000
3. West of Medical Enclave near Safdarjang Hospital.	-	34	450	15,000
4. Shadara area	-	96	350	33,000
5. Shalimar Gardens (NW)	-	58	300	17,000
Sub-Total (Major Areas)	**185**	**566**	**350**	**200,000**
G. 6. Indraprastha Estate.	43	61	200	12,200
7. Civil Lines. (old Secretariate Complex)	55	87	100	8,700
8. New Civic Centre	-	15	400	6,000
9. Kalkaji	-	10	300	3,000
10. Ring Road {District Centre 1,000 acres scheme}	-	10	300	3,000
11. Delhi Administration	25	36	150	5,400
12. Shahdara (North)	-	26	300	7,800
13. West Delhi	-	15	300	4,500
14. North West Delhi	-	25	300	7,500
15. DMC and DSMC	13	13	200	2,600
Sub-Total (Minor areas)	**136**	**298**	**200**	**60,700**
U.P.S.C and Supreme Court@	-	36	-	-
Grand Total	**136**	**900**	**290**	**260,700**

The fundamental area with the largest single block of present and future Union Government Employment is the Central Secretariat Complex, in which 237 net acres of land will be available. In this complex along the Central Vista Increased architectural monumentality will require maintaining the employment density at not more than 300 employees per acre, yielding a total employment potential of about 71,000 persons.

Two new areas are proposed for development in this general sector of the city, but further to the South, making use of land which is not occupied by major structures and moving the centre of gravity of employment further South as residential expansion for government employees takes place in the same direct ion. The larger of these two new areas is the Lodi Road near present Wireless Station area of about 141 acres, where employment density of 450 persons per acre can be achieved and 64,000 employees can be accommodated.

The second location is on the Ring Road, West of Safdarjang Hospital where 34 acres have been reserve at the same employment density of 450 to accommodate about 15,000 employees.

Two additional major government centres employing 50,000 people and occupying 154 acres at a density of 350 and 300 employees per acre are proposed to be established in the new city of Shahdara which will be developed on the East bank of Yamuna and in North West of Delhi near Shalimar Gardens. Shahdsra area will be an entirely developed area based on the reclamation and development of low-lying land between the new railway cut-off and highway bridge from Purana Quila to Ghaziabad. It will so overpower the existing

*1 *Not included are the office of Railway and Commercial Corporations.*

@ *The offices of the UPSC and Supreme Court are of specialized nature and their space use characteristics are not in line with the normal offices of the Government of India; besides the number of people working in these offices forms a very small percentage of the total government. These, therefore, have not been taken into account.*

town of Shahdara as to present an entirely new appearance.

In view of the relative isolation of this centre from Delhi as a whole, it is proposed to develop it partially as a bed-room town. Communications with Delhi and New Delhi by way of the existing and proposed Yamuna bridges will be substantially improved. The southern portion of the town lying between the new railway and the new highway alignments will be developed as exclusive industrial area for modern industry,.* In the centre of the newly developed area will be a large sub-city centre of a character discussed later in the Chapter on Business and Commerce.

Since, almost all of the housing in this area will be new, the level of amenity should be quite high. The inclusion of substantial government offices will make possible the achievement of a good balance between industrial, commercial, professional, and government employment and will provide a Variety of work opportunities which will prevent this area from becoming a stratified, one-class community. Such a development will minimize the commuting across the river. At the same time the improved communications, especially to the South, through a new highway connection will facilitate contact between these government offices, the established Central Secretariat Complex and the new government work centres on the Ring Road, Lodi Road, and near the, Safdarjang Hospital area.

Up till now, the government offices were concentrated mainly in the southern portion of Urban Delhi and a few in the North Delhi. Provision for one major government centre and one minor government centre employing approximately 24, 500 persons and occupying 83 acres, has been made in the North West of Delhi. Besides several minor centres comprising roughly 335, acres, have also been proposed, for an anticipated employment of 60,000 persons in several locations.

In all, 900 acres are needed within the Delhi Urban area to provide accommodation to approximately 260,000 Government employees, which leaves a balance of roughly 50,000 government employees who are, envisaged to be located in the "ring towns" as given in Table 7. The total estimated land requirements for government employment in the entire Metropolitan Area comes to roughly 1,170 acres.

The de-centralization of the remaining 50,000 Union Government jobs is proposed in the outlying Ring of Faridabad, Nerela, Gurgaon and Ghaziabad, each one of which will be extensively developed and enlarged the proposals of the Metropolitan Plan.*[1] Pending more extensive planning studies of such towns, no specific proposals are currently made as to the location of this government employment. The objectives to be pursued in guiding such a location of the expansion of government employment, however, are the same as in the case of Shahdara. In these cases, as well, it is desired to expand and broaden the employment base of the communities, to provide for a higher level of planned amenity, and to relive the congestion on the southern sector of Delhi which is bound to result from the continued expansion of government employment. The effect in all cases will be to diminish on the average of length of the journey to work of government employees.

* *See: Chapter on Industry and Manufacturing.*

*[1] *Loni and Sonepat, which are also important righ towns, may also have some government offices.*

CHAPTER - SEVEN

BUSINESS AND COMMERCE

I. Signification of Commerce in Delhi's Overall Economy

With its highly pronounced urban character and favourable geographical location, Delhi's growing business activity has formed a large hinterland. As the largest city in northern India, Delhi's market has, since partition, assumed a distributive function for north-western geographical region. Even though Delhi has long been known for its commercial activities and for its fabulous Chandni Chowk, it is in recent years that it has acquired a new significance as a trade distributing centre. It now serves as a distributor of commodities and consumer's durables in a vast area which includes Kashmir, Himachal Pradesh, Punjab and portions of Rajasthan and Western Uttar Pradesh. Commodities which can sustain lengthy transportation for their high unit value and durability, and also articles of daily consumption tend to be distributed from this metropolitan city of Delhi.

The recent growth of Delhi as a progressive manufacturing centre and the rapid increase in the construction activity has enhanced the demand for several commodities. The general expansion in the trade of , Intermediate manufactured goods" which do not enter directly in the household consumption has given rise to two types of demand : consumer demand and business demand, and it is the latter which has given an entirely different complexion and character to the business of Delhi. Today Delhi meets the consumer demand, as well as the business demand of the adjoining states of India.

The significance and growing importance of business and commerce can well be judged from the number of people dependent on this sector for their livelihood. According to the published data of the census of India in 1951, business and commerce sector was providing or supporting the livelihood of more than one-fourth of Delhi's population. In fact, 1951 census figure for Delhi estimated at 26.1 per cent for this sector was the highest as compared to the ten largest cities in India including Calcutta, Bombay, Madras and Hyderabad.*

Similarly, the working force data+ indicate a distinctive increase in the importance of this sector in the overall economy of Delhi. Computed data of the working force for 1951, and corresponding data for previous census decades reveal that from 16.3 per cent in 1921, the business and commerce sector now claims more or less twenty per cent of the entire working force of Delhi.@ The working force in commercial sector as compared to the total working force in Delhi State is shown in Table 1:

TABLE - 1

Working Force in commercial sector as compared to total working force in Delhi State (1921-81)

Year	Total Working force (in lakhs)	Percentage Variation (total working force)	Working force in commerce Sector (in lakhs)	Percentage variation (Working force in commerce sector)	Percentage working force in commerce sector to the total
1	2	3	4	5	6
1921	2.02	-	.33	-	16.3
1931	2.59	28.2	.34	3.0	13.1
1941	3.51	35.5	.51	50.0	14.5
1951	6.39	82.1	1.25	145.1	19.6
1961	9.30	45.5	1.90	52.0	20.4
1971	13.20	41.9	2.65	39.5	20.1
1981	20.90	58.3	4.20	58.5	20.1

SOURCE: ***1.*** *Compiles from the Census of India, Delhi Census Hand Book (1951)*

2. *Projected figures for 1961, 1971 and 1981 are based upon the estimates made by the Town Planning Organization.*

* *According to 1951 census, Calcutta had 25.1 per cent; Bombay 24.3 per cent; Madras 22.0 per cent and Hyderabad 19.8 per cent of their population dependent on this sector. For details, see chapter "ECONOMY OF DELHI.*

\+ *A greater percentage (26.1) in livelihood class and somewhat lesser figure in the working force is probably due to large incidence of "non-earning dependents" in this sector.*

@ *For the working force data and its comparability with various Census : See Chapter "ECONOMY OF DELHI".*

Taking into account the number of persons in this sector, the increase during the period, 1921 - 51 was 278.8 per cent, as compared to 215.2 per cent increase noted in total working force of Delhi. A higher percentage of increase in this sector means that a large number of persons derive their livelihood from business and commerce.

This is also, though only partially, supported by the large incidence of 'non-earning dependents' in this livelihood class and by the fact , that a great many people, facing unemployment in large cities, take up some sort of petty business which give them probably nothing more than a subsistence level of income, but nevertheless saves them from utter starvation. All petty traders, pedlers, small shopkeepers, khwancha wallas, subzi wallas and hawkers including people selling pan, bidi and cigarettes are included in this sector.

Like the city and its population, this sector contains diverse types of people and business; wholesalers and retailers; big dealers and small shopkeepers; commission agents and salesmen; grain and cloth traders; junk dealers and iron merchants; large offices and commercial houses, hotels and entertainment business. Because of this diversity, this sector is the most difficult to analyse, especially from the viewpoint of providing adequate land for its 'anticipated activities. For reasons of analysis, this sector, has been considered in three major sub-divisions commodity handling; non-commodity handling; and places of recreations and entertainment. Commodity handling business includes wholesale business and retail business; non-commodity handling firms include commercial houses, offices, banks, insurance companies and the like; whereas the places of recreation and entertainment group comprises of restaurants, hotels, clubs, regular cinemas, theatres etc.

From the study of Delhi's State Income : 1951-56*, it appears that almost the top income of Rs. 2564.0 per worker was observed in this sector. Similarly, a study of the income tax data compiled for the commercial sector and provided by the Central Board of Revenues reveals that, within a brief span of about six years 1952/53 to 1958/59, there was a substantial increase of 217.8 per cent noticed in the income and consequently indicated a corresponding increase in the income tax of over 146.0 per cent. The increase in income was 282.3 per cent for the wholesale traders, 217.7 per cent for the retail traders, and 204.8 per cent in the income of non-commodity handling firms or establishments. Table 2 gives the relevant data on the Income and Income Tax in the commercial sector in Delhi firms.

TABLE 2 :

Total Income and Income-tax realised in the Business and Commerce Sector: Delhi State : (1952-53 to 1958-59)

Type of Business	Income cross of rupees subjected to income					Income tax in crores of rupees				
	1952-53		1958-59		Percentage variation between 1952-53% 1956-57	1952-53		1958-59		Percentage variation between 1952-53 & 1956-57
	Income	% of income in different types to total	Income	% of income in different types to total.		Income tax.	% of income in different types to total.	Income tax	% of income tax in different types to total.	
Wholesale	2.15	36.9	8.22	44.4	+282.3	0.60	46.2	1.87	58.4	+ 211.6
Retail	2.48	42.5	7.88	42.5	+217.7	0.23	17.7	0.69	21.6	+ 200.0
Hostels & Restaurants	0.21	3.6	0.64	3.4	+204.8	0.03	2.3	0.04	1.3	+ 33.3
Sub-total: Trade.	4.84	83.0	16.74	90.3	+245.9	0.86	66.2	2.60	81.3	+ 202.3
Finance & Banking	0.99	17.0	1.79	9.7	+80.8	0.44	33.8	0.60	18.7	+ 36.4
Total	**5.83**	**100.0**	**18.53**	**100.0**	**+217.8**	**1.30**	**100.0**	**3.20**	**100.0**	**+ 146.2**

SOURCE:- *Income and Income-tax returns for 1952/53 and issued by the statistician, Income-tax Department, Central Board of Revenues, Government of India.*

It would appear from Table 2 that as of 1958-59, wholesale trade contributed the largest share of income tax for commercial sector in Delhi, There was also a rapid increase in incomes earned by the financial concerns, including banking, loan associations etc. registering an increase of more than 80.8 per cent in a brief span of six years, and these incomes contributed Rs. 60 lakhs as income tax in the year 1958-59 to the State Exchequer. While this particular type of business accounted for 9.7 per cent of the total income in 1958-59, it contributed 18.7 per cent of the total income tax for the same financial year.

* *Actually the top income of Rs. 2594.0 per worker was obtained in the small but important sector of professional and Liberal Arts. For detailed reference, See Chapter: "ECONOMY OF DELHI".*

Another indicator of the rise of commercial activity in Delhi is the comparison of similar data on the volume of transactions in certain important commodities. These data for selected commodities have been compiled from the Quarterly Digests of the Bureau of Economics and Statistics, Delhi State, and presented in Table 3:

TABLE 3 :

Commercial transactions (in crores of rupees) in selected commodities in Delhi State : (1 953/54 to 1 955/56)

Commodity	Commercial transaction 1953/54*[1] (in crores of rupees)	Rank	Commercial transaction 1955/56@ (in crores of rupees)	Rank	Percentage variation between the year 1953/54 and 1955/56.
Cloth, hosiery and allied	11.18	1	12.83	2	+ 14.8
Building materials	6.35	3	8.87	3	+ 39.7
Automobiles and cycles	4.86	4	7.38	4	+ 51.9
Drugs & Chemicals	1.40	5	2.07	5	+ 47.9
Hotels, restaurants etc.	0.83	6	2.03	6	+ 144.6
Leather goods	0.72	7	0.94	7	+ 30.6
Jewellery	0.47	8	0.54	8	+ 14.9
General merchants and others	9.99	2	13.37	1	+ 33.8
TOTAL	**38.24**		**50.59**		**+ 31.5**

SOURCE:- *Quarterly Digests, Bureau of Economics and Statistics, Delhi State.*

It will be observed from Table 3, that the largest item of transaction is general merchandise and others. Cloth and allied products are equally important, and next to it are building materials, closely followed by automobiles and bicycles. Chemicals including drugs and medicines, hotels and restaurants are the other important business items.

Within a brief span of time, there was an increase of roughly 31 per cent in the commercial transactions for selected commodities. Indicative of Delhi's growing prestige both in national and inter-national spheres, and its being one of the prime urban centres, is demonstrated in the sharpest increase shown in the hotels, restaurants and allied business. In terms of commodities, however, the largest increase seems to have been in drugs and chemicals, building materials and automobiles and bicycles.*

A large metropolitan city like Delhi depends for the consumption of its citizens, on the imports of the vast quantities of essential consumer goods : food, cloth, fuels, building materials, and for its industry, on many other raw materials. Delhi, therefore, imports into its territorial limits a great many items. Compiled data for selected commodities given in Table 4 indicate that there has been a steady increase in the 'imports' of most of the Important commodities in Delhi.

TABLE 4 :

Estimated quantities of selected commodities "Imported" in the Municipal Limits of Delhi State (1951/52 to 1955/56)

Commodities	Units	Imported quantities 1951/52*	Imported quantities 1955/56£	Percentage variation between the year 1951/52 and 1955/ 56.
Food	Lakh (Maunds)	138.77	185.61	+ 33.8
Soft goods	Rupees (Crores)	34.94	52.92	+ 51.5
Hard goods	Rupees (Crores)	24.33	33.05	+ 20.1
Automobile	Number	6,605	7,871	+ 19.2
Building Materials	Lakh (Maunds)	405.16	492.24	+ 21.5
Bricks, tiles & Cement etc.	Lakh	29.92	50.46	+ 68.6
Petroleum	1000 (Gallons)	15.33	17.01	+ 11.0
Fuels	Lakh (Maunds)	4.22	5.70	+ 35.1

SOURCE: *Quarterly Digests, Bureau of Economics and Statistics, Delhi State,*

**[1] Ist Quarter, 1955 of the Quarterly Digests.*
@ Ist and 2nd quarter, 1956, of the quarterly Digests.

** 1st quarter, 1956, of the Quarterly Digests.*
£ 1st and 2nd quarter, 1956, of the Quarterly Digests.

The table shows that food imports increased from about 139 lakhs maunds in 1951/52 to about 186 lakh maunds in 1955/56, thus recording an increase of about 34 per cent. By far the largest increase of more than 50 per cent seems to have been in bricks and building materials followed by soft goods. Another item of local consumption i.e., fuel, also seems to have registered an increase of 35 per cent, more or less comparable to food.

Yet another indicator of the business and commercial activity, is the expansion in the 'commercial or bank credit'. Tentative estimates made by the Research Economists of the Reserve Bank of India, reveal substantial increase in the commercial credit from roughly 5,5 per cent of all transactions in 1951 to 15.21 per cent in 1955 in Delhi.*[1] This increase in commercial credit appears to conform the rather substantial increase in the volume of imports in Delhi during this period as indicated partly in Table 4, given above.

II. Business in Delhi and its region.

Unlike other sectors of the economy (viz. industries, transport, government employment and others), there is almost a complete dearth of information for the commercial sector. Apart from sketchy information available only in an indirect form regarding sales tax, imports of certain commodities in Delhi, and occasional reports of the Marketing Officer, there are no systematic data available. Information on items like total employment, investment, sales, purchases, mark-ups, cost of running the establishment is practically unavailable. There is hardly anything known on the relationship of employment and other economic factors to space, location and land requirements. There is a special reason for lack of basic data for this sector. To a very considerable extent, commerce and services have represented a kind of residual employment category which has received the overflow of employable persons unable to find adequate jobs either on the land, or in industry, government, transport, or in a few other specific sectors of the economy Because of the fact that business and commerce are not a 'moving' sector of the economy, but follow the development in other sectors, study of this phase of economic life has received much less attention than actually needed.

In order to get a better understanding of this very vital sector of the economy, and particularly with respect to the existing and future spatial requirements, the Town Planning Organisation undertook a fairly comprehensive survey of the business and commercial activities in Delhi.

The universe for the Survey of Business and Commerce was compiled from the registers maintained by the office of Chief Inspector of Shops, an office which operates under the Delhi Shops and Establishment Act of 1954.*[2] This information was further supplemented through additional sources mainly the Greater Delhi Survey of the Delhi School of Economics.** In all, there were roughly 44,500 business units on October 31,1958. The universe was classified according to employment size, according to major geographical locations, and according to major types of business. The urban area was divided into four major zones : Zone I included the Old City of Delhi and Civil lines; Zone II included Karol Bagh and Patel Nagar; Zone III included New Delhi Planning Division, and Zone IV contained the rest of urban area. Business types@ were divided into 19 major categories : *See on Next Page..*

	Wholesale and retail		Non-commodity handling trade
1	Food	1	Tailors; laundry etc.
2	Soft goods: cloth, toilets, chemicals etc.	2	Beauticians
3	Hard goods : electrical appliances, industrial and agricultural machines etc.	3	Heavy services : automobile and cycle repairers; foundry shops etc.
4	Mixed : Furnishing stores, curtain, floor covering etc.	4	Financial services,
5	Building material	5	Professional services.
6	Petrol pumps.	6	Recreational services.
		7	Other services.

6 for wholesale, 6 for retail and 7 for non-commodity handling firms. The distribution pattern of universe by types of business in major locations and in major employment categories is shown in table 5 and table 6.

* *Bicycle business in Delhi is incidentally the biggest in Asia, and Delhi is reported to contain about one-tenth of all cycles in India.*

*[1] *See p. 143 : Reserve Bank of India Bulletin: 1956-57, New Delhi.*

*[2] *Every shop or firm is required to register itself under this act. A record of sales made by the shops, and employment is kept by this office.*

** *The other sources of information were Director General of Resettlement and Employment ; Trade Associates; Trade Directories and the like.*

@ *The major categories for wholesale and retail trade, and for non-commodity handling firms are as follows:-*

Table No. 5

Distribution of total business units by types of business and major zones in urban Delhi : 1958.

Type of Business		Total Business Units		Number of Business units in major zones							
		Number	Percentage to total	Zone I Old City		Zone II Karol Bagh		Zone III New Delhi		Zone IV Mehrauli, Cantt. Shahdara etc.	
1.	Shops	35,888	80.6	22,642 63.1	(67)	5160 14.4	(2)	6,332 17.6	(36)	1754 4.9	(2)
2.	Commercial establishments	6,941	15.6	5,009 72.1	(99)	693 10.0	(18)	1,123 16.2	(78)	116 1.7	-
3.	Restaurants	1,619	3.6	926 57.2	(8)	202 12.5	(1)	456 28.2	(18)	35 2.1	-
4.	Residential hotels	45	0.1	27 60.0	(11)	1 2.2	-	17 37.8	(15)		
5.	Place of entertainment	39	0.1	15 38.5	(15)	3 7.7	(3)	12 30.8	(12)	9 23.0	(8)
Total		**44,532**	**100.0**	**28619 (100.0)**	**(64.3)**	**6059**	**(13.6)**	**7,940**	**(17.8)**	**1914**	**(4.3)**

NOTE:- (i) Figures in brackets indicate business establishments employing 20 or more persons.

(ii) Horizontal percentage indicate percentage distribution of business units in different zones.

TABLE - 6

Distribution of total business units by type of business and employment category.

Types of business	Total business units		Distribution of Business units in various employment groups									
	Number	Percentage to total.	A		B		C		D		E	
			20 & above		10 - 19		6 - 9		2 - 5		1 - 2	
Shops	35,888	80.6	107	0.3	518	1.4	1,905	5.3	8032	22.4	25326	70.6
Commercial establishments	6,941	15.6	195	2.8	585	804	1,289	18.6	2164	31.2	2708	39.0
Restaurants	1,619	3.6	27	1.7	48	2.9	180	11.1	639	39.5	725	44.8
Residential hotels	45	0.1	26	57.8	1942.2	-		-	-	-	-	-
Place of entertainment	39	0.1	38	97.4	1	2.6	-	-	-			
TOTAL	**44,532**	**100.0**	**393**	**0.9**	**1171**	**2.6**	**3,374**	**7.6**	**10835**	**24.3**	**28759**	**64.6**

Note:- Horizontal percentages indicate percentage distribution of business establishments in different employment categories

It appears from the above tables that the largest number of business units was in the category of shops, which had more than 80 per cent of all the units; next to it were the commercial establishments which claimed another about one-sixth of all the firms in the universe. It may be seen from Table 5 that out of 44,532 business units, about 64 per cent of them were located in Zone I, and roughly 14 per cent in Zone II, another about 18 per cent in Zone III and the remaining 4 per cent in Zone IV.

Table 6 shows that of 44,532 firms, there was a very small percentage (under one per cent), of firms which were employing 20 or more workers. Of these firms, there were 107 shops, 195 commercial firms, 27 restaurants, 26 residential hotels, and 38 places of entertainment.*

* Significant to note is the high mortality rates amongst the smaller sized business units. A word may be added here regarding the ineffective schedules. During and after the survey, it was discovered that the employment category for a large number of units had changed, and due to impending weighing complications, had to be left out of tabulation purview. Similarly quite a few units refused to impart any information for the survey, and some could not be contacted despite several visits.

Of the total 44,532 business units in urban Delhi, 64.6 per cent were employing either 1 or 2 persons, and were left out of the sample frame because of their extreme disorganised character. The total number of business units after counting out those employing 1 or 2 members were first stratified according to various employment categories, and then the sample drawn. Sample fraction differed with the size of the business units. A total of 1969 business units were selected to represent the sample for the comprehensive survey, but finally, the data collected for 689 business units could be processed, tabulated and compiled. Out of the 1280 cases, quite a few were those which could either not be traced at all, or had shut down, or undergone size changes which rendered them irrelevant for purposes of this study.*

TABLE : 7

Distribution of sampled (effective) business units by type of business and by major zones in Urban Delhi.

Types of business	Total Sampled business units.	Effective Sample business units.		Distribution of effective sample business units in major zones.			
		Number	Percentage to total	ZONE - I	ZONE - II	ZONE - III	ZONE - IV
				Old Delhi	Karol Bagh	New Delhi	Mehrauli, Cantt., Shadara etc.
Shops	926	389	56.5	272	21	90	6
Commercial	749	172	24.9	127	14	31	
establishments	210	83	12.0	42	6	28	7
Residential hotels	45	24	3.5	19	-	5	-
Place of entertainment	39	21	3.1	14	1	5	1
TOTAL	**1,969**	**689**	**100**	**474**	**42**	**159**	**14**
			100.0	**68.8**	**6.1**	**23.1**	**2.0**

Note:- Horizental percentage indicate percentage distribution of sample business units in different zones.

TABLE : 8

Distribution of sampled (effective) business units by type of business and employment category.

	Effective sampled business		Distribution of effective sampled business units in various employment groups.			
	Number	Percentage total	A	B	C	D
			20 & above	10-19	6-9	3-5
Shop	389	56.5	46	110	62	171
Commercial establishments	172	24.9	62	56	27	27
Restaurants	83	12.0	10	18	24	31
Residential hotels	24	3.5	12	11	-	-
Place of entertainment	21	3.1	21	-	-	-
TOTAL	**689**	**100.0** **100.0**	**151** **21.9**	**195** **28.3**	**113** **16.4**	**230** **33.4**

NOTE:- Horizental percentages indicate percentage distribution of sampled business establishments in different employment categories.

The distribution of the effective business units surveyed according to major business type and major zones is shown in Table 7, and according to major business type and employment category in Table 8, given above. The results given in the report here to after relate to the effective schedules of the sample survey.

An important aspect of Delhi's business is the export of goods and commodities to a large area outside the territory

* *From the Universe, it is difficult to ascertain the proportion of purely wholesale firms, but the analysis of the survey responses has been done on the basis of wholesale, retail and non-commodity handling firms.*

of Delhi State. Below are presented two tables 9 and 10, which give the percentage distribution of wholesale firms selling selected commodities to various States, and to various distance ranges.

TABLE - 9

Percentage distribution of wholesale business units selling selected commodities to various states and regions of India.

Name of Commodity.	STATE			
	Delhi	Delhi, U.P. and Punjab	Delhi and other states including U.P and Punjab.	Total.
Food grains	-	-	100.0	100.0
Spices, provisions etc.	50.0	-	50.0	100.0
Housing toilets etc.	14.3	14.3	71.4	100.0
Cloth	51.8	13.8	34.4	100.0
Paper & Stationary	8.3	8.4	83.3	100.0
Watches, radios etc.	-	-	100.0	100.0
Electrical goods	8.3	8.3	83.4	100.0
Iron & Steel	-	33.3	66.7	100.0
Chemicals & drugs	10.0	-	90.0	100.0
Sanitary goods	-	33.3	66.7	100.0
Automobile and spare parts	-	20.0	80.0	100.0
Industrial machinery	-	-	100.0	100.0
Leather and footwear	-	-	100.0	100.0

SOURCE:- Business and commerce Survey: Town Planning organization.

TABLE -10

Percentage distribution of wholesale business units selling selected commodities to various distance ranges.

Name of commodity	Percentage of wholesale business units selling selected commodities to various distance ranges					
	Less than 5	5-25	26-100	101-500	501 & above	Total
Food grains	40.0	-	5.0	5.0	50.0	100.0
Spices, Provisions etc.	66.7	33.3	-	-	-	100.0
Hosiery, toilets etc.	25.7	17.2	14.3	22.8	20.0	100.0
Cloth	38.6	26.3	10.5	15.8	8.8	100.0
Paper & Stationery	24.4	22.2	20.0	17.8	15.6	100.0
Watch, radio etc.	22.2	22.2	11.1	22.2	22.3	100.0
Electrical goods	24.2	21.3	18.2	24.2	12.1	100.0
Iron & Steel	25.0	16.7	16.7	25.0	16.6	100.0
Chemicals & drugs	30.8	15.4	7.7	19.2	26.9	100.0
Sanitary goods	20.0	20.0	20.0	20.0	20.0	100.0
Automobile & Spare parts	26.9	19.3	11.5	23.1	19.2	100.0
Industrial machinery	20.0	20.0	20.0	20.0	20.0	100.0
Leather & footwear	20.0	20.0	20.0	20.0	20.0	100.0

SOURCE:- Business and commerce Survey: Town Planning organization.

The distance ranges have been so classified and grouped that they give an impressionistic idea about the delineation of a particular planning region. Thus the distance range of less than 5 miles contains most of the Delhi Urban Area;

the second range (5-25 miles) encompasses the entire Delhi Metropolitan Area: the third range (26-100 miles) covers nearly all the towns and cities of the National Capital Region; and the fourth range which is the area lying between 100 miles off Delhi to 500 miles ahead, is approximately the Delhi's 'Resource Zone', as described in the Chapter on the "Regional Study". The last range, of course, includes the rest of India.

The Delhi Metropolitan Area is apparently the most important of all the planning divisions which seems to absorb more than 40 per cent of the business transactions conducted by the wholesalers of Delhi. Somewhat equally significant is the vast National Capital Region and the areas beyond it, where another 40 per cent of the wholesale business units dealing in all types of commodities except paper products, sell their goods. In fact, 50 per cent of firms dealing in food grains, 42.8 per cent of those trading in hosiery and toilets, 44.5 per cent of watch and radio dealers, and 46.1 per cent affirms handling chemicals and drugs trade in towns and cities which lie beyond 100 miles of Delhi. It is further noticeable that the percentage of business units selling hard goods and soft goods to long distances is even higher than the number of firms selling them within the Delhi Urban Area (less than 5 miles).

III. PROFILE of DELHI'S BUSINESS and COMMERCE:

The commercial activities of Delhi, although varied and vast, are largely concentrated in certain locations in the city. The walled city of Shahjehanabad is an age-old business centre, but its present importance is perhaps even more than in the decades past. In the narrow lanes and dark katras which hardly see the light of the day, is conducted the almost entire wholesale trade in textiles, hosiery, general merchandise, soft goods and innumerable other consumer's items. Because of the typical land use pattern, many markets dealing in commodities such as food grains, kariana, cosmetics, toilet requisites, sanitary wares, sewing machines, stationery items, hardware, paper products, and bicycles tend to be located in their own "specialised" but small areas, where congestion is hardly the word to describe the most un-organised, haphazard and chaotic conditions that exist.

Even though there has been substantial expansion is commerce since 1947, yet the major business centres remain few and mainly concentrated in their traditional locations. Delhi has two major Central Business Districts: one in and around Chandni Chowk and the other at Connaught Place. In addition, a score of commercial offices have recently been located on Asaf Ali Road, almost at the periphery of Shahjehanabad. An important retail centre has gained substantial importance in Karol Bagh area. Besides, several new markets have come into existence since 1947 in the new colonies and around the traditionally established ones. Table 11, gives the development of business concerns of all types by year's of their establishment within the four major survey "zones" of urban Delhi.

TABLE 11

Percentage distribution of business units according to period of establishment arranged by zone and employment size

Zone	Period of establishment						
	Pre 1900	1901-36	1937-46	1947-50	1951-55	1956-58	Total
OLD DELHI	1.6	13.5	10.4	33.0	31.7	9.8	100.0
20 and above	2.3	31.0	25.3	18.4	18.4	4.6	100.0
10 - 19	6.4	19.0	15.1	37.3	16.7	5.6	100.0
6 - 9	2.8	11.1	13.9	34.7	29.2	8.3	100.0
3 - 5	0.8	13.2	8.5	32.6	34.1	10.9	100.0
KAROL BAGH	-	0.9	6.8	27.5	35.1	29.7	100.0
20 and above	-	40.0	-	20.0	-	40.0	100.0
10 - 19	-	12.3	-	25.0	37.8	25.0	100.0
6 - 9	-	-	-	66.7	-	33.3	100.0
3 - 5	-	-	8.3	20.8	41.7	29.2	100.0
NEW DELHI	0.4	7.4	11.0	40.8	34.7	5.7	100.0
20 and above	2.1	25.5	34.0	19.2	10.6	8.5	100.0

10 - 19	4.7	11.6	23.1	25.6	27.9	7.0	100.0
6 - 9	-	5.0	10.0	50.0	35.0	-	100.0
3 - 5	-	4.4	11.1	42.2	35.6	6.7	100.0
SHAHDARA	-	4.7	16.5	24.7	37.6	16.5	100.0
20 and above	-	-	-	-	100.0	-	100.0
10 - 19	-	100.0	-	-	-	-	100.0
6 - 9	-	-	-	-	100.0	-	100.0
3 - 5	-	-	20.0	30.0	30.0	20.0	100.0
URBAN DELHI	1.2	11.1	10.3	33.9	32.7	10.9	100.0
20 and above	2.2	29.5	27.3	18.7	15.1	7.2	100.0
10 - 19	5.7	17.0	16.4	33.9	20.3	6.8	100.0
6 - 9	2.1	9.5	12.6	39.0	29.5	7.4	100.0
3 - 5	0.5	9.6	9.1	33.3	35.4	12.1	100.0

SOURCE:- Business and commerce Survey: Town Planning organization.

The above table indicates that much of the spasmodic development of business and trade took place in the post independence era. It is evident from the table that as high as 77.5 per cent of the total business units in Delhi, excluding of course those employing 1 or 2 persons, came into existence only after 1947.*

Old Delhi which includes the ancient city of Shahjehanabad and a few adjacent extensions of Motia Khan and Subzi Mandi, has the largest percentage of business units (25.5), which seem to have been functioning even prior to the year 1947. Karol Bagh which was a vast rocky hill till recently, and filled in with spotty construction experienced extensive development immediately after 1947. Following that spread business in Karol Bagh Zone, as is evident from the above table. Over 90 per cent of the total business units in that area came into being after the year 1947. Now Karol Bagh ranks third in importance as a business centre.

Interesting conclusions follow from table 11, where the period of establishment is considered in relation with the employment size of a business unit. In fact, the higher the employment size of a business unit, the older seems to be its period of establishment. This positive correlation between these two variables is a characteristic feature of all the study zones into which Delhi has been divided. In urban Delhi, as table 11 indicates, 58.0 per cent of the business units in employment category A (20 persons per firm and above), were in existence even before 1947, as against 39.1 per cent of the business units in employment category B (10-19), 24.2 per cent of those in employment category C (6-9), and 19.2 per cent of the business units in employment category D (3.5). More or less the same pattern is visible in other zones.

From the initial tabulation of the survey of business and commerce in Delhi, it appears that, of all the surveyed business establishments in urban Delhi, 21.3 per cent are dealing in wholesale business' 39.8 per cent are in retail business, and 38.9 per cent are engaged in the non-commodity handling business. Old Delhi seems to have roughly 92 per cent of the total wholesale business units, and 71.3 per cent of the total non-commodity handling units are also located in Old Delhi zone. The retail business units are proportionately spread over in the different zones. Surveyed data further reveals that of the surveyed business firms, in Old Delhi, roughly 29 per cent were in the wholesale business whereas in Karol Bagh, only 10 per cent were in wholesale trade. Non-commodity handling firms, in terms of proportion to all firms, were largest in Karol Bagh area, but perhaps this is due to a large number of firms dealing in timber, coal and iron and the large junk yard at Motia Khan. The marketing activity in certain important commodities seems to be highly localized. Kashmiri Gate has concentration for automobile spare parts and text books, Sadar Bazaar has specialised business in hosiery, plastics and general merchandise; Chandi Chowk and Nai Sarak mainly deal in cloth and textiles; Khari Baoli and Naya Bazaar in food grains, spices, pulses, edible oils; Dariba for sarafa and jewellery. Esplanade Road near Red Fort and Jama Masjid has the largest cycle market in India. The newly constructed Asaf Ali Road is the location of several business offices and commercial concerns.

Table 12 *Next Page* gives the concentration of business in nine important business centres of Delhi by major business types.

Table - 12

Percentage distribution of sampled business establishments in major shopping areas by business types.*

Sl. No.	Business types	Chandni chowk & Nai sarak		Chawri Bazzar		Fatehpuri		Sadar Bazaar		Kashmiri Gate		Sabzimandi		Sub Total		New Delhi Area		Karol Bagh Area		Total	
														Old City Area		New Delhi		Karol Bagh			
		W	R	W	R	W	R	W	R	W	R	W	R	W	R	W	R	W	R	W	R
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	Food grains	-	-	-	-	-	-	40.0	33.3	-	-	20.0	-	60.0	33.0	20.0	66.7	20.0	-	100.0	100.0
2	Spices, sugar tea, provision store, etc	-	20.0	-	-	66.7	-	11.0	20.0	-	-	-	-	77.8	40.0	11.1	60.0	11.1	-	100.0	100.0
3	Hosiery, Cen. Merchandising toilets, etc.	-	60.0	-	-	-	-	92.8	-	7.2	-	-	-	100.0	60.0	-	40.0	-	-	100.0	100.0
4	Cloth	97.4	41.1	-	-	2.6	5.1	-	5.1	-	-	-	-	100.0	51.3	-	30.8	-	17.9	100.0	100.0
5	Papers & stationer	-	-	85.6	15.4	7.2	-	-	23.1	-	-	-	-	92.8	38.5	-	53.8	7.2	7.5	100.0	100.0
6	Watches, radios & photo goods	71.4	-	-	-	14.3	-	14.3	-	-	14.3	-	-	100.0	14.3	-	85.7	-	-	100.0	100.0
7	Electrical appliance & machines	40.0	27.6	-	-	-	5.3	33.3	11.1	22.2	-	-	-	95.5	44.0	4.5	50.5	-	5.5	100.0	100.0
8	Iron & Hardware	-	20.0	66.7	40.0	33.3	-	-	-	-	-	-	-	100.0	60.0	-	40.0	-	-	100.0	100.0
9	Chemical & drugs	31.3	14.3	-	-	56.3	14.3	-	14.3	-	-	6.2	-	93.8	42.9	-	57.1	6.2	-	100.0	100.0
10	Sanitary goods	16.7	-	66.7	14.3	16.7	14.3	-	-	-	-	-	-	100.0	28.6	-	42.8	-	28.6	100.0	100.0
11	Automobile and spare parts	-	-	-	-	10.0	4.5	-	-	80.0	41.0	-	4.5	90.0	50.0	-	50.0	10.0	-	100.0	100.0
12	Heavy industrial machinery	-	-	-	20.0	-	-	-	-	-	-	-	-	-	20.0	100.0	80.0	-	-	100.0	100.0
13	Meat & poultry	-	25.0	-	-	-	-	-	-	-	-	-	-	-	25.0	100.0	50.0	-	25.0	100.0	100.0
14	Leather and foot wear	50.0	-	-	-	-	-	50.0	-	-	25.0	-	-	100.0	25.0	-	75.0	-	-	100.0	100.0
Average		-	-	-	-	-	-	-	-	-	-	-	-	91.9	54.0	5.4	35.8	2.7	6.2	100.0	96.0**

SOURCE **:** *Business and commerce Survey : Town Planning Organization.*

W = Wholesale firms, **R** = Retail firms.

* The distribution of sampled business establishments by business types in zone IV (inclusive of Shahdara) has not been include in the above table, as the number of the surveyed firms in Zone IV in all these detailed categories was too small to give representative results.

** The remaining 4 per cent of the retail business establishments are in Zone IV.

It will be observed from table 12 that, of all the surveyed wholesale firms, an overwhelming percentage of over 92 per cent are located in Old City area. Among the retail firms about 54 per cent are reported to be in Old City (including about 20 per cent in Chandni Chowk); 36 per cent in New Delhi area and the remaining 10.2 per cent in Karol Bagh and Shahdara areas. A good many of the "commission agents" doing business in food-grains, but which do not strictly deal in the commodities are, however, not included in table 12 and; yet 60 per cent of all the wholesale grain dealers among those surveyed and responded were located in Old Delhi area. There are at least seven important commodities including, Hosiery; General merchandise, Cloth; Paper and Stationery, Watches, Cameras and Radios; Electrical Machines and Appliances; Iron and Hardware; Sanitary fittings and goods which are almost exclusively wholesaled in Old Delhi. The wholesaling is extremely localised even within Old Delhi as will be observed from Table 12.

Table 13 also gives the distribution of surveyed firms in the nine major shopping areas of Delhi. From Table 13, it will be observed that in Chandni Chowk over 7 per cent of wholesale firms were dealing in Cloth; while Chawri Bazaar had 66.7 per cent of its wholesaling confined to Paper and

Stationery. In New Delhi area, among the retail firms, 17 per cent were cloth shops; 15.6 per cent were shops dealing in automobiles, scooters, their accessories and spare parts; another 10 per cent of the surveyed firms were dealing in stationery articles and 12.8 per cent of the surveyed firms were dealing in domestic appliances and machines. In Karol Bagh area, in the retail business, the largest proportion of more than 58.4 per cent of surveyed firms were in Cloth; about 17 per cent were in sanitary goods, and about 25 per cent in electrical appliances, stationery and book stores and stores and shops dealing in meat, poultry, vegetables, etc, Kashmiri Gate has majority of its business establishments, both in retail and wholesale, in automobile accessories and parts.

Table - 13

Percentage distribution of business establishments in major shopping areas by business types.*

Sl. No.	Business types	Old City Area												Sub Total Old City Area		New Delhi Area		Karol Bagh Area		Total	
		Chandni chowk & Nai sarak		Chawri Bazzar		Fatehpuri		Sadar Bazaar		Kashmiri Gate		Sabzimandi				New Delhi		Karol Bagh			
		W	R	W	R	W	R	W	R	W	R	W	R	W	R	W	R	W	R	W	R
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	Food grains	-	-	-	-	-	-	9.4	10.0	-	-	50.0	-	2.4	1.6	25.0	2.9	-	-	3.7	2.1
2	Spices, sugar tea, provision store, etc	-	3.6	-	-	28.4	-	4.8	10.0	-	-	-	-	5.5	3.2	25.0	4.3	25.0	-	6.6	3.5
3	Hosiery, Cen. Merchandising toilets, etc.	-	10.6	-	-	-	-	61.9	-	9.1	-	-	-	11.0	4.8	-	2.9	-	-	10.3	3.5
4	Cloth	70.4	57.1	-	-	4.8	33.2	-	20.0	-	-	-	--	30.7	32.4	-	17.1	-	58.4	28.7	27.0
5	Papers & stationer	-	-	66.7	33.3	4.8	-	-	30.0	-	-	-	-	10.2	8.1	-	10.0	25.0	8.3	10.3	9.0
6	Watches, radios & photo goods	9.3	-	-	-	4.8	-	4.8	-	-	9.1	-	-	5.5	1.6	-	8.6	-	-	5.1	4.9
7	Electrical appliance & machines	7.4	17.9	-	-	-	16.7	14.3	20.0	18.2	-	-	-	7.1	12.9	-	12.8	-	8.3	6.6	12.4
8	Iron & Hardware	9.3	3.6	-	-	42.8	16.7	-	10.0	-	-	50.0	-	11.8	4.8	-	5.7	25.0	-	11.8	4.9
9	Chemical & drugs	-	3.6	11.1	33.3	4.8	-	-	-	-	-	-	-	2.4	4.8	-	2.9	-	-	2.2	3.5
10	Sanitary goods	1.8	-	22.2	-	4.8	16.7	-	-	-	-	-	-	4.7	3.2	-	4.3	-	16.7	4.4	4.9
11	Automobile and spare parts	-	-	-	16.7	4.8	16.7	-	-	72.7	81.8	-	100.0	7.1	17.8	-	15.6	25.0	-	7.4	15.2
12	Heavy industrial machinery	-	-	-	-	-	-	-	-	-	-	-	-	-	1.6	25.0	5.7	-	-	0.7	3.5
13	Meat & poultry	-	3.6	-	16.7	-	-	-	-	-	-	-	-	-	1.6	25.0	2.9	-	8.3	0.7	2.8
14	Leather and foot wear	1.8	-	-	-	-	-	4.3	-	-	9.1	-	-	1.6	1.6	-	4.3	-	-	1.5	2.8
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

SOURCE : *Business and commerce Survey : Town Planning Organization.*

W = Wholesale firms, **R** = Retail firms.

* The distribution of sampled business establishments by business types in zone IV (inclusive of Shahdara) has not been include in the above table, as the number of the surveyed firms in Zone IV in all these detailed categories was too small to give representative results.

Regarding the non-community handling business units, which include the service establishments of tailors and dry-cleaners, beauticians and barbers, heavy services of automobile and cycle repairs, professional and financial services, the data have been compiled in table 14.

TABLE - 14

Percentage distribution of non-commodity handling business units by type of business and zone.

Type of business	Distribution of non-commodity handling									
	ZONE - I		ZONE - II		ZONE - III		ZONE - IV		Total urban Delhi	
Tailors	48.8		16.3		32.6		2.3		100.0	
		10.9		31.8		24.1		33.3		15.6
Beauticians	80.0		10.0		10.0		-		100.0	
		4.2		4.5		1.7		-		3.6
Heavy services	84.8		6.1		9.1		-		100.0	
		14.6		9.1		5.2		-		12.0
Financial services	80.0		-		20.0		-		100.0	
		4.2				3.5		-		3.6
Professional services	45.2		12.9		41.9		-		100.0	
		7.3		18.2		22.4		-		11.3
Recreational services	65.0		5.0		25.0		5.0		100.0	
		6.8		4.5		8.6		33.3		7.3
Other services	78.1		5.5		15.6		0.8		100.0	
		52.1		31.8		34.5		33.3		46.5
TOTAL	**71.3**		**7.8**		**19.8**		**1.1**		**100.0**	
		100.0		**100.0**		**100.0**		**100.0**		**100.0**

SOURCE:- *Business and commerce Survey: Town Planning organization.*

The distribution of non-commodity handling business units in various zones is essentially different from the distribution of commodity handling business units. It may be seen from the above table that there are many types of service establishments, especially those engaged in tailoring, laundry and beauticians, which show considerable prominence in Karol Bagh zone, where the commodity handling business firms are much less in proportion. For instance, Karol Bagh zone has 16.3 per cent of the total business units in the first type, as compared to 48.8 per cent in Old Delhi zone, and 32.6 per cent in New Delhi.

The business establishments under professional services which includes doctors, engineers, architects, lawyers and accountants are more or less equally distributed in Old Delhi (45.2%) and New Delhi (41.9%), with 12.9 per cent of them located in Karol Bagh zone Their major concentrated areas are at Chandi Chowk - Nai Sarak in Old Delhi, and Connaught Place in New Delhi. These are also the major locations for the recreational places. Approximately two-thirds of them are in Old Delhi as against 25.0 per cent in New Delhi.

IV. SPATIAL CHARACTERISTICS .

From the view point of future requirements of land in business and commercial uses, perhaps the most important aspect is the relationship of space to the employment size/and to the purchases and sales made by the business of a business unit, to the type of business/establishments. In this section on spatial characteristics are given the data regarding floor area by employment size and by major business types, floor area per engaged person and the sales per worker in major types of business and by floor space. Table 15 shows the percentage distribution of business units in ranges of floor area according to employment size.

TABLE - 15:

Percentage distribution of business units in ranges of floor area according to employment size.

EMPLOYMENT CATEGORY	Distribution of business units in ranges of floor area (in sft.)								
	Less than 100	100-150	151-300	301-500	501-750	751-1500	1500 and above	Total	Average floor area (in square feet)
A 20 & above	0.7	-	0.7	4.7	4.1	19.7	70.1	100.0	1,574
B 10-19	0.5	2.6	14.4	13.9	11.4	29.4	27.8	100.0	1,015
C 6-9	4.5	8.9	21.4	19.6	18.8	15.2	11.6	100.0	570
D 3-5	20.9	17.8	33.9	16.1	4.3	3.9	3.1	100.0	274

SOURCE:- *Business and commerce Survey: Town Planning organization.*

The table indicates a relatively high degree of positive correlation (+ .623) between the employing t size and the floor area of a business unit. It is thus apparent that the larger the employment size of a business establishment, the larger is the floor area. It may be seen from table 15 that 70.1 per cent of the business establishment in the highest employment category (20 persons or more) have a floor area of 1,500 square feet and more, as against 3.1 per cent of the business units in the lowest employment category of 3 to 5 persons in the same floor area range. Among the smaller sized business units, approximately 72 per cent were utilizing a floor area of not more than 300 square feet.

On an average, the floor area per business unit is 1,574 square feet for a business establishment employing 20 or more persons, while the average floor area is only 274 square feet for a firm in the lowest employment category.

Significant conclusions corresponding to the ones reached in the above table result from the analysis of the following table, which shows the percentage distribution of business units in ranges of floor area per employee in the four study zones.

TABLE - 16

Percentage distribution of business units in ranges of floor area per engaged person according to employment size and zone.

Employment Category and zone	Distribution of business units in ranges of floor area per engaged person				
	Less than 50	51-100	101-200	201 and above	Total
A : 20 and above.					
Zone I Old Delhi	36.9	22.8	20.7	19.6	100.0
Zone II New Delhi	37.5	25.0	18.8	18.7	100.0
Zone III Karol Bagh	-	33.3	16.7	50.0	100.0
Zone IV Shahdara	-	-	-	100.0	100.0
Urban Dehi	35.4	23.8	19.7	21.1	100.0
B : 10 - 19					
Zone I Old Delhi	39.7	31.9	16.3	12.1	100.0
Zone II New Delhi	33.3	33.3	22.3	11.1	100.0
Zone III Karol Bagh	32.6	27.9	25.6	13.9	100.0
Zone IV Shahdara	100.0	-	-	-	100.0
Urban Dehi	38.1	30.9	18.6	12.4	100.0
C : 6 - 9					
Zone I Old Delhi	44.8	28.7	19.6	6.9	100.0
Zone II New Delhi	33.3	66.7	-	-	100.0
Zone III Karol Bagh	14.4	47.6	9.5	28.5	100.0

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Table No. 16 Cont'd....

Zone IV Shahdara	100.0	-	-	-	100.0
Urban Dehi	39.3	33.0	17.0	10.7	100.0
D : 3 - 5					
Zone I Old Delhi	52.9	33.1	11.3	2.7	100.0
Zone II New Delhi	54.2	20.8	25.0	-	100.0
Zone III Karol Bagh	50.0	20.5	13.6	15.9	100.0
Zone IV Shahdara	9.1	45.5	9.1	36.3	100.0
Urban Dehi	50.4	30.0	13.0	6.5	100.0

SOURCE:- *Business and commerce Survey: Town Planning organization.*

It is evidenced from the table that the larger sized business units have a larger floor area per employee as compared to smaller sized firms. As is apparent, in 21.1 per cent of the business units in employment category A (20 and more), the floor area per employee is 201 square feet or more, while the percentage is only 12.4 per cent in employment category B (10-19), 10.7 per cent in employment category C (6 - 9), and only 6.5 per cent in employment category D (3 - 5). The same distribution pattern is observed for the floor area range of 101 to 200 square feet. However, just the reverse trend is noticeable for the floor area range of less than 50 square feet. While, in 35.4 per cent of the business units in employment category of 20 and above, the floor area per employee is less than 50 square feet, the percentage is as high as 50.4 per cent in the lowest sized firms.

There is a noticeable variation in the floor area per employee in the different zones. In approximately one-fifth of the total establishments of Old Delhi zone, the floor area per employee is more than 200 square feet, as against 50.0 per cent of total firms in Karol Bagh zone falling the same floor area range. However, in the lower floor area ranges, the disparity is not significant.

In the subsequent table, an attempt has been made to show the floor area variation in major types of business and in various employment sized firms.

TABLE - 17

Floor area per engaged person by types of business in various employment categories.

Types of business	Floor area per engaged person (in square feet)									
	WHOLESALE					RETAIL				
	20 & above	10-19	6-9	3-5	Average	20 & above	10-19	6-9	3-5	Average
Food	38.8	37.2	12.0	43.6	46.2	43.3	10.1	84.6	54.8	64.4
Soft goods	116.3	75.9	83.8	99.7	102.3	81.5	98.8	117.1	66.3	88.1
Hard goods	104.2	199.6	97.7	79.8	120.9	74.7	56.1	84.6	56.7	70.0
Mixed	78.2	82.4	143.0	60.0	81.1	57.6	157.1	59.2	63.8	76.4
Building materials	-	-	-	-	-	152.7	31.0	412.4	433.0	235.9
Petrol pumps	40.9	-	-	-	40.9	-	222.0	162.5	-	125.0

SOURCE:- *Business and commerce Survey: Town Planning organization.*

It will be observed from the above table that a minimum floor area of 46 square feet per engaged person is in wholesale business of food and food products. Correspondingly, the floor area of 64 square feet per engaged person is also the lowest in the retail business of food products. The floor area used by one worker ranges between 46 and 121 square feet for the wholesale trade, and between 64 and 121 square feet for the retail trade. The high floor area figures for the retail trade in the building materials are primarily due to the inclusion of the coal depots in this category, which generally occupy a much larger area. The disparity in floor area ranges is much more marked in retail trade than in wholesale. The business units in higher employment sizes appear to be a little more congested than the smaller sized ones. This is also evidenced from the above table : the floor area per engaged person in all types of business groups is lower for business units employing 20 and more

TABLE - 18

Sales per engaged person and per 100 square feet in major types of business.

Types of business	Sales per engaged person (in thousands rupee)		Sales per 100 sq.ft of floor area (in thousand rupees)	
	Wholesale	Retail	Wholesale	Retail
Food	216.9	6.8	508.9	11.0
Soft goods	1376.7	23.3	127.5	27.1
Hard goods	95.7	44.9	79.5	30.9
Mixed	121.9	10.8	246.2	15.7
Building materials	-	44.2	-	19.3
Petrol pumps	136.8	59.4	334.5	40.4

SOURCE:- *Business and commerce Survey: Town Planning organization.*

Data on sales per engaged person and per 100 square feet of floor area have been compiled in Table 18. In wholesale business, the sales per engaged person (which are to the tune of Rs. 13,76,700/-) are the highest for soft goods and lowest for hard goods. Relatively speaking, in retail trade the sales per engaged person for hard goods are the highest.

Sales in relation to space have also been indicated in the above table, and it will be seen that in the wholesale trade, highest sales per 100 square feet of floor space were reported in food and food products. Significantly high sales per 100 square feet of floor area were also reported for mixed products which claimed sales worth more than Rs. 24 ,62,000. In retail trade, the highest sales of %. 339,000 were reported in hard goods, and the lowest of %.11 ,000 in food and food products.

It is perhaps not fair to make the sales and floor area estimates for all types of commodities in different parts of Delhi, as variations seem to be correlated with many factors, some of which are unknown variables. However, it appears that in the retail trade, the floor space per employee seems to vary between 50 to 100 square feet, while in wholesale trade, the clustering seems to occur in between 40 and 125 square feet.

SEPARATE GODOWNS :

No discussion of business and commercial activity in a metropolitan city could be complete without a reference to the available storage and warehousing facilities. The survey of business and commerce revealed a number of interesting facts about the warehousing and storage facilities available to the business establishments, which are a sine qua non for every large scale business activity. Firstly and more expectantly, the wholesale business units have a large number of godowns per unit as well as in totality, than the retail or non-commodity handling establishments in Old Delhi. While the percentage of wholesale firms having separate godowns was 59.2, it as only 17.3 per cent for retail trade units. On an average, 37.7 per cent of the total business units had godowns in Old Delhi, as against only 24.6 per cent of New Delhi business establishments; even the number of godowns per unit was higher for Old Delhi (1.87 than for New Delhi (1.51). Secondly, and more pronounced is the fact that most of the business units, wholesale as well as retail, presently operating in New Delhi, have their godowns in Old Delhi area, thereby congesting the already and acutely crowded godowns of the area. The survey further showed that only 59.2 per cent of the wholesale units of Old Delhi have separate godowns as against 100 per cent of the New Delhi and Connaught Places' business unit.

V. PROSPECTIVE LEVEL OF BUSINESS, COMMERCIAL AND ALLIED ACTIVITIES.

In a large metropolitan area, the variety in the character and pattern of commercial business and allied activities is always at extreme 5 and it is particularly so for Delhi, which has, since long, been regarded as the 'problem metroplis' of India. Here, the commercial activities are not only directed towards meeting the local and metropolitan consumption needs, but they are stretched all over the northern India, and even to some other parts of this sub-continent. This fact coupled with many other similar complex issues make this sector a difficult one to analyse from the view point of provision of adequate land. Furthermore, estimating the employment potential in the business and trade sector, which is importantly dependent upon the developments in the other sectors of the economy, is fraught with handicaps, and its stratification into the various business types severely limited. Even the projections on the basis of past trends are not easy to arrive at due to the lack of consistency in the census definitions. According to the

compiled data, there were approximately

1.25 lakhs people engaged in business and commercial sector in 1951, and they constituted 19.6 per cent of the total working force in Delhi. In addition, there were 33,000 persons counted under professionals and liberal arts, and another 82,000 in other services. Thus, there were 240,000 persons or 37.7 per cent of the total working force involved in the combined sectors of business and commerce, professional services, and other services. The projected estimates for 1981 indicate that this sector will more than double itself, though it may form almost the same proportion in the total working force in the coming decades. As against 37.7 per cent in 1951 , these three combined sectors are expected to constitute roughly 37.1 per cent of the working force in 1981, and will contain about 775,000 persons. Of these 775,000 persons, at least 420,000 have been estimated to be in the business and commercial activities, which by themselves will claim roughly one-fifth of the total working force.*

By 1981, the number of people in this general category, comprising of three sectors, requiring permanent structures may rise to anything between 70 and 80 per cent out of a total 775,000 persons or roughly an average figure of 550,000 persons. It is most improbable that a figure as high as 50 per cent of the total projected working force in trades, business and commerce, professional and other services could find jobs and accommodation in either local, or 'district centres'.@ In fact, in a metropolitan area such as Delhi, a larger proportion of people are likely to find employment close to the city centres rather than in their own localities. A figure between 25 to 35 per cent is most likely to be the plausible one for the local and 'district centres'. The distribution of estimated working force, in terms of space and employment, works out to be roughly 195,000 in the major downtowns of this metropolitan city; Chandni Chowk; Sadar Bazaar in Old Delhi and Connaught Place,

Asaf Ali Road - Minto Road, Parliament Street in New Delhi; and approximately 9 3,200 persons in the proposed sub-central business districts of Karol Bagh and Shahdara. The •district centres1 and the 'sub-district centres* which are distributed all over the urban complex, will roughly employ 193,500 persons. Approximately 79,000 persons are expected to find employment in the wholesale and specialised markets, and additional 75,000 persons may work in the commercial firms. The remaining 139,000 persons may reasonably find employment in local and neighbourhood shopping centres, and in warehousing and storage godowns. The distribution of anticipated employment in various types of business and their land requirements are given in the Table 19.

It may be pointed out that the assumed neighbourhood distribution corresponds with an allowance of about six to seven shops per thousand population, employing on an average 3 persons per establishment. The District Centre, on the other hand, corresponds with an employment figure of 10,000 persons, but variations are likely to be there, depending upon the size of the District Centre and its overall location in the urban core. In each case, an unspecified proportion of this employment will be in non-covered space which may not require permanent structures. Some 20,000 persons or more may even earn their livelihood as hawkers, pedlers, commission agents, touring salesmen, etc., which are accounted for in the 'residual employment' category.

It is now feasible to examine the space requirements which will be needed to accommodate the anticipated volume of employment. Space requirements for local and neighbourhood shopping are based on the particular needs and on the income patterns of the people, and are, therefore, not discussed in this Chapter.** Similarly, the land required by the commercial firms, which include places of recreation, are also not given in the Table 19.

As has been indicated in the earlier sections, the space requirements of persons engaged in the commercial sector range between 50 square feet to 200 square feet per employee, and even more in a few larger establishments. As methods of conducting business and trade record improvement, the floor area requirements per worker will undoubtedly increase, although there may be some offsetting factors, like the increase in the height of buildings which always tend to make the volume of employment per acre relatively stable.

In making provisions for the anticipated employment in the commercial and related activities, the most crucial question is the volume of commercial land, which will have to be developed in the course of the next twenty to twenty-five years in the urbanized areas and in the central portions of urban Delhi. Present land in intensive commercial development in the central areas of Old Delhi and New Delhi probably does not exceed 150 acres, and a provision of substantial land seems to be necessary in order to accommodate the anticipated employment of approximately 195,000 persons in the Central Business Districts. In addition, land will be required for the District and Sub-District Centres,

* *Land for the local and neighbourhood shopping centres will be marked in the Zonal Plans.*

** *For details refer the Chapter : The Economic of Delhi. @Such a high percentage conflict violently with the experience of the more urbanised countries of Europe and America, for which data are available*

for the specialised wholesale markets, and for warehousing and storage. Besides, land will also be needed for housing commercial offices, mineral sidings, (storage for coal, etc.) and local and neighbourhood centres.

Distribution and Location of Business and Commercial Employment.

The distribution of employment in the commercial sector has been considered in the following major types. Each of these has been described briefly below. -

(1) Central Business Districts of the Metropolitan Delhi;

(2) Sub-Central Business Districts;

(3) District Centres;

(4) Sub-District Centres;

(5) Specialized and Wholesale Markets;

(6) Commercial Firms and offices;

(7) Warehousing and Storage, including mineral sidings;

(8) Local and Neighbourhood Centres;

(9) Residual Business Employment.

Table 19 gives the distribution of anticipated employment in business, and commerce, and professional services sectors by major types in Delhi.

TABLE - 19

Area and anticipated employment (1981) in business, commercial Professional and service sector by types in Delhi.

Types	Number of locations	Land requirements (acres)	Ranges of employment density/worker per acre	(1981) anticipated employment	% to the total
(1) Central Business Districts	2	487**	375/450	1,94,800	26.8
(2) Sub-central Business Districts	2	232**	375/425	93,200	10.3
(3) District Business Centres	15	491	275/325	1,48,000	19.1
(4) Sub-District Business Centres	18	209	200/250	45,500	5.9
(5) Specialised and Wholesale Markets	8	554	100/400	79,000	10.2
(6) Commercial firms*	-	-	-	75,000	9.7
(7) Warehousing and storage, including mineral siding	10	994	25/35	29,500	3.8
(8) Local and Neighbourhood Centres+	-	-	-	90,000	11.6
(9) Residual business employment	-	-	-	20,000	2.6
TOTAL	-	**2,941**	-	**7,75,000**	**100.0**

* *Include the employment in hotels, clubs, and recreational places.*

\+ *The acreages in the local and neighbourhood shopping centres, and in commercial firms will be determined in the detailed neighbourhood and zonal plans.*

** *Includes 121 acres, which would be made available after redevelopment of certain areas therein.*

In the land allocations that have been made and shown in Table 19, provision has been made to include approximately 121 acres in the Central Business Districts and sub-central Business Districts, which would be made available only after redevelopment of certain portions of Old Delhi and Karol Bagh. These have not been shown as Commercial areas in the Land Use Plan, but have been taken into account for the distribution of anticipated employment. At the same time, provision is also there to redensify certain residential areas of New Delhi in the vicinity of Connaught Circus, which are being usurped by commercial uses. This redensification scheme which extends south- westward along the Parliament Street in the direction of the Central Secretariat has been shown in the Land Use Plan, and included in the above table.

1. Central Business Districts :

For the various historic and economic reasons, Delhi remains one of the few cities in the world which have more than one Central Business District. The old area of Chandni Chowk with its concentration of the wholesale business and the comparatively recent one in Connaught. Place area and around its latest extensions on Parliament Street are, in fact, the two downtowns of Delhi.

By far, the largest bulk of land, though at a higher density,

has been envisaged for commercial development in the general surroundings of Connaught Circus and Parliament Street. It has been found that the commercial area available at present is not sufficient to meet the growing need for central location of offices and retail trade. Hence, it is recommended to extend the commercial area upto Keeling Road and the proposed overbridge over the railway. No piecemeal commercial development should be allowed in this area but should be part of an overall detailed plan, to ensure adequate traffic circulation, parking requirements, water, drainage, power and other facilities.

Commercial land as a part of the Central Business District of New Delhi is also reserved on Minto Road and Ranjit Singh Road, so as to form a link with the commercial area on Asaf Ali Road and the Old City. Due to the unfavourable location of Kamla Market (it is also poorly planned) it is proposed to shift the commercial establishments to the proposed commercial area on Minto Road. The Kamla Market site will form part of the recreational area which will stretch from Delhi Gate to Ajmeri Gate.

It is essential to appreciate fully the role of commercial activity in those areas which will become available only after redevelopment, for inclusion in the Central Business District of Old Delhi. It is generally recognized that the present conditions in Old Delhi area, and more especially in the Walled City, are far from satisfactory, and major portions are overcrowded, congested, and to a certain extent, dilapidated too. This situation can be remedied out only slowly and gradually, and only by a systematic relocation of a substantial portion of the present population of this area. Under the existing crowded conditions and high land values, it is considerably difficult to reduce densities and even more difficult to provide a desirable level of utilities and services like schools, parks, playgrounds and other similar facilities. On the other hand, with adequate attention given to the problems of de-congesting certain areas, and of improving traffic circulation, increased commercial activity could certainly be sustained. It is a fact that the floor area ratios and employment densities are considerably below the optimum suggested for the Central Business District of Old Delhi. The discrepancy between the intensity of existing commercial uses and possible future intensities, points out the feasibility of a long term programme of redevelopment and rehabilitation, thereby making available larger areas for an orderly commercial development.

In order to relieve the pressures of population and business from the Central Business District of Old Delhi, it is necessary to shift a substantial portion of the present job opportunities outside to certain other areas. An important feature of the proposals aimed at in this direction is to shift all the manufacturing industries out of this area, and to develop new industrial area in the adjacent locations of Motia Khan. At the same time, access to the newly set up industrial area in Motia Khan from the Mailed City areas must be facilitated by an improved circulation network. Improved arterial highways and bicycle paths have been proposed in the traffic and circulation plans for these areas. When these requisites are met, the construction of new housing should be accelerated. This means that roads, utilities and land development must be undertaken simultaneously, and on a more controlled basis.

Given these desirable preconditions for redevelopment over a long period of time, the management of the redevelopment of any particular area of the city will present intricate problems when it becomes an immediate issue Resident families must be moved to 'transit camps' with specific provisions for their rehousing closer to 'areas of work', so that there is no dislocation in their livelihood sources. Existing commercial activities must be rehoused immediately in the downtown area. Redevelopment must accord with the desired residential densities and with the scheduled development of suitable transportation and access facilities.

In this process, the relocation of commercial activities seems to occupy a key position since no single move can be made for major redevelopment close to the centre of the city without making commercial facilities immediately available. For this reason, the availability of land in the inlying locations is of significance, and its disposition should be rigorously controlled. Premature plans to redevelop the inlying land for residential purposes are especially to be avoided except those in accord with an overall precise plan for redevelopment. The relation of certain specific types of activities such as wholesale markets dealing in textiles, bicycles, foodgrains, iron and steel, at suitable places, will provide an opportunity for initiating a planned redevelopment and renewal of the business areas of Shahjahanabad : Chandni Chowk, Sadar Bazar, Khari Baoli and Nai Sarak, etc.

Buildings in the Central Business Districts with an average height of six storeys and an average site coverage of 50 per cent will have a floor area ratio of 300 and above, which means that they will provide three acres of building space for each acre of land area. At an average figure of 70 per cent building efficiency (after allowing for corridors circulation and service areas), this means 2.1 acres or 90,000 square feet of working space. At 200 square feet per worker, a net acre of commercial land will be able to accommodate more than 450 workers, This is however, a maximum figure, and will not be reached in all probability, except perhaps for larger commercial offices,

insurance companies and banks, for various reasons. *[1]

Firstly, many wholesaling and other business exceed or can be expected to exceed the 200 square feet per worker allowance at a relatively early date; **secondly,** a great many of the existing buildings will continue to be used for a long time to come and will not therefore, achieve the suggested floor area ratios and optimum employment densities; thirdly, in some locations, architectural design and transportation considerations will suggest lower floor area ratios and lower employment densities; and **finally,** high floor area ratios and multiple storey structures will not be, at least in the initial stages quite the same in fringe areas for decades to come.

The two Central Business Districts will cover approximately 487 acres, and provide employment to 194,800 persons. Of the total employment in 1981 envisaged in these combined sectors, the Central Business Districts will have the largest share of 26.8 per cent. The area, location and employment densities for Central Business Districts and Sub-Central Business Districts are given in Table 20 below. -

TABLE - 20

Area, location and anticipated employment (1981) in Central and Sub-Central Business Districts in Delhi.

Type	Land area in acre proposed	Ranges of employment density / workers per acre	Anticipated employment (1981)
A. Central Business District: 1. Old Delhi (including Chandni Chowk, Lajpat Rai Market and other contiguous areas).-	132	375-450	52,800
(a) Existing			
(b) To be available after redevelopment	88	375-450	35,200
2. New Delhi (including connaught Place - Parliament street, Indraprastha Estate, Asaf Ali Road and Minto Road)	267	375-450	1,06,800
SUB - TOTAL	**487**	**375-450**	**1,94,800**
B. Sub-Central Business District:			
1. Karol Bagh-			
(a) Existing	42	375-425	16,800
(b) To be available after redevelopment	33	375-425	13,200
2. Shadara	157	375-425	63,200
SUB-TOTAL	**232**	**375-425**	**93,200**
GRAND TOTAL	**719**	**400*[2]**	**2,88,000**

*[2] *Average employment Density.*

2. Sub-Central Business Districts :

Besides the Central Business Districts of Old Delhi and New Delhi, two sub-Central Business Districts have also been proposed in the plan. One, comprising of 75 acres, is in Karol Bagh, which includes the extensive market on Ajmal Khan Road, and Ghaffar Market. Out of the 75 acres under the sub-Central Business District of Karol Bagh, approximately 33 acres would be made available only after redevelopment of certain congested areas of Karol Bagh.

The second sub-Central Business District of about 157 acres is proposed in Shahdara : the site being on the south of Old Shahdara. Shahdara does not have any organized business centre at present. It is suggested to develop both these districts on an employment density of about 400 persons per acre. The total employment in these Districts is expected to be around 93,500 persons.

* *It is of course to be expected that this programme will cover a considerable time span. During this time and starting from the earliest possible date, precise rules for reconstruction and rehabilitation must be laid down, area by area, for the Old City. The specific plans will provide means by which the redrawing of plot lines may be facilitated in order to achieve more economic utilisation of land. This will also make new provisions for street widths and setbacks and for the location of utilities. Over a period of time, the application of these rules and standards, under systematic programme of public and private cooperation can result in remaking of large areas of the city. It is specially important that these standards and rules be worked out at an early date for those areas in which it is expected that the main burden of redevelopment will fall upon private persons or enterprise.*

*[1] *It Connaught Place, Parliament Street and adjoining areas, the floor area ratio is upto 400. For details refer to the Chapter: "THE LAND USE PLAN"*

At present, the area under business in Karol Bagh and Shahdara, because of the nature of development and lower floor ratios is much below the optimum utilization. But because of the structural overcrowding in the commercial areas of Connaught Place and Asaf Ali Road, the land in Karol Bagh is being usurped fast. Even Shahdara is experiencing scarcity of the necessary commercial activities, and all this has resulted in sky-rocketing of the prices and rents of the properties. It will, therefore, be feasible to develop the proposed sub-Central Business Districts, at more intensive commercial utilization and with optimum employment densities.

3. District Centres:

The tendency towards the concentration of commerce, banking services, and professional activities in the centre of the city is traditional not only in India, but throughout the world.* In a country facing increasing urbanization, a properly planned district centre has some definite and viable advantages. It could effectuate a more rational distribution of work locations and places of residence; it could avoid unnecessary travel thereby bringing efficiency and economy to the city's transport and circulation system; and finally it may create a 'community feeling' and 'social belonging' in a large metropolis, where anonymity and apathy are the general social characteristics.

It is therefore expected that a very consistent and persistent planning effort will be needed in order to create the best possible circumstances for the growth of the district centres. This planning effort includes the provision of adequate space for growth and expansion, the provision of easy circulation within the centre and from areas tributory to the centre, and in few cases, direct efforts to stimulate the location of employment within these centres. Location of central governmental employment in some of these centres, and of 'flatted factories' could be very decisive in this regard. In particular, an effort must be made to avoid, as far as possible, unnecessary dispersal of neighbourhood services, where they might function better in a compact centre, and regulate the growth of selected commercial activities in the city centre.

While such growth cannot be avoided, its segregation into suitable structures in suitable locations within the Old City and in Connaught Place area will gradually result in an inevitable rise of costs to the commercial tenant, which will favour decentralisation into the proposed district and sub-district centres to some extent. Evidently, these centres have an assumingly important part in the integrated development of the commercial sector.

With this view to effectuate a more logical distribution of the shopping facilities, to minimise traversing period, and obviate the necessity of travelling to central city areas, and to provide general amenities, 15 major District Centres have been envisaged in the plan for the Delhi Metropolitan Area. The District Centres together contain 491 acres. The size of a District Centre varies from a low of 14 acres to a high of 57 acres, depending upon the location, distribution of population, type of employment likely to be attracted and on the density pattern, The corresponding population hinterland for a District Centre is from 1.5 to 2.5 lakhs population. The floor area ratio recommended is 150, and on a gross density ranging between 275 and 325 persons per acre, it is estimated that the proposed District Centres would employ about 148,000 persons.

Besides the retail shops and department stores, these centres are to accommodate a certain amount of commercial offices, hotels, restaurants, service stations and, in some cases, a component of central government and/or municipal government employment. In almost all the cases, they will also contain some proportion of manufacturing activity in the form of 'flatted factories.'

The level of amenities in the proposed District Centres should he of a fairly high order so that it serves, more or less, the same function as a normal city centre does in a city with a population of about 2.5 lakhs. The locations of the District Centres are indicated on the Land Use Plan, and below are given the locations with the area.

	Location	Area in acres
1	Pussa Road	23
2	Khyber Pass - Civil Lines	16
3	Loni Road - Shahdara	32
4	Malviya Nagar	48
5	Kalkaji	57
6	"Eleven Hundred Acres" development Scheme along Ring Road	38
7	Ring Road/ Najafgarh	31
8	Shalimar Garden area	25
9	Nangloi area	32
10	Wazirpur - North Western area	50
11	Shakurbasti	40
12	Dilshad Garden - Shahdara	14
13	North Shahdara	16
14	South Shahdara	32
15	New Jail area - Najafgarh	37
	Total...	**491 acres**

4. Sub-District centres:

Apart from the district centres, it has also been envisaged

** Only in the case of United States 2 a predominantly urban nation, with large number of cities and with a high automobile ownership and expensive highway system, is in evidence a substantial weakening of this tendency.*

to provide, at certain locations, some sub-district business centres. In all 18 locations for such sub-centres have been suggested with areas ranging between 5 and 26 acres. The total area in these centres would be 209 acres and they are expected to provide employment to about 45,500 people. These sub-district business centres will be developed on a density ranging between 200 and 250 persons per acre. The services of a sub-district centre will be available to roughly one to one and a half lakh population. The following is the list of the sub-district shopping areas.-

	Location	Area in acres
1	Gole Market	10
2	Khan Market	13
3	Vinay Nagar	16
4	Malkaganj	12
5	Gokhle Market	10
6	Azadpur - G.T.Road	6
7	Jhilmil area	13
8	Tihar village	10
9	Tilak Nagar	6
10	Kashmiri Gate	14
11	I.N.A Colony	16
12	Jhandewalan (Naaz Cinema)	26
13	Malvia Nagar	18
14	New Jail Road	10
15	Rohtak Road	10
16	Azadpur Road	8
17	New Delhi Station	6
18	Panchkuin Road	5
	Total...	**209 acres**

The function of a sub-district centre is similar in nature to that of a district centre, except that the latter has to cater to more occasional needs, while these sub-centres will service nearly the major day-to-day needs. The sub-district centre may even contain recreational centres like cinemas, and restaurants, etc.

5. Wholesale and Specialized Markets;

Amongst the commercial activities in Delhi or in any large metropolitan area, there are several forms of specialized activities, especially in the handling of bulky materials, which require special treatment. Owing to a relatively low level of urban economy, there is frequently a significant and close relationship between the wholesaling and retailing activity, and yet, the intensity and nature of this relationship varies from one commodity to another. In almost all cases, they generate heavy traffic because of their extensive goods handling characteristics. This inevitably puts undue burden on the circulation system, particularly in the congested parts of the city. Once established, they become entrenched not only by the force of habit and custom, but also by the specialized character of some of the facilities used, the subsequent emergence of allied trades and frequently due to the lack of suitable sites elsewhere. Planned efforts to make such land available and to locate heavy traffic generators near these facilities, which will not, in the future, be grossly overtaxed; should make relocation of some of these markets feasible.

There are 8 major types of wholesale and specialized markets discussed. The area, location and employment in each one of them is given in Table 21.

TABLE 21

Area, Location and Employment in Specialized and Wholesale Market in Delhi.

	Type	Proposed land requirements (in acres)	Range of employment / workers / acre	1981 Anticipated employment.
a	Fruits & Vegetables	35	75-125	3,500
b	Wholesale grains & other food-stuffs.	17	125-175	2,500
c	Bicycles & accessories	10	175-225	2,000
d	Cloth market	10	375-425	24,500
e	General merchandise & hosiery	61	375-425	300
f	Fodder market	6	25-75	20,000
g	Iron, steel & junk (a) (b)	200 15	75-125 125-175	2,000
h	Building materials	200	75-125	20,000
	Total	**554**	**142**	**79,000**

(a) Fruit and Vegetable Market

The present Subzimandi represents a highly concentrated wholesale centre where prices are set or fixed, and it acts as a genuine collection and distribution centre for the major volume of fresh fruits and vegetables entering into Delhi. The present facility, although specially designed as a wholesale market, is now significantly below standards, overcrowded and acutely congested. Its space reached the 'saturation point' long ago 5 now it is so operated as to constrict traffic unevenly along the adjacent highway of the Grand Trunk Road. The retailing operations which are closely related to the wholesaling activities in the market, are largely the result of the original physical design, and management of the market is not a necessary concomitant to its operation. During the hours before noon, the market presents a picture of complete chaos and confusion. Hand-driven carts, horse driven 'rehris' and heavy trucks all seem to compete vigorously for their right of way. Loading [+]is done almost everywhere. The small passages inside and unloading [+]the market are also choked with baskets and venders. There just appears to be no system, no organization and no storage, book-keeping or systematic handling of either fruits or vegetables.. The business however, seems to be growing steadily even though there is no provision for space anywhere.

Under the present conditions, it is desirable to reconstruct this market completely on its present site, and in addition mark a few more sites to relieve the burden of the present mandi. It may be recalled that the marketing activities of the present mandi include the distribution of fresh fruits and vegetables which arrive by rail in Delhi, of which about 50 percent are transhipped again. Since these fruits are sold by auction right when in the railway wagons and rapidly distributed, it would seem desirable to locate the entire marketing opeation next to a suitable railroad siding in order to minimize the avoidable movement of goods.

Suitable land adjacent to Daya Basti railway station in Sarai Rohilla siding has, therefore, been earmarked for this purpose in the Plan, and it is proposed that fruit deliveries be re-routed to this siding from their present siding near Ajmeri Gate. The construction of this new market, long overdue in this location, will provide for a more efficient layout and will remove a substantial volume of parking, hawking and cross-traffic from the Grand Trunk Road. Another site for Mandi has also been proposed near Okhla, in the south of Delhi.

(b) Wholesale grain market:

The present wholesale grain market in Naya Bazar covers approximately five acres in lot area and streets. It is one of the most congested markets, and a great deal of the merchant's stock is stored on the public side-walks. Animal-driven vehicles are used for distribution which invariably clog the major streets. The parked heavy vehicles and loading and unloading operations on the sides cover the available space on the road, and on the side-walks and verandahs in front of the shops. The continued existence of this market with its multifarious activities that go on there in a crowded part of downtown Delhi is an anomaly in more ways than one. Although, this type of market should have, specially designed facilities, it is conducted most inefficiently even on the first floors of old, unsuitable and overcrowded buildings.

There are indications that in all probability, the volume of food-grains that move through this market will gradually decline because, with the passage of time, milled flour will undoubtedly achieve higher consumer acceptance in the

future. Since almost all of the existing flour mills in the city import their grain directly by rail, the importance of this market is likely to go down. The use of animal power for vehicular traffic will also decline as traffic management and sanitation dictate the removal of animal-driven vehicles from the streets.

Food-grains are distributed throughout Delhi roughly in proportion to the population. With the decentralization of population and shift of the centre of gravity of population, the present location of this market is likely to lose the advantages it possesses now. A new market which can take over some of the functions of the present market, but not far away from the existing, would be most commendable. Considering this fact, a site near Teliwara, in the north of Sadar Bazaar, has been suggested for this purpose. Some of the offices conducting the whole-sale food grains business, however, could continue in the Naya Bazaar with limited stocks. All the stocking of the food grains must necessarily be shifted to the sites proposed for this purpose.

(c) Bicycle and accessories market:

Still another trade in which retail and wholesaling are partially linked is the bicycle market. At present, the large number of bicycle dealers, who combine wholesale and retail activities, are located along the Esplanade Road near the Red Fort - Jama, Masjid area, where they create serious traffic problems and usurp public space for display and even for assembling operations. This centre which was established only in the post 1947 years, transacts considerable business in bicycles and parts. The relocation and reorganization f this trade should be helped by the provision of approximately 10 acres in Jhandewala area.

With the strict enforcement of zoning and other regulatory measures, the present site should be cleared of this trade and the road access between Chandni Chowk and Jama Masjid improved.

(d) Cloth Market :

Another important commodity market of cloth which has been considered here is unique in its characteristics and of considerable interest. Despite the relatively minor importance of Delhi and North India in the manufacturing of textiles, the Delhi cloth market occupies a position of considerable importance. Materials are assembled from throughout India and are displayed for inspection by buyers coming from radius of several hundred miles from Delhi. Cloth is wholesaled to retailers in and outside of Delhi and significant proportion of the total volume eventually becomes transit traffic through this centre. It is not too practical either to disperse this market or to move it far from the centre of the city because of the large number of buyers and the relatively small quantities in which they purchase, and also because of the fact that the cloth trade deals in a much more highly varied product than, for example, steel or bicycles, etc.

Even though most of the cloth wholesaling and marketing is concentrated in Chandni Chowk area, there is quite a bit of scatter in this trade. However, most of the establishments operate in one-storey buildings known as "katras" directly in and around Chandni Chowk, Their godowns are also located mostly in the narrow and dark lanes and alleys of the immediate neighbourhood. Some substantial stocks are also carried on in hand in the market. General conditions show over-crowding, extreme congestion, lack of adequate sanitation and insufficient light and air. Despite the intensity of use of these one-storey buildings, the total use of this land is not in conformity with its high value and its central location.

In the course of general redevelopment of Chandni Chowk area, this market should be relocated, rehoused and very substantially modernized; possibly built in multi storey buildings with far better design and facilities. The solution which apparently would be preferred by members of the market would be to relocate the trade nearby. It is, therefore, suggested to move the wholesale cloth market in about a 10 acre site, west of Church Mission Road. This may be developed on a considerable higher density ranging between 375 persons per acre and 425 persons per acre. The wholesale cloth market is expected to provide employment to about 4,000 persons.

(e) Fodder Market :

Fodder market covering approximately six acres is proposed to be retained near Daya Basti on Najafgarh Road.

(f) General Merchandise and hosiery :

General merchandise is significantly important in day-to-day's needs of the people. The market for these goods will continue in Sadar Bazaar - Old Bahadurgarh Road, and will cover approximately 61 acres. The present market needs considerable improvement and reorganization. Floor space also will have to lie substantially increased for the expansion of the wholesale trade.

(g) Iron, steel and scrap metal market :

The sale of Iron and Steel, considered together with the sale of scrap and junk is a diversified branch of wholesaling, which is also closely related to retailing. At present this business is in a state of flux and needs reorganization. The present Centre for

the merchandising of finished iron and steel is inside the Ajmeri Gate area and at the Lahori Gate siding in Old Delhi. Here stockists operate under extreme forms of congestion. Since the market deals in a commodity which is largely government-controlled but which is essential for constructional and manufacturing activity in Delhi, it nevertheless continues to flourish amidst adverse conditions.

The growth of industry and the redevelopment of the Old City will undoubtedly tend to disperse the markets of fabricators to whom these stockists mainly sell. At the same time, a differentiation may arise between those iron and steel products which are used in the building construction trades, and those which are used in manufacturing processes, especially since market conditions for intermediate iron and steel products in Delhi favour partial pre-fabrication, such as shearing "and bending which are commonly performed in 'steel warehouses' in American cities.

The growing trade in scrap metals, which is only partly related to the business of iron and steel stockists, has been located in Motia Khan in the recent years. Scrap activities include dealing in large and re-usable parts of machines and automobiles. The disposition of this trade in Motia Khan at present, however, uses excessive quantities of land and is provided with poor access and layout. In fact, it has grown most haphazardly without any reason or logic. Inspite of a number of factors which may tend to decentralize the wholesale parts of this trade, the existence of strong trade associations and current practices of doing business lead the business leaders to believe, at present, that a centralized location would be desirable. The most favourable probable location for iron and steel markets is in the Industrial Districts and a reservation of approximately 200 acres has been made in the proposed Industrial Districts.

The first and main centre of Iron and Steel wholesaling should have an associate large scale scrap metal centre, which would tend to attract large space-using scrap and junk dealers. The existing junk and scrap yards in Motia Khan should be drastically reorganised. For an organised junk market, an area of about 15 acres has been proposed for this purpose in Jhandewala. This centre should also accommodate the junk dealers presently functioning in Jama Masjid area.

(h) Building Materials :

There does not yet exist in Delhi a well-organized system for the distribution of building materials. This need will, however, continue to become more and more apparent as the volume of physical construction continues to rise. Ultimately the need will be met by the growth of centres providing substantial volumes of assorted building materials; probably including prefabricated sash and mill work which will replace present on-site fabrication methods, but quite possibly excluding brick, sand and gravel (except in relatively small quantities) for minor construction jobs.

It is difficult to predict in advance, the precise form which these centres will take or which branch of the trade will take the initiative in developing this type of service. A likelihood seems to be that the service will develop out of the lumber of industry, which is rapidly acquiring facilities and experience in fabrication, and which will be required to move and reorganize in accordance with the recommendations of the plan. The present concentration of the timber industry on Deshbandhu C-upta Hoad in Motia Khan and in other scattered locations represents a poor and hazardous use of land. It creates serious conflicts with adjoining land uses. The storage of timber presents a fire hazard in the surrounding crowded conditions, and fabricated, processes are not well-suited to the surrounding neighbourhoods. Therefore, it is proposed that these may be relocated in west Delhi adjacent to the railway line to Rewari in about 50 acres site. It is proposed that adequate land for the merchandising and distribution of building materials be reserved in the major industrial districts.

6. Warehousing and Storage (including; Mineral Siding);

Warehousing and storage facilities are a sine-qua-non for commercial activities. In the absence of organized and suitable storage depots, roads, streets and pedestrian pathways are encroached upon by the business establishments.

Land measuring 751 acres has been earmarked in the plan for the storage of oil, timber and grains. There are proposed four sites for oil storage (two on Rohtak Road; one in Shahdara, a part of which is in U.P.; and one in Rewari); one for timber (Rewari); and two for grains. In addition, approximately 243 acres have been marked for mineral siding. There are three locations; (Okhla, Azadpur and U.P.) proposed for mineral siding. General storage has also been provided on Mathura Road.

CHAPTER - EIGHT

INDUSTRY AND MANUFACTURING

I. Industries in the ECONOMY OF DELHI.

Delhi has been well-known, as the home of caster craftsmen and for the aesthetic quality of their work, yet unlike most other metropolitan cities of India, it never was considered an industrial town. Analysis of data on, Delhi's livelihood classes and working force composition indicates that at no time during the last fifty, years it had more than 25 per cent of its working force engaged in Industrial occupations.*

However, manufacturing industry in general is of considerable importance in the economic growth of Delhi and provides the key to the future growth and welfare of: the nation. This statement does not deny the tremendous importance of agricultural improvements' both as they affect the welfare of India's great agricultural classes and the self-sufficiency of the country in food and its' capacity to protect its position in international trade. The fact however remains that the agricultural population of India is growing more rapidly than the capacity of, the land to absorb it, and the ultimate effect of improved agricultural processes may be to reduce rather than to increase the number of families engaged in agricultural production. Since India's trades and services are already over-manned, industrial employment is the "natural" source for new jobs. At the same time, industry is needed to supply the needs of an expanding agriculture and to provide articles of consumption for a growing and more productive population. It is also more productive than most other sectors of the economy and promises to provide one of the most important levers for increased output and income. For its obviously growing Importance, the provision of adequate manufacturing land is a matter of prime importance, and the considerations surrounding this provision have received extensive study in the preparation of the Comprehensive Master Plan for the Delhi Metropolitan Area.

There are indications to believe that a large proportion of India's industry will veer round the urban centres in years to come. The "external" economies available in an urban centre, such as the improved rapid communications and higher levels of education, in addition to the availability of materials and services employed in the manufacturing process greatly facilitate the expansion of industry in the urban areas. At the same time, the urban areas are to a considerable extent, the largest centres of the consumption of manufactured goods. Several products manufactured in the urban areas have a great local demand, and generally result in "secondary" and "tertiary" increments in production.

II. GROWTH PATTERN of INDUSTRIES in DELHI.

Delhi, like many other metropolitan cities of India, has had a long-established population of mixed occupational character and associated therewith an industry consisting in part of traditional Indian crafts and in part of productive facilities directed toward the meeting of local consumption needs. Since 1945, industry has rapidly expanded under the stimulus of population growth and extensive construction. The basis for further advances in several industries was laid more firmly after 1947 by the influx of refugees from West Punjab. The resulting continued growth of industrial output in Delhi in a variety of fields, but most strongly in fields related to metal-working and construction, has three important positive advantages for the metropolitan area.

First : it ensures that Delhi's participation in and contribution to national growth is not unduly restricted or limited to one direction only. Capital generated in productive activities already under way in Delhi finds opportunities for immediate expansion and re-investment at maximum efficiency;

Second : the expansion of manufacturing employment provides additional jobs for the working force which migrates to Delhi i in the absence of expanding industrial employment, levels of unemployment and under-employment in low paying services would tend to expand ;

Finally : in addition to its employment effects, manufacturing provides a level of income at an average level higher than that of services, but probably lower than most government employment. Without the provision of this middle range of incomes in the Delhi structure and without the provision of manufacturing and related employment, the contrast between low-paid and high-paid occupations would be higher, the types of employment opportunities would be limited, economy will lack diversification, and there would be fertile ground for the growth of social tensions.

Several studies conducted during the preparation of this Report indicate that the industries of Delhi have a growth

** Chapter : Economy of Delhi :*
Table : Percentage distribution of working force in Delhi State :1921-51

potential quite commensurate with a higher percentage of total employment in a rapidly expanding urban population. In view of the desirability of industrial expansion as part of the national development, and in view of the importance of manufacturing employment in the health of the economy of Delhi, and also in the light of provisional judgement that substantial volumes of manufacturing employment can be accommodated in such a way as to preserve the amenity and the capital character of the Delhi Metropolitan Area, it is appropriate to study some of the main characteristics of the industrial growth pattern in relation to the city's development plan.

The Census of India : 1951 indicated 116,880 persons employed in industry in Delhi State to which probably may be added a number of workers in miscellaneous unspecified service activities.* It constituted 18.2 per cent of the total working force : this was somewhat lower than the percentage of previous decades, but a significant absolute increase was observed in 1951, over the previous decade.**

TABLE - 1

POPULATION AND NUMBER OF WORKERS ENGAGED IN INDUSTRIES IN DELHI STATES : 1921-1951

Year	Population	No. of persons engaged in industries.	Percentage of total working force.	Est: no: of workers in Registered factories.
1	2	3	4	5
1921	4,88,452	43,577	21.5	8,000
1931	6,36,246	54,036	20.1	11,000
1941	9,17,939	81,448	23.2	25,000
1951	17,44,072	116,585	18.2	42,635

SOURCE : ***(a)*** *Delhi State Census Hand book (1951)* ***(b)*** *Directorate of Industries and Labour, Delhi.*

A historical study of the growth pattern of industries made with the help of the data obtained from the Delhi Directorate of Industries and Labour revealed that industries in Delhi had their beginning towards the end of the last century. Even today, those manufacturing concerns which were established in the late years of the 19th century account for more than 40 per cent of the total manufacturing employment. In a span of almost forty years, from 1900 to 1939, there was a sporadic growth of industries here and there in Delhi. Quite a few firms were born in this period, and came to be located in a widely scattered pattern so that by the beginning of World War II, nearly all the city areas had some industrial concerns. Most of these pre 1939 factories employ 250 persons on an average.

World War II gave fresh impetus to the process of industrialization. The number of registered factories increased from 111 in 1939 to 227 in 1945, with a corresponding increase in the number of workers from 17,400 to 37,000 respectively. However, rather a rapid growth of industries in Delhi was prompted by the influx of refugees who brought with them not only the mechanical skills, but also the spirit of enterprise. Consequently in 1953 the number of workers in registered factories was about 44,000.*[1]

Only a portion, but a rapidly growing portion, of this employment, was in organised industry (firms employing 10 or more persons with power and 20 or more without power). Between 1951 and 1957, the registered sector of industry expanded from 42,600 to 45,700 employees. Only a small proportion, probably less than 15 per cent of all manufacturing employment, may be considered to be confined to very large scale manufacturing firms.*+

The bulk of the organised sector is in not more than half a dozen cloth mills which have long been established in Delhi, but which during the last ten years have expanded their employment to a rather limited extent. Most of the other industries in the organized sector consist of small and medium sized establishments seldom exceeding an average employment of 100 persons for the industry and seldom achieving total employment of more than about 500 in any single establishment.

The largest single industry group is the heterogeneous light engineering group, which consists of a number of diverse industries related to each other through their common use of metals and machine tools. On the whole, of course, this industry has smaller plants than many others. Other important industries include manufacturing of various food products, chemicals, printing, bicycles, and electric fans, etc.

** See Table : Chapter: Economy of Delhi.*

*** Subsequent sample surveys indicate an even higher level of such employment at later dates near the middle of the decade.*

[1]* ***Source :* *Directorate of Industries and Labour, Delhi.*

A survey of the manufacturing establishments in Delhi and its environs shows that outside of the cotton textile industries, very few large modern plants have been established in Delhi proper. In several towns around Delhi, there has, however, been a certain amount of modern industry established by a single action rather than by accretion through growth. Examples are the Bata Shoe Plant at Faridabad; the Atlas Cycle Works at Sonepat, and the varied complex of industries in Modinagar, lying northwest of Ghaziabad. A large number of new factory buildings has been erected by private industry in the Najafgarh Industrial Zone and along highways such as the road to Faridabad, south of the Ring Road. Other favourite locations include Shahdara and Rohtak Road, and the vicinity of Grand Trunk Road in Subzi Mandi. On the whole, this construction is spotty and scattered, and most industrial activity is accommodated in obsolete and obsolescent structures and many in the form of make-shift "khokas" in the open spaces scattered throughout the city. Only a limited number of manufacturing-cum-service units is located in buildings of better quality in New Delhi.

Since many of these establishments have grown over the past decade quite rapidly, most of them now operate under conditions of over-crowding and in inadequate structures. There are examples which show that several industries though not excessively insanitary or un-safe, are not suitable for a well-rationalized and modern manufacturing activity. The lack of satisfactory space and control of conditions and the failure of industry to move to better quarters as it expands so rapidly is explained in part by the inadequate provisions for industrial land on the one hand, and on the other by inefficient enforcement of structural and operational factory regulations, together with inadequate zoning enforcement or complete lack of zoning in many areas.

In the absence of strong incentives to move out and adequate provisions of new space, the vigorous enforcement of regulations alone would have large adverse effects in curtailing industrial employment. There is undoubtedly an added factor that the present factory space in pre-existing structures in the Old City, under-maintained and over-utilized, is substantially less expensive on a per worker basis than any new space would be. This fact impels manufacturers, and especially those who fail to see the advantages of modern organization of production, to stay put and endure their hardships rather than to move unless strongly impelled to do so.

III. SPATIAL CHARACTERISTICS

Manufacturing and industries constituted rather an insignificant percentage (1.6 persons) of the total urban land in use in Delhi.[@] Industries according to the Land Use Survey, were covering approximately 636 acres, out of a total 39,471 acres of urban land : this is one of the lowest acreage compared to most other classified land uses. The Land Use Survey enumerated more than five thousand manufacturing and service units of various types and sizes within the urbanized area of Delhi as of 1958-59, of which 3,609 units were shown in major uses.

The most significant of the industrial uses are the Rubber, Petroleum, Coal, and Chemicals manufacturing concerns, accounting for roughly one-fourth of the total industrial land. These industries are of recent growth, and mostly concentrated in Najafgarh area, which is a fast developing industrial township. Industries manufacturing textile products, though spread over, are localized in Subzi Mandi and karol Bagh Planning areas. From the types of industries that have been developing in Delhi, it is difficult to assess the relative importance or the growth potential of any one or two types of industries. Food products, Textiles, Petroleum, Goal, and Chemicals; Stone, clay and glass products are all growing well, while the potential growth is manifest in other types also, land Use Survey further revealed a rather startling pre-dominance of nuisance industries in Delhi urban area. Non-nuisance industries were found to be covering 301.87 acres as compared to 334.97 acres by nuisance industries.

In order to ascertain certain important characteristics of Delhi's industries particularly in relation to the use of land, a comprehensive sample survey of manufacturing industries in Delhi and in certain "ring towns**" was conducted during 1958-59. The aim of the survey was to provide information on the spatial characteristics of the manufacturing industry and to appraise the place of manufacturing in Delhi's economy with a view to assess the future space requirements in relation to the projections of the working force and population, and to provide guide lines for a comprehensive land use plan. Information was also collected regarding the employment history, distribution of workers by skilled, semi-skilled and unskilled types, their salary ranges and housing facilities. However, here only characteristics with reference to the utilization of space and land which have a more direct bearing upon the future land requirements and upon the preparation of the Plan, are discussed here. A total of 499 manufacturing firms employing approximately 45,500 workers were surveyed, and the data presented in the following pages relate to this survey.

However, before a discussion of the spatial data, it may be worthwhile to indicate below in Table 2 the employment figures on an industry to industry basis:

@ See Table : Chapter: Land Use Survey

** Urbanized area of Delhi here does not include Narela, Najafgarh and Mehrauli.*

*** Ring Towns of Delhi include Ghaziabad, Faridabad, Ballabhgarh, Gurgaon, Bahadurgarh, Loni and Narela, Sonepat.*

TABLE - 2
EMPLOYMENT IN MAJOR DELHI INDUSTRY GROUPS

CMI No.	Industruy Name	1948	1949	1950	1951	1952	1953	1954	1955	1956
1.	Wheat Flour	352	426	385	356	369	351	471	419	559
3.	Biscuits	NA	NA	NA	250	289	185	204	243	192
8.	Vegetable Oils	702	708	742	810	699	904	1,026	1,160	989
14.	Ceramics	484	559	814	878	833	811	852	1,109	1,204
18.	Cotton Textiles	14,224	15,407	16,084	14,919	16,030	14,898	15,275	15,984	16,877
21.	Chemicals	772	888	813	861	913	1,028	1,447	1,582	1,771
22.	Non-ferrous metal	152	129	293	386	320	460	471	436	416
23.	Iron & Steel	401	197	258	352	317	242	230	302	405
24.	Bicycles	NA	NA	146	249	235	307	660	826	1,038
28.	Electric Fans	640	555	470	376	393	400	404	414	NA
29.	General Eng. & Electrical engineering	2,760	3,209	3,855	4,927	4,405	4,381	5,269	5,346	6,413
	Grand Total:-	**20,487**	**22,078**	**24,110[a]**	**24,364**	**24,803**	**24,067**	**26,309**	**27,821**	**30,264[b]**
	Grand Total less Cotton Textiles	**6,263**	**6,671**	**8,026[a]**	**9,445**	**8,773**	**9,169**	**11,074**	**11,837**	**13,387[b]**

Explanations:

(a) Includes an estimated 250 employees in Industry 3, Biscuits.
(b) Includes an estimated 400 employees in Industries 28, Electric fans.

Source: *Census of Manufacturing Industries (CMI) categories obtained from the Directorate of Industries and Labour, Delhi.*

The Table shows that Industry Groups I through 29, which is also the organised industrial sector, appear to have grown by more than 50 per cent in an eight-year period viz: 1948-1957, Exclusive of the cotton textile industry, growth was more than 100 per cent. The outstanding growing industries were Ceramics, Bicycles, and General Engineering and Electrical Engineering, Each of these industries grew more than 125 per cent as measured by employment during this period. Associated factors clearly indicate a sound basis for future growth in these industries, especially taking into account the fact that a great deal of capital has been accumulated in the engineering industries. Other industries such as the food group and electric fans appear to be in satisfactory general condition and have consolidated their financial position and productivity over this period without substantially increasing the employment. Many of these industries may be expected to grow in the future.

The most fundamental need of industry is the working space for the manufacturing workers. In the United States, the minimum space requirements is close to 200 square feet for such intensive industries as dress-making and apparel and small electrical appliances. Floor space requirements per worker are upto 1,000 square feet for more extensive type of industries.* It may appear that the floor area per worker in Indian Industries, is substantially lower than these figure. However, one should not forget that the Indian worker is provided with much less machinery and labour-saving devices, and there might be less extensive stock of goods in process in Indian factories.

In order to comprehend the spatial characteristics of the manufacturing concerns of Delhi in the correct perspective, the data on the use of floor space, collected during the course of the comprehensive survey, have been arranged according to the planning areas; according to the employment size of the firms; and according to the land-use groups. Table 3 gives the use of floor space by planning areas:

** Floor space are even more for large manufacturing industries like Automobile, aeroplanes and locomotive in U.S.A.*

TABLE - 3 : FLOOR SPACE by PLANNING AREAS

(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
Planning Area	Number of firms surveyed	Firms reporting floor	Total floor area (sq.ft.)	Total employment	Average floor area per employee (col.4/col.5)	Average of the floor area per worker ratio.
(Old city)	78	77	18,36,789	12,940	142	140.7
(City Extension, Karol Bagh- Patel Nagar)	24	24	3,09,835	1,280	242.1	222.0
(New Delhi)	22	20	2,94,802	3,940	74.8	102.2
(Okhla/Mehrauli)	33	33	7,07,092	2,430	291.0	348.2
(Najafgarh)	43	42	16,23,685	7,550	215.1	285.3
(Civil Lines)	45	45	17,85,823	8,970	199.1	223.3
(Shahdara)	22	22	3,91,800	1,510	259.5	275.5
TOTAL FOR DELHI FIRMS	**267**	**263**	**69,49,826**	**38,620**	**180.0**	**216.9**

It may be observed from The above Table that Old Delhi has the maximum industrial floor space coverage in the slum total than any other planning area in the compact urban Delhi. Incidentally, New Delhi area seems to report the lowest industrial space, as compared to other areas. It is significant to note that the floor area per responding form is highest in civil Lines area, and lowest in Karol Bagh –Patel Nagar area. The average floor space of 38,659 square feet per firm in Najafgarh, which is one of the most important industrial areas of Delhi, is also close to that of Civil Lines.

The average floor space employee ranges between a maximum of 291 square feet in the newly developed Okhla Industrial Estate and a minimum of 75 square feet in New Delhi area. The Old City area has an average of 142 square feet per employee, while Civil Lines has 199 square feet per worker. In New Delhi, the lowest floor area per employee is probably due to a large number of firms associated with shop-cum-repair activities and retail trade. The same is true for old Delhi, but added to this are the crowded and congested condition, and the preponderance of smaller units. Najafgarh planning area has 210 square feet of floor area per worker. A relatively high ratio of 242 square feet and 260 square feet per worker existed in Karol Bagh-Patel Nagar area, and Shahdara. The average for the manufacturing firms of Delhi works out to 180 square feet per worker.

Use of floor space in different types of industries is given in Table 4:

TABLE - 4 :
FLOOR SPACE by LAND USE GROUPS in DELHI 1957-58

(i)		(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)
Land-Use-Groups		Number of firms surveyed	Firms reporting floor area.	Total floor area	Average floor area per respond-ing firm (co.4/col.3).	Total employment.*	Average floor area per employ-ee (Col.6/ col.4)	Average of floor area per worker ratio (in respond-ing firms)	Average of floor area per worker ratios (in the universes)
1	Food products	15	15	4,41,496	29,433.1	1,630	270.9	292.2	252.8
2	Textile products	34	34	31,55,664	92,813.6	19,250	163.9	178.8	190.5
3	Wood products	4	4	1,11,260	27,815.0	260	427.9	444.0	333.2
4	Paper products								
5	Printing & Publishing	34	33	6,20,758	18,810.8	4,470	138.9	156.4	147.4
6	Leather products	4	4	8,640	2,160.0	100	86.4	85.8	85.8
7	Rubber goods; chemical	14	13	3,28,179	25,244.5	1,510	217.3	281.6	289.4
8	Stone, Clay and Glass	23	23	7,06,057	30,698.1	2,660	265.4	230.3	229.2
9	Metal products	37	37	4,13,079	11,164.3	2,160	191.2	222.6	267.6

Table No:- 4 Cont'd....

...Cont'd Table No:- 4

(i)		(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)
Land-Use-Groups		Number of firms surveyed	Firms reporting floor area.	Total floor area	Average floor area per respond-ing firm (co.4/col.3).	Total employment.*	Average floor area per employ-ee (Col.6/ col.4)	Average of floor area per worker ratio (in respond-ing firms)	Average of floor area per worker ratios (in the universes)
10	Machinery	45	45	4,48,387	9,964.2	2,690	166.7	203.8	222.3
11	Transport equipment	17	16	2,29,256	14,328	1,870	122.6	197.3	174.9
12	Miscellaneous	40	39	4,87,050	12,488.5	2,020	241.1	250.0	262.4
	Total Delhi Industries	**267**	**263**	**69,49,826**	**26,425.2**	**38,620**	**180.0**	**216.9**	**222.0**

The Table: 4 shows that Textile industries cover the maximum manufacturing floor space of about 31.56.700 sq. feet as of 1958-59 and also employ the maximum number of employees, which are to the tune of 19,250 among the 34 surveyed firms. Next in importance are the printing and publishing industries, which cover roughly 6,21,000 square feet.

The average floor area per employees is highest in wood and wood products Industries lowest in Leather products industries, ranging between a maximum of 427.9 square feet and a minimum of 86.4 square feet.

The average floor area per responding firm for all types of industries is 26,425 square feet, though the average is a much as 92,800 square feet for textile square feet for Leather product Industries, and as low as 2,160 square feet for Leather Product Industries.

The relationship between the size of the firm and the floor space is shown in table 5:

TABLE - 5 :
FLOOR SPACE OF THE FIRM BY EMPLOYMENT SIZE

Employment Size	Number of firms surveyed.	Firm reporting floor-area.	Total floor area (sq.ft.).	Average floor - Area per responding firm (col.4/col.3)	Total employ-ment.	Average floor-area per worker (col.4/ col. 6(sq.ft.)	Average of floor area per worker rations (in re-sponding firms).	Average of floor area per worker ration in the universe.
A	51	49	50,82,857	1,037,731.7	30,140	168.6	219.4	219.4
B	47	46	7,74,615	16,839.4	3,410	227.1	209.6	209.6
Sub total a & B	98	95	58,57,472	61,657.6	33,550	174.5	214.7	214.8
C	120	119	9,17,555	7,710.5	4,300	213.3	209.1	208.7
D	49	49	1774,799	3,567.3	700	227.0	239.5	245.7
Sub-total of C & D	169	168	10,92,354	6,502.1	5,070	215.4	217.9	224.8
All Delhi Industries	267	263	69,49,826	26,425.2	38,620	180.0	216.9	220.0

SOURCE : *Survey of Manufacturing Industries Town Planning Organisation.*

Table 5 does not show marked variation in the floor area ratios per worker in the different sizes of the manufacturing concerns, Generally speaking, the average floor area per worker is somewhat less in larger firms than in the smaller sized firms, indicating over-crowding in the larger sized firms. The average floor space per worker is 166 square feet for "A" sized industries, and 240 square feet for "D" group of industries.

"A" (101 and more workers)
"B" (51 to 100 workers)
"C" (21 to 50 workers)
"D" (11 to 20 workers)

IV. PROSPECT and NEED for INDUSTRIES in 1981

A review of the histories of national development in many other countries, together with statistics on the industrial employment, indicate that at a relatively early stage of economic development, manufacturing employs 25% to 30% of the total working force, a level presently far above the levels in India but readily achievable here within a span of a few Five-Year plans, given adequate capital formation. In many advanced industrial nations, more than 50% of the

population is concentrated in urban areas and on the same hand, more than 70% of the industries are also concentrated therein. Even making some allowance for the existence of one-industry towns based particularly on the exploitation of natural resources, the normal employment in industry in urban areas is roughly 35 per cent foot he total working force. Almost all large metropolitan cities are relatively highly industrialized throughout Europe and the U.S.A. The main exceptions appear to be only national capitals, and a few cities which fulfill almost exclusively transportation or institutional functions.

India which is on the threshold of social and economic revolution had approximately 10.6 per cent of its population depending upon productive services (manufacturing and mining) in 1951. The average urban percentage for this sector was 24.3 in the same year, though it was 30.2 per cent for the ten largest cities of India. Delhi amongst them, however, had the least percentage (17.3) of pole depending upon manufacturing and mining for their livelihood.

The implications and consequences of Delhi having a population close to 5.5 million or almost three times of 1951 population, are varied and significant for the economy as a whole. This would mean not only a large scale increase in physical development to accommodate the new population, but also to plan for the creation of enough jobs to sustain the economy, at a reasonably sound position.

The projections of working force in total and in different sectors of the economy indicate that the total working force in 1981 would constitute approximately 38 per cent of the total population. I population terms,, it may mean that 20,90,000 persons would actively engage themselves in some sort of economic activity, which is positively gainful too by 1981. Study and appraisal of the present and future structure of the working force further indicate expansion and development in various branches of the economy, and it has been considered feasible that Delhi its metropolitan area would have around 25 per cent of its working force in manufacturing employment by 1981.

Manufacturing employment at the rate of 25 per cent of estimated working force of 2, 090,000 in Delhi by1981 will mean that there will have to be 525,000 jobs in this sector. The same procedure estimates the manufacturing employment at 186,000 in 1961 and 290,000 in 1971.

Manufacturing employment in Delhi like that of any other metropolitan or industrial town consists of two broad portions: production for local consumption and production for exports. Exports is here taken to mean export to other parts of India outside of the Delhi Metropolitan Area. Intermediate between these two cases are recognized a number of activities which owe their continued growth to the existence of a very substantial local market, which provides them with opportunity to undertake a basic volume of output, which at the same time they export competitively to other regions in North India and committees in all-India. Rough estimates based on the employment patterns of large and small Indian cities suggest that a minimum of 12 per cent to 14 per cent of all employment must, in a city of Delhi size, be devoted to manufacturing employment serving the local market. At present, the export manufacturing activities of Delhi employ probably not more than 4 to 6 per cent of the total working force, but the industries engaged in the export activities are rapidly expanding. It is assumed that a minimum of this proportion will be continued in future. Table 6 below list the projected total working force, Table 6 below lists the projected total working force, manufacturing employment, projected employment to meet the local needs and the exports, and also the share of employment in textile industries:

TABLE - 6

ESTIMATES OF WORKING FORCE IN MANUFACTURING BY "SERVICE" AND EXPORT TYPES (figures in thousands).

Year	Total working force	Working force in manufacturing.	Employment in industries meeting locals demands.	Employment in textiles industries.	Employment in "export" industries.	Increase over decades (in % terms).		
						Industries meeting local demands.	Textiles	"Export"
1951	635	117	89	15.5	12.5	-	-	-
1961	930	186	130	19	37	46.1	22.6	196.0
1971	1,320	290	185	22	83	42.3	15.8	124.3
1981	2,090	525	293	25	207	58.4	13.6	149.4

Notes:-(i) Manufacturing includes mining sector as well.

(ii) The figures for 1951 have been obtained from the census of India (1951), while the figures for subsequent years are the projected figures.

(iii) Textile industries do not include manufacturing of appear land similar products.

(iv) For details refer to the chapter:

THE ECONOMY OF DELHI.

From this Table, it may be seen that rising from a total of 12,500 persons engaged in non-textile exporting industries in Delhi the employment may From this Table, it may be seen that rising from a total of 12,500 persons engaged in non-textile exporting industries in Delhi the employment may well reach 207,000 by 1981. This is a staggering increase, requiring well over a doubling of employment in each of three decades. It may be noted however that the rates of increase from decade to decade are irregular, but the decade 1961 to 1971, during which more than two-fold increase in the employment in export industries is envisaged, is undoubtedly the most critical period. During this decade, total manufacturing employment is expected to increase by about 104,000 persons and export manufacturing employment exclusive of textile products. Should account for the increase of 46,000 employees. Achieving such an increase during this decade will require an utmost care in organization and in the co-ordination of incentives. In the following decades 1971 to 1981, the increase in total manufacturing employment is estimated at 235,000 and export employment consequently may more than double. From 83,000 to 207,0000 in the same period. This greater would represent a more conservative advance have been achieved and consolidated during the late 1960. On the other hand, it is during this period 1971 that the expansion of industry will generate the very largest demands for land and facilities, and there by create greater difficulties for an orderly urban development.

As has been emphasized in earlier Chapter, the Master plan for Delhi envisages synchronous development in the entire metropolitan area around the Union Territory of Delhi particularly in the selected ring towns of Loni, Ghaziabad, Faridabad, Ballabgarh Gurgaon and Bahadurgarh. An important suggestion embodied in the plan is that a portion of Delhi anticipated working force in manufacturing , as well as in the federal government employment should be located in the selected ring town notably in Ghaziabad and Faridabad. It is based on the premise that if industrial development takes place in the ring towns according to a co-ordinate schedule and adequate employment opportunities are available in the neighboring towns, it should be possible to deflect a portion of population which would otherwise come to Delhi. A distribution of the anticipated working force in manufacturing for Delhi and its metropolitan area, has been presented in the chapter on ECONOMY OF DELHI, according to which the Union Territory of Delhi will have a little more than 50 lakhs of population; that of Delhi urban will be about 46 lakhs, while the Delhi Metropolitan Area will contain a population close to 60 lakhs. Accordingly provisions have been made in the Land Use plan for 4,40,000 to 4,50,000 industrial jobs in Delhi state, the rest of them being distributed throughout the metropolitan area. The distribution of employment in various types of manufacturing activities and industrial location has been presented in Tables: 7 and 11 of this chapter.

The results of the manufacturing survey, as detailed out in an earlier section, indicated, a marked uniformity of pattern in floor space requirements as between industries and locations. Also surprisingly, these floor space requirements are substantially higher than might have been expected, though

the general impression of overcrowding and disorderly. Congestion in the industries of Delhi, which are equally and evidently manifest, cannot be altogether wedded out, in part, it may be explained that under present conditions, the low utilization of floor space on a per worker basis by smaller and more intensive firms operating in the centre of the city could be traced to the low rents which currently prevail in dilapidated and old quarters. Un-doubted some firms could operate with lees space per worker in a more efficiently laid out and better lighted plant. In general however, there seems to be a strong tendency for space standards in industries of all types to cluster around a level of about 200 square feet per worker. The space requirement is modified upward in certain more extensive industries. Conserving the experience of more developed areas where 200 quire feet per worker is about the minimum requirement rather than an average or maximum, and considering that most of the industrial expansion in Delhi will be into new space, and may involve a higher degree of mechanization process, a figure of 200 square feet may be taken as a starting point for a review of total land requirements.

Industrial space of course must be embodied in structures and structures must be sited properly. The overwhelming preference of present-day manufacturing in Delhi is for-one storey space, and even those industries which are in crowded quarters frequently occupy single-storey katras or the ground floor of multiple use structures. Assuming that al industrial growth and relocation would be accommodated in one-storey buildings at an average of 200 square feet per worker with a net site coverage of one-third and an allowance of 25 per cent of the gross acreage for streets and common facilities, than each gross acre of land could accommodate approximately 55 workers. It may be anticipated that not more than 100,000 to 150,000 of the anticipated employment of 500,0000 in manufacturing industry in 1981 can be accommodated in existing industrial and multiple- use structures. And therefore, it may be concluded that 6,000 to 7,000 acres of new industrial land would be required to accommodated the incremental and relocated employment. Such acreage represent a rather reasonable approximately of total needs, but they are not readily supplied within the immediate radius of present, population concentrations in Delhi, especially considering the unique qualities attaching to suitable industrial land which are discussed below. For this reason , even a preliminary review indicate that extreme care must be taken in the selection and planning of industrial land.

A second and equally important indication points in the same direction. As will be reviewed in ore detail available industrial land in the metropolitan area in suitable large blocks is now available only at distance upward from five miles from downtown Delhi. These areas, as consequence of defense residential and commercial development which has taken place in the past, generally lie beyond the present centers of dose population. The excessively rapid expansion of these areas would first of all introduce the difficulty of a prolonged journey to work which has been discussed in different contexts in this chapter.

Equally important is the fact that not all of these presently outlying areas are wholly suitable for the industrial growth and relocation which is in prospect in the light of the present composition of Delhi industry, Numerous consumer goods industries , such as clothing and shoe manufacture, whose products cannot be standard completely require under present conditions a location close to shopping areas so that he service aspects of the industry may operate in close conjunction with the manufacturing aspects. This trend may gradually change as some aspects of manufacturing production become more highly standardized.

Furthermore, many of the most rapidly growing industries in Delhi are organized at present largely on the basis of small and medium shops. Whose growth is important of the future establishment of large r and more productive factories. These industries being small, cannot provide all of their own requirements for manufacturing and operate best in a milieu which provided rapid communication with other manufacturers, and with the suppliers of goods and services used in the manufacturing process. Similarly, these factories need an easy access for customers since much of their work is done on contract for other manufactures and for business, Finally, the clustering and close relations between manufacturers in similar lines of business exert an educational influence which helps the diffusion of skills, new techniques, and knowledge of industry trends.

For all of these reasons, the relocation outward of small manufacturing firms tends to be self-defeating and uneconomic, since it places the relocated firms at a dis-advantage and hinders their growth. Only after firm each an employment of between 25 and 50 persons do they become sufficiently self-contained and capable of meeting the problems sketched here so that a relocation becomes feasible. Both for the health of the manufacturing establishments and for the continued supply of employment opportunities near existing centres of population during a period of transition to the residential arrangements suggested in this plan, it is desirable to establish an intermediate type of factory location. This type of location should break substantially with existing mixed land uses and substandard factory conditions, yet it should not result in the relocation of all factory establishment

at areas for distant from the central city.

In the same connection, it is useful to mention here the cost factor in the new industrial space. The cost of new industrial space, reduced to a rental basis. Is substantially higher than many existing industrial rentals. On the basis of cost estimates, using realistic prices for land, inlaying flatted factories' cannot be constructed for less than about Rs. 20 per square feet of gross floor space, and one storey construction in industrial districts or zones will cost a total of Rs. 16 per square feet. At a minimum annual rental of 9 per cent of cost, these construction costs reduce to Rs. 1.80 and 1.44 per square feet per year. These costs compare with reported costs of Rs. 0.49, 0.30 and 0.52 per square feet of floor space in the walled city, subzimandi, and Motia khan respectively.

The contrast between these figures cannot be taken entirely at face value. In so far as manufacturing space so owner-occupied, there is a strong tendency to under-report value, since is this the basis for tax assessments by the M.C.D. and it is possible that survey data would be used for tax purpose.* it has however, been noted that very many established have rentals closer to Rs. 1 or 1.50. All things considered it may be anticipated that usable space in newly construction factory buildings will cost not much more than double the present cost. And that cost per worker will be in the vicinity of Rs. 1 per square feet of space allocated per year. The impact of this added cost on economic manufacturing operations will depend both upon the space utilized and upon the level of skills employed in the operation.*[1] Since the process of control of manufacturing location and the expansion of employment will be slow, ample time exist to attempt the main types of adjustments to these economic discrepancies which are apt to arise. A major form of adjustment will be the experience gained in operating considerable space which will tend to conceive many manufacturing of the economics inherent in this type of change.

Another method of adjustment will be some re-organisation of certain industries to permit them to move further out and to succeed residential or commercial uses in certain parts of the city. This development will have to be very carefully controlled, still, a third adjustment which will take pace over a long period of time is some change I n relative prices resulting from higher space costs in some immobile and low-skilled industries. Such change is to be expected in any event with increased wages, which cannot in these industries be effect by substantial increase in productivity .Increased relative prices will check the growth of demand for the products of these industries and result in a shift of consumer and business expenditures. These industries then will cease to grow so rapidly, to the point where their space demands are adjusted with the prices they have to pay for such space.

In the light of these considerations. It because almost necessary to abandon the assumption of single-storey industrial structure, located in large industrial districts and conforming entirely to modern space standards. A more realistic appraisal will in fact lead to a similar conclusion as to the total land requirements. But substantially more differentiation between different types of manufactures must be established. Therefore the following main type of industrial employment are outlined below, which could encouraged to develop under the proposed plans.

1. Household employment.

This type of employment represents now perhaps up to one-third of all industrial employment in Delhi. But as the trends indicate, this type of employment will gradually lose economic importance, although the number of persons so employed may remain at this level for the number of persons so employed may remain at this level for the coming few decades. Certain types of household employment, such as pottery kilns, which are now conducated in central Delhi and especially in Subzi mandi, will be relocated in proposed urban villages in the process of removing objectionable land uses from the central city. Other unidentifiable household household uses will also be decentralized and possibly disorganized through the process of residential relocation, which will inevitably follow the redevelopment and reorganization of the central city.

* *There is also a discrepancy in that the quoted figures for new construction refer to gross area inclusive of corridors and other access, while existing floor space is reported roughly on a net basis. Since however, most establishments are in single - storey and ground-floor locations at present, and since their obsolete structures render much of their space unusable, this last discrepancy may not be significant.*

*[1] *At higher skills, with employees earning in the vicinity of Rs. 4 per day or Rs. 100 per month, and with space per worker averaging 150 square feet, the added cost will be between 10 per cent and 15 percent of wages. Such a cost could probably be met with ease from increased productivity and efficiency. For every intense activities using 75 to 00 square feet of floor space, with some what lower skills a the gains in efficiency would probably not be so great, because these industries do not have the same problem of or-gaining the flow of goods in process and maintaining adequate separation between machines. For less skilled activities and for any activities which employ large volume of space, the cost of new space may prove excessive and the necessity for remaining in the present type of slum factory buildings may ultimately conflict with desirable land use patterns.*

2. Major existing industries in-lying locations:

These uses include mainly the textile industry of Delhi and a few other establishments. Since these industries are long established and have their products distributed in practically all the regions of India, they are apt to be highly competitive, especially on the basis of labour coast. It is desirable to relocated some of the major industries like Delhi Cloth Mills and Birla Mills with in the Delhi Metropolitan Area itself, but sufficiently away from the congested part of Delhi. Their structures may be suitably converted for re-use as flatted factories.

Industries located in mixed land uses is yet another type of industrial activity, which is quite prevalent in Delhi at the present time. In fact, this type is an offshoot of the lack of suitable factory accommodations in separate industry zones, and of low rents which are charged for factory operations in inferior structures. Zoning regulations and similar restrictive measures are likely to exert pressure on the available space of this type, and consequently, the total of such employment may decline slightly. Some such activities, as have been indicated, owing to their connection with trade, cannot be altogether removed from their present location. At the same time, the continued deterioration of some structures now used for manufacturing may create a process of land use succession, which will preserve some space in spite of the types of changes here indicated. It is therefore, assumed that about 60,000 employees, may continue to be housed in location s of this type in the present built-up areas of Delhi.

3. High-density factory space inlaying locations.

Space of this type in England and the continent is called "flatted factories", while in the United States, similar space is called "loft space". Characteristically, manufacturing space of this type is provided in built-storey buildings (2 to 10 floors) in order to conserve ground and may be readily subdivided for a number of occupants of different sizes and requirements.

This type of space is needed to provide employment for the existing populations of old Delhi and to provide accommodation for firms who are forced by circumstance and by their continued growth to move out of household establishments and mixed land uses. They are also needed to accommodate those industries which will because of their service character. The quantity of this type of space available is elated to demand, and will be regulated by the competition of commercial uses and the limited availability of land in inlaying areas. Because old its critical importance in the development of should industrial base in Delhi, it has received considerable importance in the Master plan for Delhi.

4. Flatted Factories in District centers in outlying locations:

Because the population of Delhi will be substantially re-distributed over the next twenty years, many persons interested in manufacturing employment will be moved to some distance from such available employment, while many populations will be resettled far from current centers of supply for some items of household use, which are manufactured on a small scale and distributed in close proximity to the point of manufacture. At the same time, however, present plans stress the desirability of discouraging extreme mixtures of land uses within the new residential communities, or undue growth of household Manufacturing within the residences themselves. For these reasons, it is desired to provide for some manufacturing employment where this may be economically feasible in the district centre. These manufacturing will depend for their success on one of a number of factors; the skill of the residents; their proximity to marketing; or their relative independence of services; techniques, and communications which are available on in the central city. For this reason latter, manufacturing undertaken in these residential areas will perforce be technologically rather simple and will produce products which are, on the whole, highly standardized. They will rigidly exclude nuisance industries of all types.

5. New Industrial Districts:

In some Indian cities, extensive and essentially restricted industrial zone have grown up on a large scale as a result of normal economic growth and development; an example might be the textile mill area of Bombay. In others, more recently, an effort has been made to benefit from the experience of the west in establishing planned industrial zones, some of the organized in each a ways as to merit the name industrial District. Which implies a common management for the properties involved. In Delhi, with a relatively slow industrial growth and with land-intensive industries, the creation of industrial zones has been limited and only one such modern zone has been established, the Najafgarh Industrial zone, along the narrow gauge rail line in west Delhi. It is proposed that the bulk of the land- extensive industries to be located in Delhi in the future be concentrated in zones of this type.

6. Extractive Industries;

In general, the Union Territory of Delhi does not have any industrial raw material of significant value. Except for certain types of clay deposits including kaolin, which are used in the manufacture of pottery. Most of these areas are located in the south- western proration of Delhi urban area, and consequently a number of small mains and pottery works

have been established in this are a including also a big factory. The access to most of these mines and factories is from the Mahapapur Road which joins the Gurgaon- Palam Road from the western side to the Mehrauli Road in the east. In view of the nature of this clay deposit, and its significant use in the manufacture of pottery, an area of 350 acres has been indicated in Master plan, where mining of the industrial clays may be permitted on a controlled basis. In addition, an area of about 100 acres has also been indicated for the pottery industry as such, which includes the presently located firms.

It is, however, suggested that, in general and, as far as possible, no new factories of large scale should be permitted in this area, but instead they may be located in the Okhla Industrial District or in one of the other industrial district reserved for extensive industries. This recommendation assumes particular importance as the cost of transportation of the clay to the industrial districts (e.g. Okhla) is likely to be cheaper than the cost of transporting finished products from the present extraction areas to the marketing centers in the old city and outside.*

The following table gives in summary from the land and employment, in different types of industrial locations.

TABLE - 7

Distribution of 1981 industrial population by types of location in the Delhi Metropolitan Area.

Sl. No.	Type of Manufacturing employment and location.	Employment		Land requirement		Gross employment density/per acre
		Number	Percentage	Acres	Percentage	
1	Household types	50,000	9.0	Not required	Not required	--
2	Mixed land uses	60,000	10.8	,,		--
3	Flatted factories: Inlyning	38,400	6.9	192	1.5	200
4	Flatted factories: Outlying	33,800	6.1	169	1.3	200
5	Industrial Districts	192,350	34.7	7,566	58.0	25
6	Service Industries	17,750	3.2	355	2.7	50
7	Extractive Industries	2,150	0.4	106	0.8	20
8	Special Industries	2,850	0.5	165	1.3	17
9	Urban Village	20,000	3.6	Not accounted		--
10	Industries in rural*1 areas:					--
	(a) In the union Territory of Delhi.	15,000	2.7			--
	(b) in the rest of the DMA	8,000	1.4			--
	Sub-Total	**440,300**	**79.3**	**8,553**	**65.6**	**52**
	Deficit to be provided in six Ring Towns:	**114,700**	**20.7**	**4,500**	**34.4**	**25**
	Grand Total (all DMA)	**555,000**	**100.0**	**13,053**	**100.0**	**42**

* *Since a good deal of the pottery manufacturing in Delhi is exported to areas outside the Delhi Metropolitan Area it will be to the advantage of the manufacturers to locate their factories in the Okhla Industrial District at such places where rail access is readily available, for the direct dispatch of h finished products to the ultimate destination.*

*1 *An employment of approximate 23,000 is expeted to be in the industries of rural areas of the Delhi Metropolitan Area.*

V. FACTORS ON THE LOCATIONS OF INDUSTRIES

a. Location for intensive manufacturing flatted factories

Reasons for the importance of inlaying manufacturing space have already been enumerated and the proposals for the provision of flatted factories or multi-storey, sub dividable rental factory space have been sketched. The space should in general be constructed in areas on the periphery of the densely populated portions of old Delhi on parcels of land of two acres and upwards in extent. In a few cases, existing commercial facilities can profitably be converted into manufacturing uses.

The development of these areas should provide for ample off-street parking and loading facilities so that the movement of goods and the stationing of vehicles does not aggravate traffic conditions on the abutting streets. Building over three or four stories in height, must be provided with "elevators", but below this height, goods movement may be by stairways or by ramps.

Depending on the size of the unit, certain common facilities may be provided, including small industrial assistance centres,

dispensary, and commissary. The standard for the basis for about 200 workers per acre. The floor space per worker is taken on an average of 100 to 150 square feet per employees. Maximum number of floors permitted is six. With careful design, the structural efficiency of the building should approach 70 per cent, so that only 30 per cent of the space is occupied by corridors, stairs, and common facilities; building efficiency should be at least 65 per cent. Owing to the requirements for parking, loading and open air goods, storage, site coverage should not cover 30 per cent for a five storied and 25 per cent for a six strayed building. The floor area ratio recommended is 150 and maximum coverage permitted 40 per cent of the floor area. Considering the maximum coverage, one acre of net land area (plot area) could prove about 28,000 square feet of unable floor area for manufacturing establishments. This floor area should be subject to easy sub-division and re-allocation, so that the expanding firms can secure adequate space without moving outside the building and frequently without moving within the buildings. The structure should be designed to sustain the floor loads associated with light to medium manufacture, and associated storage. Basement will be permitted for parking, servicing and storage only.

Trades and processes in manufacturing which produces nuisance or industries which are obnoxious or otherwise creating hazards should not be permitted in flatted factories in inlaying locations. However for the joint use of several firms within a flatted factory, a space on the ground floor may be planned for foundry operations, but this should be under strict control and under modern methods or operation and management, This foundry would operate in a manner midway between a custom foundry and an individual foundry associated with light manufacturing. The government, the building operate or a concessionaire would sell molten metal, but the individual manufactures would supply their own patterns and from their own moulds. At a later stage in the development process when foundry work has been established as an independent trade dissociated from small-scale processing of castings, those foundries could be moved to less objectionable locations. Careful control of the foundry operation can also greatly reduce its nuisance value.

A number of sites for flatted factories have been identified and reserved in the built-up areas of old Delhi or immediately adjacent hereto. These sites have a total acreage or 192 and can therefore provide between 8 to 10 million square feet of industrial space depending on the number of floors built. Their respective locations and size are provided in Table 8: Below.

TABLE - 8

LOCATION FOR FLATTED FACTORIES IN LYING AREA.

LOCATION	ACRES
Ajmeri Gate	10
Thompson Road	16
Motia Khan	43
D.C.M. Site	27
Roshanara Road	13
Birla Mill Site on G.T. Road	40
G.B. Road	10
West of Mori Gate	2
Connaught Place near Shankar Market	10
Sarai Rohilla	11
Near Gulabi Bagh	10
TOTAL	**192**

The volume of employment which these centers can accommodate will depend in particular upon their intensity of use. It is anticipated that hen these buildings are first constructed and when firms move into them from unsatisfactory space in the old city, the intensity of use my be high, even higher on a net basis than average figures so far adduced for various parts of the old city. This will occur partly because the high rents will have a selective effect in attracting those firms whose processes tend to require somewhat less space, and because in the process or movement from one location to another, manufacturing methods may be revised and better use of this superior space may prove possible.

It is also proposed that flatted factories be located in District Centre in outlying area, and in Industrial District. These types of locations are discussed below in relation to the structural characteristics and their land requirements.

The provision of industrial space in the Districts centre following fact, principles similar to the provision of industrial space in inlaying areas. However, in this case, the volume of employment is not anticipated. To be so large, and the value of land is not so high. For these reasons, less concentrated employments may be desirable. Flatted factories in District centre may not actually exceed two stories, but the maximum limit of as many as to stories has been set. A standard of about 200 workers per acre and 150 square feet of floor space per worker has been recommended. A floor space ratio of 120 with a maximum coverage of 33-1/3 per cent has also been set. The following sites have been recommended for flatted factories in outlying areas.

TABLE - 9

LOCATIONS FOR FLATTED FACTORIES IN OUTLYING AREAS

LOCATION	ACRES
1. Eleven Hundred acre housing scheme District Centre	10
2. Kalkaji District Centre	15
3. West Delhi District Centre (North of Rajouri Garden)	10
4. Khyber Pass District Centre	5
5. Ranjit Nagar Scheme	10
6. Ring Road - Mathura Road - Railway Line Triangle	16
7. Kotla Mubarakpur	4
8. Shahdara Central Business District	15
9. Shahdara between G.T. Road and Railway Line	18
10. Okhla	45
11. Jhilmilia	5
12. North of Tehar Jail	16
TOTAL :	**169**

The major purpose of the provision of this type of apace in district centres is to provide employment to about 33,800 persons, and to provide it in such a way that the resulting land uses do not intermingle and conflict with the predominantly residential and residential-serving commercial land uses which predominate. In the District Centre, the location of Manufacturing space should be peripheral to the main commercial centres. Since in a number of cases these centres will grow far beyond their initial size and possibly beyond sizes which can presently be anticipated and economically provided for, the design of manufacturing space should, if possible, facilitate its later conversion to commercial uses.

Rental policies for the flatted factories will have to take account, on the one hand, of the probable reluctance of Indian manufacturers to make an initial move into this type of space, and on the other hand of the high land values and intensity of competing uses in and near the Old City. It is therefore suggested that the first one or more of these blocks be constructed by government, and that the initial rentals be rather heavily subsidized. Rents, however, should rise on a sliding scale at a fairly rapid rate until they have reached a level equivalent to that which be charged if the entire building were converted to commercial use in the same location. This is an economic rent and should not be confused with the (probably lower) "economic rent" which would be charged if customary government interest and amortization rates were applied. This second type of economic rent is purely fictitious and in this case would be unnecessarily low. Once these industrial buildings have been in established operation for a number of years, a relatively uniform age distribution of occupancy will be established and rentals should more than defray the original costs. As further experience is gained and evidence is available, the initial subsidization of rents can gradually be abandoned. A policy of charging full rental is necessary in order to encourage private builders to enter in to the same type of activity without fear of unfair competition from government.

b. Extensive locations for Manufacturing : Industrial Districts.

Large scale industrial zones are the most important feature conducive to the sound industrial development of Delhi. They occupy the largest amount of land in the whole pattern of industrial development and therefore make the most extensive impression on the urban landscapes. In the course of the development of the city the purchase and development of the necessary quantities of land in industrial zones either by private enterprises or by government agencies will involve large capital investments. For all of these reasons the planning and location of industrial zones is of extreme importance, and requires careful consideration.

More detailed analysis will show that large scale industrial location cannot favourably be undertaken the basis of "spot zoning". Isolated industrial plants tend to have an unfavourable effect on neighbourhood development, and cannot easily receive the benefits of planned industrial development, which result fro the joint provision of utilities and service and the juxta-position of number of inter-related industrial activities. In the light of these facts, and in the light of the common need of most industries for similar locations, the allocation of substantial blocks of land for industry appears to be the most desirable, method of meeting needs. In terms of the planned development these large blocks of land may be called industrial Districts.*

It will be desirable for a substantial proportion of this industrial development to take place on an organized basis and in the form of industrial Districts. The use of the name District implies a degree of ownership, co-ordination, and control at latest in the initial stages of development but permits securing maximum benefits for industry while preserving maximum protection and other values for the community. Such unified development may be undertaken under either private or public auspices. A single zone may be developed in one or more districts and these in fact, reasonably pursue different

* *This means nothing more nor less than that this land has been allocated for industrial use. It has no implication as to how the land may be developed. Very frequently this could mean that it will be developed by individual realtors and industrial forms, subject only to control as to subdivision layout and notification.*

policies on layout and rentals or sales depending on the types of industry which they may be designed to accommodate.

The following discussion refers primarily to Industrial Districts, in as much as organized districts can probably provide greater benefits to the urban area in the process of their development.

While industrial development offers most important advantage to the community and the nation in terms of the increases in productivity and employment which it generates, certain problems for the community at the same time. Industrial land generates large movements of persons to and from work, and very heavy goods traffic. Certain types of industry have objectionable features in terms of noise, Smoke, smell, etc. Still other industries require large quantities of water or generate in addition to "domestic" sewage, waste products which may tax the capacity of sewage mains and treatment plants. For all of these reasons large scale industrial development must to some degree be separated from the rest of the community. This implies special access provisions to separate industrial goods traffic from main through traffic on adjacent arteries, unloading and storage spaces which are off the street and off the access roads adequate for the industry's purposes, and in some cases buffer strips and landscaping which insulate the industry from the rest of the community.

Obviously all of these features of industrial development can be supplied more economically ton large blocks of industry than to single industrial firms. At the same time, there are a number of single industrial forms. At the same time, there are a number of joint facilities including but not limited to utilities which industry needs in special degree. One of the most important of these is access to rail. Although not every industrial firm located in an industrial zone and district will use direct rail access and install a siding, the probability that this will happen to a large number of bigger firms in the course of normal growth suggest the desirability of locating all or nearly all of the major industrial zones along railways. Similar considerations apply with some-what less force to location along highway facilities, which are, however, less inflexible and more widely available throughout the metropolitan area. The advantages of rail and highway facilities can be best utilized by an industrial zone which is long and not too narrow along these facilities. On the other hand, buffering and insulation from the surrounding community is cheaper when the district is compact in shape. To some extent the disadvantages of a long and narrow industrial district from the point of view of the separation of land uses can be overcome by using the bordering highways and railways as a part of the buffer zone. *1

The layout, rental, and sales polices of Industrial Districts require utmost care to secure high levels of land utilization and to avoid the provision of access and utilities to an unduly dispersed group of industrial firms. Site layout in particular should provide about 75 per cent of the total gross area in net usable industrial sites.@ A careful balance also must be struck between allowing industrial firms sufficient land for expansion, and preventing them from purchasing land and making use of it at abnormally low site coverage ratios. Extremely small lots are to be avoided since can only with difficulty be used efficiently. The number of workers per gross acre. The recommended coverage is 30 per cent to 40 per cent of the total plot area. The average floor space per worker is expected to cluster around 350 square feet. Slightly higher coverage may be allowed in course of time when industries need more space for expansion.

Most of the industrial districts proposed here will be located a little far away from the large population concentrations. To some extant, population concentrations may be regarded as generators of industrial activity just as the present downtown portions of Delhi generate such industrial activities, but in the case of the more outlying areas proximity to other industry is a desirable stimulus to such development. For this reason, in addition to the industrial centres which will be supplied in the District Centres, it is desirable to have suitable environment for small industry within the Industrial Districts proper. At present it is difficult to tell what the extent of demand for such space may be, but some "flatted factories" should be provided in most of the Industrial Districts. The location of these "flatted factories" should be on that side of the district closest to the main centres of population or to the most convenient means of access, so that the large volume of worker movement to and from work which they generate may be most conveniently served. This aspect has been referred to earlier in this chapter.

It is probable that the cost of land in the Industrial Districts will be comparatively below the cost of land on the periphery of the old city, and consequently the incentive towards multi-storey industrial buildings will not exist with the same force. However, a close grouping of small industries will be conducive to the more efficient use of joint facilities, and particularly to the

*1 *The advantage of sizeable zones and compact zones are somewhat increased by the fact that common facilities in use by a number of industrial establishments should in principle be located with the highest degree of accessibility and the greatest economy of operation due to the size of the district. These common facilities include services for both employees and employers such as dispensary and commissary, a bus terminal, steel depots, freight forwarding offices, etc.*

@ *By Contrast with this criterian the industrial estate at Okhla provides less than 50 per cent of the gross area in net usable lots.*

joint use of access-ways.* The location of some small industries in flatted factories or properly grouped one storey factory space will facilitate their expansion and if necessary their relocation in to individually managed lots in the same industrial district.

The main industrial zones recommended for designation within the boundaries of present Delhi territory are governed by the considerations outlined above and by the total requirements for industrial land already discussed. All the noxious industries which are now located in the residential areas will have to be relocated in these areas. The recommendation are summarised in Table 10. All are located in areas adjacent to present and future rail lines or major highways or both, most frequently in suitable corridors between the rail line and the highways. A brief characterization of these areas follows:

1. NAJAFGARH INDUSTRIAL AREA

A total of about 900 acres adjacent to the Rewari rail line and south of the present industrial estate is recommended for future development. Out of this total, approximately 385 acres are likely to be in the existing industrial area, and the remaining would form a new Industrial District between the Railway line to Rewari and new Industrial Road. This would employ a total of approximately 21,500 persons, on a gross employment density of 30 persons per acres. The full development of this industrial zone for rail based industry will require the separation of the broad gauge and meter gauge railway facilities in this industrial zone proper. It will also require the establishment of a small switching yard within the industrial zone, since access to the zone by broad gauge traffic through the crowded junction with the narrow gauge is already inefficient and unsatisfactory. The initial steps in the extension of this development might be most efficient directly south of the existing industrial zone, at the Ring Road, and at Station Road opposite the Delhi Cantonment.

2. OKHLA INDUSTRIAL AREA

One hundred acres north and about eleven hundred and fifty acres south of the existing Okhla small industries estate are proposed for industrial development. The Southern-most acreage will be adjacent to the Northern Railway's projected Tughlakabad Marshalling Yards. Most of the southern acreage is separated from the existing estate by an unbuildable ridge through which, however, road access may be provided. The expansion areas adjacent to the existing estate should be devoted in the main to small industry. The total employment in this Industrial District is likely to be around 37,250 persons.

3. AZADPUR INDUSTRIAL

Seven hundred and forty-three acres on both sides of the Ambala Rail Line and west of the Grand Trunk Road south of Azadpur are reserved for an industrial zone, with an expected employment of 18,575 persons. Industrial location in this area will have to be carefully planned. In general, light and certain types of manufacturing industries may be located provided they are not of the nuisance industries.

4. ROHTAK ROAD INDUSTRIAL ZONE:

The thousand and thirty four acres north of New Rohtak Road, east and west of the Northern Railway storage area and north and south of the Rohtak Rail line are reserved for Industrial and storage use. The district east of the Ring Road, 250 acres extending northward in the direction of Azadpur is especially suitable for early development. A portion of this area is reserved for the slaughter house, whose relocation from qudam Sharif is necessary at an early date. The location of this nuisance industry upwind from the centre of Delhi although some distance removed is unfortunately dictated by the fact that the main source of slaughter animals which are driven on foot is northwest of Delhi.

5. SHADARA INDUSTRIAL ZONE

The largest single block of industrial land is reserved on the east bank of the Yamuna, in land areas to be diked and conserved for the expansion of the city. The opportunity to reserve this large area is presented by the intention of the Northern Railway to construct a cut-off from Nizamuddin to Sahibabad and of the Union Government to provide a highway cut-off at the same time. By an appropriate adjustment of the alignment of rail and highway facilities a zone, one-half to one mile wide and about 6 miles long is created which will be ideally situated for industry. Land southeast of this strip beyond the highway alignment cannot be subject to future development because of its low-lying position and the fact that it will be used as a sump for storm drainage from the developed lands to the northeast of the railway. Since prevailing winds are from the north and west in Delhi this industrial estate can accommodate all nuisance industries whose location in other industrial districts would be a threat to surrounding residential areas. Also because of its great extant it is admirably suited for the most extensive land using industries which may be developed in Delhi in the future. This extensive industrial area inclusive of the area in U.P. will contain about 3,832 gross acres of land, and provide employment to 81,800 persons. Of this roughly 1,032 acres is in the Union Territory of Delhi, and 2,800 acres in the area lying between Shahdara-U.P. border and the River Hindon.

* *One of the contributing factors to the Wasteful use of land in the Okhla, estate was the small size of units and the difficulty in providing such units with access for more than one side without excessive land allocation to streets.*

SERVICE INDUSTRIES:

Service industries are generally small scale, non-nuisance industries which could operate near the built up areas. Their location are to be carefully determined in each case, and proper performance standards enforced, so that dust and smoke emitting from the industries do not cause nuisance to the residential areas because of the prevailing wind direction. Land measuring 355 acres has been indicated for service industries in several sites in the Master Plan

On an average, the service industries will operate on an employment density of 50 persons per acre, thus employing a total of about 7,800 persons. The layout should be such that not more than 25 percent of the area is under streets, and 10 percent in common facilities; so that the remaining 65 percent of the space is utilized for manufacturing. There are seven locations for service industries, the detailed list of which is given in the Chapter on the Land Use Plan.

Special Industries:

In a large metropolitan complex of today, there is a demand for certain types of industries, based on the intimate relations between scientific research and production. Among such industries are the manufacture of complex electronic machines, calculators, precision instruments, inertial guiding system, and ultra-sonics etc. In view of the fact that these industries employ a large number of highly skilled technologists, an area of a about 165 acres*, expected to employ roughly 2,850 persons, has been indicated in the Plan. The site is in the neighbourhood of the proposed Engineering College, The site will accommodate such industries which manufacture highly precision instruments, which do not cause any nuisance (e.g. noise, foul odour of smoke). Research and training will be an intrinsic part of such industrial activity.

URBAN VILLAGE

Urban village scheme implies relocation of certain trades and industries which have a general rural character, in clusters of village on the fringes of urban Delhi. These industries would include pottery, tannery milch-cattle keeping and similar other trades. These industries have an obnoxious character and presently function in congested quarters. In addition, they are in the heart of the residential areas, usually densely populated. This scheme, when effectuated, would mean release of Valuable land, and also weeding out of these uses, not required to be in urban core. It is anticipated that upto 20,000 persons presently engaged in such occupations may be shifted to 'urban villages' and other rural areas in the Delhi Metropolitan Area.

The major extensive industrial areas outlined above contain a total of 7,566 acres and will accommodate at proposed employees densities about 192,350 workers. This is given in Table 10.

TABLE No. 10

Distribution of land and employment in Industrial Districts (1961)

Sl. No.	Industrial District	Area in acres	Average employment density workers per acre	Anticipated employment.
1	Najafgarh Industrial area	716 Acres	30	21,480
	(a) Najafgarh	385	30	11,550
	(b) Between Railway to Rewari and New Industrial Road.	331	30	9,930
2	Okhla Industrial area	1,241	30	37,230
3	Azadpur Industrial area	743	25	18,575
4	Rohtak Road	1,034	32	33,265
	(a) Rohtak Road	565	30	16,950
	(b) North	469	35	16,315
5	Shahdara Industrial area	3,832		81,800
	(a) in Union Territory of Delhi	1,032	25	25,800
	(b) in U.P.	2,800	20	56,000
	Total	**7,566 Acres**	**25.4**	**1,92,350**

* *In addition to 103 acres covered by the special industries, near south of Engineering College, two sites of 62 acres, which includes the present Hindustani Housing factory (54 acres) near Bhogal, and special industrial area at Kalkaji (8 acres) have been treated in this category.*

It is apparent that this volume of manufacturing employment will not entirely provide for the anticipated manufacturing employment of Delhi at densities indicated in the same table. In an extensive manufacturing zone, it is anticipated that the future average space for employee will be around 350 square feet, and often more.

A ground coverage of one-third may be anticipated.*[1] Under these circumstances, a net lot area of twelve hundred square feet per worker must be allowed. Finally an additional allowance of 400 square feet must be made for the fact that net areas will not exceed 75 per cent of the gross area of a developed industrial zone. Consequently, at least 1,600 square feet of gross area per worker will on the average be required. This amounts to an allowance of one acre for 20 to 35 employees. In constructing Table 10 which displays the anticipated employment in each of the industrial zones which are described above, due allowance is made for the relative density and phasing in development of the different industrial zones. Consequently the closer inlying zones are postulated to have a somewhat higher density of employees per gross acre owing to the fact that they will be earlier and more densely developed while the outlying areas such as Shahdara are expected to have densities at or below the average discussed here.

In consequence of these space requirements the suggested assignment of about 7,566 acres of presently vacant land to future industrial development probably cannot accommodate more than 192,350 new employees. Presently existing types of accommodation may be expected to contain roughly the present industrial employment, while new space in flatted factories in locations will accommodate between 60,000 and 80,000 employees and neighbourhood, mixed uses and urban villages manufacturing space could accommodated between 125,000 to 150,000 employees. However, in Table:7 of this Chapter, provision has been made for roughly 130,000 employees. This would, more or less depend upon the availability of developed industrial land, and upon the structure and composition of the working force in manufacturing in the entire metropolitan complex. An additional working force of 23,000 employees is expected to be in the industries of rural areas, thereby leaving a deficit of 114,000 employees, for whom the space has not been provided in urban Delhi.

It is however, proposed to accommodate these people in the "ring towns" around Delhi. These "ring towns" are proposed for intensive urban development with a distinct industrial bias in the plan for the Delhi Metropolitan Area, as defined and designated in the preceding chapters. This proposed re-location of manufacturing working force deserves some further discussion.

VI. INDUSTRY IN THE "RING TOWNS":

Considerable statistics were collected on the character of industrial activities in the "ring towns" located around Delhi. Only one of these, Narela is located within the present borders of Delhi territory. The other "ring towns" are outside the Delhi Territory in U.P. and Punjab. The largest of these and the most suitable over the long run for industrial development are Ghaziabad and Faridabad, Bahadurgarh and Gurgaon will be unsuited for development until better provisions for Water supply are made. Industrial development uptill now has not been very remarkable in these towns. An attempt at establishing an industrial estate in Bahadurgarh has been far from successful. Gurgaon as a district centre has experienced slightly more growth, but in actual fact there is very little manufacturing activity. Sonepat's industry is by and large more isolated from Delhi than is the case in the other towns. Its industrial district has been slow to grow, but the large works of the Atlas Cycle Company are quite successful. Transportation studies indicate however, that the town of Sonepat is, in general, more closely tied with Delhi than other centres at equal distance.

Ghaziabad is the closest of these centres to Delhi and has had a substantial industrial growth, such that industrial zones having some of the character of industrial districts are beginning to arise on its outskirts. Ghaziabad's public utilities and highways and streets are however, inadequate for further rapid development without careful planning and financial assistance to accelerated urbanization. A similar situation exists in Faridabad which is slightly further from Delhi and which also has a recent history as a centre of planning industrial development. Here the low budgets for refugee rehabilitation and the modest size of the planned centre mean that the utilities and services are not yet adequate to sustain very rapid growth. Unlike Ghaziabad however, there is a history of planned development and the layout, streets and disposal of public open space are suitable to substantial further expansion.

In most of these centres the industrial proprietors indicate a strong desire to be closer to Delhi, end by implication therefore, show a latent dissatisfaction with industrial location in their present situation. This vague desire has many implications. In these small places the delivery of inbound goods wagons and the spotting of empties for use in making shipments is slow,

*[1] *Coverage on the net plot area may be higher than this at later dates after a full cycle of expansion has taken place, but in the industrial areas of the city as a whole there will also be a number of lower coverages where manufacturers have not yet built up to the full site potential.*

irregular and unreliable. A special difficulty exists in Faridabad which is not on the Northern Railway and which must have its wagon spotted from Mathura. Truck communications are difficult because of the restrictions on inter-state bus traffic, which means, for example that quite often goods in transit to the U.P. must be transhipped at Shahdara.

Industry in U.P. faces a severe shortage of electric power. Industries which ship through agents or wholesalers in Delhi must pay octroi duty when the goods are shipped into Delhi and equally pay octroi on goods acquired in Delhi through intermediaries. If however, those goods could be shipped directly, their octroi would be non-existent or substantially lower. Managers of these plants and technical personnel, who are resident in Delhi tend to find the length of the journey troublesome and if they are resident in, the localities they find that they are out of touch with many aspects of technical and business developments. Telephone service in most of these centres is extremely poor and cuts down on communications with Delhi and other centres.

It is quite apparent that all these reasons for wishing to be "closer to Delhi" are of a character which can be overcome by careful planning and some necessary legislative action or cooperation between State and Union governments. The extent to which this is possible, however, will depend on a relative concentration of resources and a singularly pronounced effort by the officials of all jurisdictions involved. In order to achieve the best possible basis for decentralization, it would appear desirable to focus attention for the first few years on one or two of the existing, and best prepared centres and to follow this subsequently with selective expansion of additional centres. Immediate conditions suggest the desirability of initial expansion in Faridabad and Ghaziabad, subsequently to be followed by expansion in Sonepat, Loni and Bahadurgarh. Some attention may be paid to smaller centres such as Narela in the earlier phases and, Gurgaon and Baghpat in the later stages.

Recognizing the experimental character of this planned relocation it is nonetheless not unreasonable to suppose that over the next 20 years to 25 years, more than 100,000 manufacturing jobs could be attracted from Delhi into these centres. At the same time, as has been indicated elsewhere in this report, the centres themselves will be disposed to grow by the influx of population from the surrounding tehsils some of which might be "deflected" by strong industrial development to these centres instead of to Delhi proper. An assumption that this could be the case is in fact already built into the population projections for the Delhi Metropolitan Area and for the eight tehsils forming the National Capital Region.

On the basis of an assumed total industrial growth ranging between 110,000 to 140,000 in these centres,* an industrial employment averaging 40 per cent of all employment, and a labour force participation rate of one third (which roughly correspond with Delhi's present experience) implies a balance migration with no great excess of males over females. The total population of the five towns in this area may well exceed eight lakhs of people. Including the anticipated population in Sonepat and Baghpat towns which are rather close to Delhi, (but not in the Delhi Metropolitan Area), the total expected population in the seven. 'ring towns' will be more than a million in the next two decades.

Future planning in these centres must be based on a more extensive analysis of industrial location trends, population trends and land conditions than has been possible in this Plan for Delhi proper. These studies should be designed to take every advantage of opportunities for preserving the independent character of these towns and establishing the widest possible range of employment. At the same time, however, they must recognize that the hopeful industrial development of the towns will depend on their ability to communicate rapidly and easily with Delhi, while the preservation of opportunities for a part of the town population will like-wise depend on free movement into Delhi.*[1] There will be of necessity some commuting to other employment centres in Delhi and most notably to the government centres in South Delhi and to the commercial service centres in Delhi Urban Area.

In this connection, tentative suggestions with respect to the quantity and general pattern of land uses in the towns of Faridabad, Ghaziabad, Loni and Narela have been made to the respective authorities. Accordingly, some 10,000 acres for urban development has been indicated for Ghaziabad including roughly 2,000 acres for industrial development, and about 100 acres for setting up the offices of the Central Government. Likewise the suggestions for Faridabad (including Bahadurgarh and old Faridabad) call for the development of approximately 8,000 acres of which about 1,400 acres are for extensive

* *The figure of 114,300 persons, envisaged to be in the industrial sector, in the 'ring towns', is a tentative figure. Alongwith these 'ring towns', it is also expected that there would be simultaneous industrial development in the towns of Baghpat and Sonepat, which, though not included In the Delhi Metropolitan Area, are also intimately linked with the economy of Delhi.*

*[1] *This last point may be more readily grasped by reference to the commercial chapter with its indications that only a limited portion of the commercial and service activities of a large metropolitan complex may be successfully distributed in neighbourhood and district centres. Town centres such as we are discussing will have somewhat more attraction for such commercial activities but it is most doubtful that the 60 per cent of the working force not employed in manufacturing in these towns will be able to find wholly satisfactory employment in the towns themselves.*

industries. The component of the Federal Government offices is of the order of 100 acres. A general land-use plan has also been prepared for Narela, the only "ring town" within the Union Territory of Delhi. The Plan for Narela envisages development of approximately 2,000 acres including 400 acres for manufacturing industry, and 50 acres for Central Government offices.

The need to provide good communications for purpose of stimulating manufacturing development and to remove the barriers to movement between different parts of the larger metropolitan area coincides with the need for the mobility of people as well.

A summary statement of manufacturing land and employment by 1981 is given in the following Table:

TABLE 11:

Summary of 1981 Manufacturing Land and Employment in Delhi Metropolitan Area by Location and types.

	Place	Total employment	Total Land	Average Employment Density (workers/acres)
A.	Extensive Manufacturing			
1.	Najafgarh Industrial area	21,480	716	30
2.	Okhla Industrial area	37,230	1,241	30
3.	Azadpur Industrial area	18,575	743	25
4.	Shahdara Industrial area	81,800	3,832	(20-25)
5.	Rohtak Industrial area	33,265	1,034	(30-35)
Sub-total		**192,350**	**7,566 acres**	**(20-35)**
B.	Intensive Manufacturing			
1.	Flatted factories in inlying locations	38,400	192	200
2.	Flatted factories in outlying locations.	33,800	169	200
Sub-total		**72,200**	**361 acres**	**200**
C.	Service Industries	17,750	355	50
D.	Extractive Industries	2,150	106	20
E.	Special Industries	2,850	165 acres	(15-25)
F.	Employment for which land is not required or not accounted*	153,000	-	-
Sub-total		**440,300**	**8,553 acres**	**36**
	Manufacturing in Ring Towns			
1.	Ghaziabad (U.P)	50,000	2000	25
2.	Faridabad (Punjab)	40,000	1400	30
3.	Ballah Garh (Punjab)	3,000	150	20
4.	Gurgaon (Punjab)	5,000	250	20
5.	Bahadurgarh (Punjab)	4,000	200	20
6.	Loni (U.P)	2,000	100	20
7.	Narela (Delhi)	10,000	400	20
Sub-total		114,000	4500	25
	GRAND TOTAL or say	**554,300 555,000**	**13,053 acres**	**31**

* *For details of this employment category, refer Table 7 in this Chapter* *Also see Table 17 of the Chapter : Economy of Delhi.*

VII - INDUSTRIAL PLANNING POLICY:

In the process of discussing general industrial location patterns in Delhi and patterns of growth and development which will need to be stimulated in accordance with national policy to develop investment in industry, this chapter has uncovered a number of areas in which government action and regulation may have some effect on industrial growth. The most important of these is undoubtedly the provision of adequate land for industrial expansion and some associated provisions to stimulate the decentralization of industry from its present concentration around the large centres of population in Central Delhi. It would not be inappropriate to review briefly some of these areas which will impinge on direct land use planning and which need to be taken into consideration in any complete effort.

Once necessary provisions in the zoning, planning, and development of land with streets and utilities have been made for the accommodation of industrial expansion, a number of measures may be undertaken which will facilitate the movement of industry. Perhaps the most important of these is the more rigorous enforcement of existing factory regulations regarding light, health, and safety, and the possible promulgation of new regulations.

A review of factory conditions in Delhi indicates that they are inferior to standards which would provide adequate protection for workers, and in most cases it does not appear likely that the enforcement of adequate standards would impair production. On the contrary, the improvement of light, the- removal of filth, and the more orderly result in improved operation standards and higher productivity. The continued toleration of these conditions probably represents in the case of Delhi an example of the difficulty of enforcement of factory regulations in small and medium, scale industry where the units are numerous and widely dispersed. This situation however, should not he permitted to continue. Aside from the gains in worker's health and productivity which might he anticipated, the stricter enforcement of factory regulations will prove to be one of the more important levers in making redevelopment feasible at lower cost; in maintaining the character of structures and neighbourhoods, where conservation is desired, and in starting the gradual outward movement of industry into new locations which has been proposed in this report.

The provision of water, electricity, streets, and other utilities is an important positive incentive to the development of land for industrial purposes. Unfortunately electric power is not freely available to manufacturing industry in Delhi and there seems to be a strong prospect for a continued rationing of power to industry*. From the point of view of the conservation of capital and the maximum use of land, buildings and machinery it would in fact be desirable to stimulate two-shift operation in factories by permitting the use of power in excess of that now permitted and in fact in some cases, to eliminate enforced weekly holidays which the rationing of electricity imposes@. In the case of water and sewerage, new industrial firms having heavy requirements should be required to locate elsewhere in the metropolitan area and beyond in the National Capital Region, where these requirements can more readily be met.

In connection with the development of the "ring towns" surrounding Delhi, not only the questions regarding water supply and electric power have been raised but also relating to the less tangible factors such as inter-state transportation and the octroi tax which should be resolved on a metropolitan basis. Similar problems which directly and indirectly affect land use planning are bus transportation (especially as furnished by the Delhi Transport Authority), the location of public facilities, the distribution of government employment, and housing and slum clearance projects.

Taking all of these considerations together the physical planning activities which make ready industrial land for private occupancy and which therefore ultimately lead to needs for housing and residential facilities are related to many other elements of governmental activity and policy. The whole process of physical planning for industrial purposes must be therefore closely related to other activities in the metropolitan region. Plans for the licensing and inspection of factory buildings must be worked out with a careful view to the effects which these will have on the location of industrial activity and to the further development of physical plans. Electrical supply policy must similarly be related, to land policy. In all cases the problem of extension of utilities is one - which is most intimately bound up with land development and which must be carefully planned In advance. Redevelopment and industrial location policy will have to look closely at the costs of property arid the rental values of them in different locations and under different conditions of occupancy, thus establishing a close relationship between land development policy at this point and tax assessments and tax collection policies on the part of the municipal government. While this interlocking of different

* *If the intent of these recommendations were carried to the extreme, it seems likely that commercial firms desiring air conditioning might be required to provide a security deposit which would finance the installation of the necessary service lines and generating capacity.*

@ *This course does not imply that workers should be required to endure a seven day week; the protection of workers, however, should be undertaken by other means.*

government activity requires close collaboration and formal channels through which that collaboration may be effectuated, at the same time it requires a fairly careful demarcation of powers and jurisdictions.

Probably the most significant aspect in the planning for the National Capital Region (a plan for which should be prepared after the sanction of the Master Plan for Delhi) would be to assume full responsibility for providing adequate industrial land and for co-operating with the necessary agencies to see that this land is provided with utilities and services in an orderly" war Similarly, it should have the power of review of all new industrial location and industrial construction in order to guarantee that such relocation or construction does not violate zoning regulations and infringe on other planned development patterns. In co-operation with government agencies which undertake to build and develop "flatted factories" or Industrial District, it should review the standards of occupancy which are to be established. At the same time there should be in the appropriate locations within the metropolitan structure, careful planning of industrial growth per se without relation to its location in order to assure that the needs of the metropolitan area are being adequately met and that those, industries which are capable of expansion, and, therefore can make a strong contribution to the national economy, are properly accommodated.

As a matter of general policy, existing industries should not be discouraged or expelled, and attempt should be made for their better and more efficient operation. In case of objectionable industries or those located in residential or congested areas, special attempt should be made to include them to move out from congested locations into specified industrial areas.

Application for the establishing of new industries should receive more careful scrutiny and the standard on which their applications would be reviewed may be established by consultation between the licensing authorities and the land planning organisation.*[1] Licensing could indeed be properly used, but with caution, to stimulate the de-centralization of industry and, in particular to establish large and viable manufacturing concerns in the 'ring towns' around Delhi or in the most distant part of the new industrial districts. Otherwise, the presumption should be, as experience has indicated, that manufacturing locations relatively close to the centre of the city are, by and large, more efficient for the small to medium size firms which now exist in Delhi.

The industrial policy as evolved also covers some related important aspects. In allowing new industries, preference should be given to industries which are essential for either feeding, servicing or maintaining Delhi's population. The relatively high level of income in Delhi would make it economical that certain types of consumer goods that are mainly consumed in Delhi but are transported from long distances, may be produced, as far as feasible, in or around the city. Industries associated with administrative, educational and cultural activities of Delhi may also be encouraged to a reasonable limit.

In general, Delhi is not a suitable location for heavy industries, and for large self-contained industries employing thousands of people. It is also undesirable to locate within the city industries creating problems of waste disposal, smoke fumes, water pollution etc.

Present plans for water supply and electric supply by the Municipal Corporation of Delhi indicate a probable continued shortage of these two basic services. It follows, therefore, that unless the water and power situation improves, industries using large amounts of power and water should be discouraged from locating in Delhi.

In view of the importance of manufacturing expansion and the tremendous contribution which it can make not only to the national economy but also to employment and income within Delhi, a comprehensive policy on the location of industries with the Delhi urban area, has been ennuniciated in the Part B, Section on Zoning Regulations Chapter of The Land Use Plan.

*[1] *Under present conditions with a number of different agencies at different levels of government dealing with industrial location as to licensing, location and provision of electricity there is a diffusion of power and policy making, and the needs of the metropolitan area as a whole are not always best served. Under a more carefully articulated and studiously worked out procedure, the industrialist should be able to make a single application for permission to establish his plant, and to have that application honoured by all other agencies with which he must deal.*

CHAPTER - NINE

HOUSING AND THE NEIGHBOURHOOD

Critical housing conditions are found all over India. The present condition of urban housing plus the mounting deficit has acquired national importance in the recent decade. The rate of new housing construction has not been able to keep pace with the rate of urbanisations; every Indian city is over-burdened with slums. Normal control for a regular pattern of development has not been able to cope with these pressures. The housing situation in Delhi further got aggravated after 1947 with the influx of a very large number of displaced persons which doubled the city's population during the last few years.

Certainly much of the current congestion was unavoidable, and there must be a recognition of the quantity of housing provided under the emergency conditions. However, the intensified tempo of post-partition building could not close the gap, nor could it keep pace with the ever increasing Immigration, which constituted nearly two-thirds of the annual population increase in Delhi.

As this deficit has grown, the housing shortage has assumed gigantic proportions and the degree of congestion in Delhi is now among the highest of the major cities of India. Within Delhi the most severely affected area is the old city of Shahjehanabad, as well as its extensions of Motia Khan and Subzi Mandi. In the walled city area, the overall density has risen from 91 persons per acre in 1931 to 201 persons in 1951, an increase of 121 per cent. Yet this average figure does not reveal the congestion that prevails in many areas within the city. There are several areas within the city where the net residential density is more than 1000 persons per acre. What is more, most of the buildings are one or two-storeyed structures; in many areas there is no empty space whatsoever. Finally, congestion is further aggravated by the mixture of manufacturing and commercial uses.

COMPONENTS OF THE HOUSING- PROBLEM

Besides private investors, the house building activity in Delhi is dispersed over a number of ministries and local departments, of which the major ones are :

1. Ministry of Works, Housing and Supply
2. Ministry of Rehabilitation
3. Delhi State Administration
4. Municipal Corporation of Delhi and the New Delhi Municipal Committee
5. Delhi Development Authority

Practically all of these agencies are engaged in construction work without, in fact, assessing or comprehending housing needs of the city as a whole. In the absence of any single controlling authority, there has been little or no coordination in the housing activity, and a proper evaluation and classified statistics of this important aspect are sorely lacking.

According to the data collected in the Land Use Survey, and from the data obtained from the agencies mentioned above, it has been estimated that during the period 1951 and 1958, these agencies together developed or earmarked for development a number of new areas and colonies with a total dwelling unit potential of 142,000*1 . By the end of 1958, approximately 101,745 dwelling units were reported built. A breakdown of dwelling units by all these agencies is shown in Table : 1.

TABLE - 1

HOUSING CONSTRUCTION BY GOVERNMENT AGENCIES AND PRIVATE ENTERPRISE DURING 1951 and 1958

Agency	Number of dwelling units constructed 1951 - 1958
1. Private Enterprise	13,370
2. Ministry of Works, Housing & Supply	15,361*
3. Ministry of Rehabilitation :	
(a)	15,457
(b)	7,370**
4. Delhi State Administration	2,350@
5. Municipal Corporation of Delhi and New Delhi Municipal Committee	910 £
6. Delhi Development Authority	4,927 ££

* *The Ministry of Works, Housing & Supply had a total provision of 26,903 dwelling units to be built during this period, but only 15,361 were reported actually built.*

** *The Ministry of Rehabilitation sold 3685 plots to the bona- fide refugees, (each having provision for two families) & it is presumed in this table that they must have been constructed.*

@ *The Delhi State Administration does not undertake any construction work itself, but advances loans to individuals and other recognized agencies for constructing dwelling units.*

£ *The figures relate to the construction made between 1955 and 1958.*

££ *The figures relate to the construction made upto 1959.*

*1 *A dwelling unit is here defined as a normal living area of one family with one kitchen. A two storeyed house with two kitchens, one on each floor, for example, constitutes two dwelling units.*

The number of houses built by private investors, as listed in Table 1, is an approximation calculated from the statement of the annual rateable value prepared by the Municipal Corporation of Delhi, under whose jurisdictional limits, most of the private construction has taken place. According to the estimates made from the annual rateable value data, the total number of dwelling units built during the period from 1951 to 1958 is 13,370.

Prior to World War II, housing was an industry predominantly controlled and financed by private enterprise, with the Government shouldering the responsibility of housing its own employees. Construction costs were comparatively low, and housing, even for middle and lower income groups, was a profitable area of investment. The profits were further increased by the poor standard of the buildings constructed. Housing for the lower economic strata was often substandard, devoid of necessary amenities and poor in sanitary facilities. As a result, rents were low enough to be within the means of a great many people in low income groups.

The situation changed abruptly during the war and after, when the cost of building materials rose so sharply that housing construction for low-income families became uneconomical. The enactment of various legislative acts in the post - partition period further limited the profit margins that private enterprise could earn on this investment. Private investors were thus unable to provide even a modicum of relief for the problems faced by the majority of the inhabitants of Delhi, AS the housing shortage became more pressing, "unauthorised construction" began, mostly on government land. According to an estimate, approximately forty thousand such structures have been built in Delhi since 1947.

The Ministry of Works, Housing and Supply has been responsible for all housing programmes for Central Government employees. As government functions, and consequently its personnel, have greatly increased since Independence, the Ministry has initiated a number of schemes to provide additional housing. However, it has not been able provide accommodation for the bulk of governmental employees, and as a result, at least three-fourths of them seek private housing arrangements, and consequently pay high rents.

At the commencement of the First Five Year Plan in 1951, the Government had 12,810 dwelling units of all categories for its employees. Since then 26,903 additional dwelling units of all categories have been sanctioned, of which 15,361 are reported to have been built so far. During the Third Plan period, the proposals are to construct another 13,512 dwelling units, which would bring the total number to 53,225 by 1965. Assuming a reasonable growth rate, the total number of government employees by 1966 is likely to be 150,000. If the Government adopts a policy of providing residential accommodation to 80 per cent of its employees, it will need 120,000 dwelling units by the end of the Third Five Year Plan. Under the construction programme now envisaged, however, 67,000 or 56 per cent of the anticipated employees will have to seek private housing.

The Ministry of Rehabilitation built a number of new colonies to resettle the refugees that poured into the Capital, which now sprawl all over metropolitan Delhi. Because of the urgency of providing shelter to the homeless, however, there was little time for careful planning or for proper coordination of services, and even today, many of these colonies do not have the basic necessities such as water, sewage and electricity, not to speak of such essential community facilities as schools, parks, playgrounds, and dispensaries.

It is estimated that approximately 1.25 lakhs refugee families entered the capital. To meet their requirements, the Ministry of Rehabilitation built 30,651 dwelling units comprising 11,077 double storeyed units, 845 shops-cum-residences, 652 flats, 1,760 'A' type quarters, and 16,317 single storeyed units with provision for the addition of a second floor. Besides these, the Ministry of Rehabilitation developed and sold to bonafide refugees 3,685 plots which, when fully developed on both floors, are expected to house twice that number of families. The Ministry also created a number of colonies, such as Tehar, Ramesh Nagar, Jhil Euranja, Lajpat Nagar and Gita Colony where 10,489 "cheap houses" were built. In all, the Ministry provided 64,827 dwelling units, but these were sufficient to house only 52 per cent of the total refugee families.

The housing activity of the Delhi State Administration has been mainly confined to the administration of loans under the Central Government's Low Income Housing Scheme. By itself, the Delhi Administration does not undertake any substantial construction work. Available data show that since 1955, loans have been advanced for the construction of 2,883 houses, of which only, 2,350 have so far been built. The beneficiaries under this scheme are either private individuals whose income does not exceed Rs. 6,000/- per annum or the local authorities, but in both cases, possession of developed land and an approved house plan are essential prerequisites. However, due to the dearth of developed plots within the hold

* *The figures for All India Urban were adapted from a survey report by the National Sample Survey, while the urban Delhi figures have been taken from the Greater Delhi Survey of the Delhi School of Economics. The data for different localities were collected by the Town Planning Organization.*

of the people of income group eligible for loans, the scheme has operated on a limited scale. Of loans advanced for a total of 2,883 houses, only 1,473 were taken by private individuals and the loans for 1,410 houses were taken by local authorities. It is learnt, however, that the local bodies have so far built only 890 houses out of 1,410, for which loans were actually sanctioned to them.

The erstwhile Delhi Municipal Committee and now the Municipal Corporation of Delhi has two types of house building programmes:

(i) to build houses for its own personnel and
(ii) to provide accommodation to slum evictees.

The work of slum clearance and provision of houses to slum evictees was till Dec., 1959 with the Delhi Development Authority, and was transferred to the Corporation in January, 1960 : therefore, no new housing activities for slum evictees, have so far been reported by the Municipal Corporation of Delhi.

Under its programme of housing for its own personnel, the Municipal Corporation of Delhi has, since 1955, built 567 dwelling units, consisting of 551 two-roomed and 16 four- roomed units, most of which have been built under the Central Government's Low Income Housing Scheme. During the same period, the New Delhi Municipal Committee built, under the same scheme 343 one-roomed tenements for its class IV employees and other service personnel such as dhobis and sweepers.

The erstwhile Delhi Improvement Trust, now reconstituted as the Delhi Development Authority also carried out some development programmes to improve housing conditions. Their programme was of two types; (i) development of new areas for private housing; and (ii) building of tenements for rehabilitation of slum dwellers. It is estimated that a total of 4,927 one-roomed tenements, mostly of the 'transit camp type', have either been built by the Authority or are under construction at various places in Delhi.

II. EVALUATION OF THE PRESENT HOUSING CONDITIONS

The preparation of an action programme to wipe off the existing deficit and also to provide for the future population growth necessitates a proper evaluation of the prevailing housing conditions. An action programme for housing obviously requires a closer study of those demographic and socio-economic aspects which have a direct bearing on the housing provisions. In fact, the extent of accommodation required by a household depends generally on its size, age and marital status, and is also strongly influenced by income and occupational pattern.

An attempt has been made in the following pages to study all the relevant data on housing, its inter-relation with other aspects like size and nature of households, distribution of population by age, and income distribution pattern on a more or less comparative basis. Not only does it show the acuteness of the housing situation in Delhi and in certain localities for which data have been tabulated separately, but also establishes how difficult it is to make the housing programme effective in view of the limited resources of the people and a few other adverse trends. The figures for Delhi have been put in comparison with the All India Urban data on housing.*

According to 1951 Census, the total number of households in Urban Delhi was 314,447 and the occupied houses 255,193. However, to arrive at a more realistic picture of actual housing deficit, a reduction of 10 per cent in the to number of households was considered inevitable for counting out uni-member households for whom a different type of housing programme is called for*. Likewise, a reduction of 15 per cent was necessary from the total occupied houses to account for structures serving as hotels, hostels and residential-cum-shops type of dwelling places. The deficit, after making these two reservations, was to an extent of 66,088 dwelling units in 1951. It rose to 103,920 dwelling units in 1956, and is expected to rise even higher. Various projections indicate that by 1961, the housing deficit would be anywhere between 140,000 and 150,000 dwelling units. The programme for the partial elimination of the deficit has been presented later in this chapter.

In population terms, there was no housing for roughly half-a-million people in 1956, and the figure is apparently on the increase. As the pressures of urbanisation continue' to lead to the withering away of the "joint family system", family size is expected to be reduced from 4.5 to 4.4 or even 4.3 in subsequent years. At the same time, the number of nuclear households is steadily rising particularly in large urban agglomerations, and in the last decade it has risen from approximately 57 per cent to 70 per cent**. It must noted that the largest concentration of the current population is in the age bracket of 10 to 25 years, which indicates that pressure on the housing situation in Delhi will continue to increase.

The magnitude of the housing shortage is further complicated by the pattern of income distribution. Over 80

* *The figures for uni-member households, in fact, are higher. But quite a few of them had expected that their families would be joining them.*
** *Studies conducted by the Town Planning Organisation.*

per cent of the households in Delhi earn less than Rs. 250 per month. The average household income for urban Delhi has been estimated at Rs. 187.8, which shows that ah average household does not earn enough to pay the economic rent of even a single room dwelling unit with a kitchen, veranda and self-contained services[@]. Assuming 10 per cent of the household income as rent paying capacity, only 20 per cent of the total households can afford un-aided housing for themselves. This is apparently the fundamental reason which makes the housing programme ineffective, since housing for at least 80 per cent will have to be subsidized by the government. The income distribution pattern is shown in table 2.

TABLE NO: 2.

Percentage distribution of Households family income in Delhi Urban Area.

Income Groups in (Rs.)	Urban Delhi	DMC	NDMC	Shahdara	Cumulative percentage for urban Delhi.
Less than 100	43.5	41.7	39.8	63.4	43.5
100 - 250	38.6	40.6	33.3	30.2	82.1
250 - 500	12.6	12.9	16.3	4.7	94.7
500 - 1000	3.8	3.8	6.1	1.7	98.5
1000 and above	1.6	1.0	4.5	-	100.0
Total	**100.0**	**100.0**	**100.0**	**100.0**	-
Average monthly Income (Rs.)	187.8	183.3	247.7	137.2	-

SOURCE: *Greater Delhi Survey Data Delhi School of Economics, Delhi.*

The overcrowding that results is devastating. The majority of the households live in single room dwelling units; often that dwelling unit is without the other necessary components and even without the basic amenities like water, latrine and electricity. In urban India, as the following table shows, 43.6 per cent of households live in one room tenements. The situation is worse in Old Delhi, and especially acute in many localities like Motia Khan. As compared to 68.9 per cent households living in one room in urban Delhi, the figures for Motia Khan are 73.2 per cent. The average number of living rooms per household too is very much higher in the case of urban Delhi than, urban India.

A very useful indicator of the condition of housing is the "privacy index", reflecting the number of persons per room. Studies show that the New Delhi Municipal Committee has the lowest rate of 2.5 persons per room, compared to the highest in Shahdara of 3.6. The Delhi Municipal Committee area, which is the most densely populated area, has 3.4 persons per room. So large a number of persons per room reduces the free square feet of living area virtually to passage-ways.

TABLE NO: 3.

PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY NUMBER OF LIVING ROOMS IN DELHI URBAN AREA.

Number of living rooms per household	All India Urban	Urban Delhi	DMC	NDMC	Walled City	Motia Khan.
One	43.6	68.9	69.9	62.9	63.8	73.2
Two	28.2	21.5	20.8	24.7	22.5	19.9
Three	12.0	5.8	5.8	7.0	6.8	4.4
Four and above	16.2	3.8	3.5	5.4	6.9	2.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Average number of living rooms per household 2.3	2.3	1.4	1.4	1.6	1.5	1.3
Average number of living rooms per household 2.3	2.03	3.1	3.4	2.5	3.5	3.7

SOURCE:
1. *Preliminary survey of housing conditions in INDIA : National sample Survey Publication.*
2. *Greater Delhi Survey Data : Delhi School of Economics, Delhi.*
3. *Studies conducted by the Town Planning Organisation.*

@ The Ministry of Works, Housing and Supply has calculated that the economic rent for a one-room dwelling unit of average standard is Rs.28/- per month. A two room dwelling has an economic rent of Rs.41/- per month. Elaborated in "The Problem of Housing in India"; Published by the Ministry of Works, Housing and Supply (1957).

Detailed analysis made for some of the localities shows that while size of the household has a positive co-relation with the monthly household income and number of living rooms, nevertheless it is sufficiently low. It clearly indicates that with the increase in the size of household, number of living rooms do not increase pari passu, and thus larger, households live in still more congested dwellings than the smaller ones. This also means that larger sized households will not be in a position to pay higher rents and hence get larger accommodation.

In terms of area of living rooms, the situation appears to be worse. In the former Delhi Municipal Committee area, 56.3 per cent of the households were found living in less than 150 sq.ft., while in the New Delhi Municipal Committee area, the percentage was only a little lower (50.0 per cent). Of the total, only 3.7 per cent were having an area of more than 500 square feet in the Delhi Municipal Committee area. In many areas as little as 20 square feet of living area per person is available, compared to a minimum of 50 square feet considered necessary.

TABLE NO. 4.

Percentage distribution of households by area of living rooms in Delhi urban area.

Area of living room (in sq.ft.)	Urban Delhi	DMC	NDMC	Shahdara
Less than 75 sq.ft.	8.4	9.7	5.8	7.8
75 - 150	46.1	46.6	44.2	46.6
150 - 250	26.1	26.9	22.9	32.6
250 - 500	14.9	13.2	20.6	11.0
500 - above	4.5	3.7	6.4	2.0
Total :-	**100.0**	**100.0**	**100.0**	**100.0**
Average area per house-hold in sq. feet.	192	182	215	174
Per capita area (in sq. ft)	43	38	54	38

Source : Greater Delhi Survey Data, Delhi School of Economics, Delhi.

Housing is not merely a provision of living rooms : it is invariably a composite of few other concomitant necessities like kitchen, bathroom, and lavatory. A dwelling without these is an incomplete unit, and deprives a family of privacy and independence. Shockingly enough, even these necessities which make a dwelling unit complete do not exist for a large percentage of households.

The level of service facilities varies throughout the Delhi urban area. Over 40 percent of the households living in New Delhi do not have a bathroom, a lavatory and a kitchen and yet that is the area having the highest level of services. On the other hand, the lowest level of services is in the South Delhi Municipal Committee, where roughly 70 percent of the households do not have either bathrooms or lavatories, and 66 percent have no separate kitchens. This is shown in table 5 given below.

TABLE NO. 5.

Percentage distribution of households by provision of certain facilities.

Area	Bathroom				Lavatory				Kitchen			
	Nil	S	C	Total	Nil	S	C	Total	Nil	S	C	Total
D.M.C	61.4	21.0	17.6	100.0	26.3	27.1	46.6	100.0	61.8	35.9	2.3	100.0
N.D.M.C	43.8	34.6	21.6	100.0 n	40.9	33.5	25.6	100.0	42.5	51.4	6.1	100.0
W.D.M.C	63.6	20.6	15.8	100.0	62.0	19.9	18.1	100.0	56.3	42.9	0.8	100.0
S.D.M.C	69.9	18.4	11.7	100.0	69.7	17.5	12.8	100.0	65.9	33.5	0.6	100.0
Shahdara	69.6	13.6	16.8	100.0	54.6	15.8	29.6	100.0	63.7	34.7	1.6	100.0

S = Separate **C = Common**

Source : *Greater Delhi Survey data? Delhi School of Economics, Delhi.*

The Table shows that the New Delhi Municipal Committee has the highest percentage of households having bathrooms, while in the former Delhi Municipal Committee as high as 73.7 percent of the households have lavatories. This is probably due to the prevalence of the katra and community type of living. The statistics for kitchen facilities show that a half to two-thirds of the city dwellers use their living rooms for cooking purposes as well. Nevertheless, there are virtually no

common kitchens. Such a situation permits neither healthful living nor privacy which is indispensable for every household.

Consequent upon low incomes, the rent paying capacity of the households is very low. This is partly due to the fact that most of the people live in single room tenements with no facilities. However, the level of rental payments varies considerably in different parts of the city, with New Delhi having the highest rates. On the whole, 78.3 percent of the households of urban Delhi pay a rent of less than Rs. 25.0 per month.

TABLE NO. 6.

Percentage distribution of households by monthly rent.

Area	Less than Rs. 5/- month.	Rs. 5-10	Rs. 10-25	Rs. 25-50	Rs. 50 & above.	Total
Delhi Urban Area	16.0	22.0	40.3	14.0	7.7	100.0
D.M.C	19.4	25.4	34.4	12.8	8.0	100.0
N.D.M.C	8.3	13.4	46.4	20.3	11.6	100.0
W.D.M.C	7.8	19.6	57.2	11.9	3.5	100.0
S.D.M.C	9.0	16.3	54.9	14.1	5.6	100.0
Shahdara	13.2	23.8	51.0	10.0	1.8	100.0

Source : Greater Delhi Survey Data, Delhi School of Economics, Delhi.

The table shows that the area of lowest rents is Shahdara, where seven-eights of the households pay a rent of less than Rs.25.0 per month. The areas under the erstwhile Delhi, West Delhi, and the South Delhi Municipal Committees are more or less in the same rent brackets, with 70 to 80 percent paying low rentals. These low rent areas are apt to form one-class communities which ultimately pose serious social problems to deal with.

The pattern of house types and ownership is a further indicator of the need for a positive course of action. Table 7 shows that the city is composed of individual dwellings in the form of apartment housing, terrace housing, bungalows, hutments etc.

TABLE NO. 7.

Percentage distribution of households by house types and ownership.

Area	House Types					Ownerships				
	Bungalow	House	Hutments and Barracks	Huts and others	Total	Owner occupied	Private rental	Govt.	Other	Total
D.M.C	2.1	88.6	3.6	5.7	100.0	11.0	60.7	6.0	22.3	100.0
N.D.M.C	8.0	60.8	19.7	11.5	100.0	7.0	12.8	66.5	13.7	100.0
W.D.M.C	1.3	83.1	12.9	2.8	100.0	23.0	30.1	44.6	2.3	100.0
S.D.M.C	4.0	74.0	10.5	11.5	100.0	36.3	40.9	19.8	3.0	100.0
Shahdara	2.0	88.1	5.6	4.3	100.0	19.4	56.4	11.6	12.6	100.0

Source : Greater Delhi Survey Data, Delhi School of Economics, Delhi.

The Table shows that New Delhi has the largest proportion of people living in bungalows (8%) and hutments and barracks (19.7%). It is, however, expected that the redensification scheme which is being prepared for several areas of New Delhi will eventually eliminate these hutments. It is further observed from the table that the lowest percentage of owner occupied houses of 7 percent is also In the New Delhi Municipal Committee area, as compared to over one- third of households in the South Delhi Municipal Jurisdiction.

The high degree of absentee owner-ship in the Delhi Municipal Committee is significant. With low income levels and high degree of absentee ownership, little can be done to improve the condition of housing.

Comparative housing data pertinent in framing any housing programme are presented in a summary form in table 8 below.

TABLE NO. 8.

Percentage distribution of Comparative Housing Data in Urban Delhi.

Area	House-hold size	Households with income less than Rs. 100 p.m.	Pri-vacy Index persons per living room.	House holds liv-ing in one room.	House-holds having less than 150 sq. ft. for living area.	House holds paying rent less than Rs. 25/- p.m.	Household not having			Percent-age of refugees to total popu-lation
							Bathroom	Lavatory	Kitchen	
Delhi Urban Area	4.5	43.5	3.1	68.9	54.5	78.3	58.8	35.7	58.4	30.3
D.M.C	4.8	41.7	3.4	69.9	56.3	79.2	61.4	26.3	61.8	27.9
N.D.M.C	4.0	39.8	2.5	62.9	50.0	68.1	43.8	40.9	42.5	26.9
W.D.M.C	4.5	49.4	3.3	73.0	51.5	84.6	63.6	62.0	56.3	47.8
S.D.M.C	4.7	55.9	3.1	61.8	48.0	80.2	69.9	69.7	65.9	24.9
Shahdara	4.6	63.4	3.6	73.8	54.4	88.0	69.6	54.6	63.7	40.8

The table shows the acuteness of the problems. Incomes for more than two-fifths of the total households are less than Rs. 100.0. On an average, 3.1 persons are living in one room. Living space for more than 50 percent of the households is less than 150 sq. ft., indicating intense congestion, Rentals consequently are very low. The provision of essential services leaves much to desire. All this calls for an emergent housing programme.

III. HOUSING STUDIES:

The physical need of shelter must be written into minimum acceptable standards 5 though this is one of the most difficult tasks in the preparation of a housing programme. The inevitability of minimum standards is even more in the face of terrible congestion on the land, and overcrowding within the dwellings.

Housing is the largest user of urban apace, and, in a way, it is the residential use which more than any other urban land use, determines the future living patterns, the densities and the local implications within a given community. In the development of the housing plan for Delhi, therefore, several studies were conducted on climate social patterns, densities, cost of housing in relation to land and income. Below are presented some of the major findings of these studies.

1. CLIMATOLOGICAL STUDIES:

The Climatological facts that create environments, both psychological and physical, have been studied for their effect on housing and architectural expressions of the city. From this study, several different site plans as well as architectural solutions have been prepared so that the extremes in seasons could be minimized and a more bearable environment created.

The human body constantly endeavours to maintain a balance between heat received and heat given off. However, one is relatively limited in the ability to maintain this balance. There are, of course, individual differences; some feel heat imbalance seriously, others evidence little effect. Adverse climatic conditions can produce human failures such as reduced work capacity, lethargy, bodily discomfort and even mental irritation and neurasthenia.

The climatic region of Delhi has been studied for all the four seasons. There is a great diversity in the four seasons: from very hot and dry to severe cold in winter. In fact, the great contrast in temperature makes it difficult to find an architectural solution equally applicable to both winter and summer and during the hot and humid period of the monsoons.

During most of the seasons, one or more of the climatic factors can result into comfort conditions or at least closer to comfort conditions. Orientation is one of them By proper orientation to both sun and wind, the minimum heat intake and maximum ventilation can be realized. However, the severe conditions require costly devices which are limited by economic conditions*. Below is presented in brief, the summary of recommendations for the orientation and siting of buildings during the four seasons.

(a) Cool Season: (15th December - 15th February):

The winter sun is the free source of heat. Fortunately the sky is always clear, and the sun is quite pleasant during this period. The maximum amount of heat can be absorbed with proper provisions for shading devices to admit sun in winter and to preclude it in summer. Insulation of roofs and walls

* *For example, to reduce humidity during the monsoons would require dehumid fires which are very expensive.*

offers additional advantages[@]. Recommended orientation: 20° east of south on the long frontage of buildings; permitted variation 20° either way.

(b) Temperate season (15th September - 15th December):

This is perhaps the most comfortable period during the cycle of seasons when the average characteristics of climate are mild and comfortable. Apart from protection against current winds or thunder-storms, no special recommendation is called for.

(c) Hot arid season (March - July):

This is the most uncomfortable period of the year. Air temperatures both indoors and outdoors rise well above the comfort level, However, to a certain extent, the mean radiant temperature of surrounding surfaces can be affected by:

(a) Orientation of building for minimum heat intake as a recommendation for the cool season

(b) Shading of areas by various methods (described in the report [*1]) and insulation of roofs and walls, and deep verandahs.

(c) Shading and colouring of the walls less needed than shading of the openings, south walls with simple overhangs, and shading devices for east and west walls vertical elements[@1].

(d) Landscaping by plants, trees and foliage can moderate the heat impact both by shading and cooling effect caused by water evaporation from leaves, Water pools due to their evaporation also have a cooling effect. Courtyards, loggias and patios properly oriented can reduce radiation,

(e) By decreasing the ratio of exposed surface to volume, the heat intake per building unit can be reduced. Massing of buildings may also represent cost saving and induce interesting patterns of habitation both visually and sociologically. Horizontal massing tends to create ventilation difficulties and reduces winter sun.

(f) Sleeping out of doors has been the practice for most people because the average temperature under the sky at night is about 30 degrees cooler than the ground temperature. The larger the proportion of sky hemisphere visible, the larger is the radiation loss from the body. In effect, the roof or the open ground, sprinkled with water still remains the coolest and most desirable location for night sleeping.

(g) Air movement during the hottest part of the day must be kept out of the human environment, particularly during the late afternoons and evenings; when air temperatures are cooler than the human body, air movement should be maximised. As generally the winds come from north-west, fenestration should be so designed as to scoop all air

(h) Mechanical refrigeration or evaporation is the only method for reducing air temperatures. However, by closing dwellings early in the morning to keep cool night airs indoors, plus the manual operation of "khas khas" and the gradual adoption of the desert coolers, the discomfort can be reduced.

(d) Hot and Humid Season
(The Monsoon period July - September):

During the "barsaat" because of monsoons, while the humidity rises, the average daily maximum temperatures are lower. The evening winds come from the east and the nights are generally calm.

During this period there is relatively a small differential between day and night temperatures which makes shading of the building less critical. The utilization of beneficial winds depends on appropriate orientation, height and spacing of buildings. Buildings or the fenesterations not properly aligned for wind intake should use scoops.

IV. THE PROPOSED-OVERALL HOUSING PROGRAMME: 1981.

Generally speaking, an assessment of the housing requirements of a city spread over a period of 20 to 25 years is fraught with inexactness, as such an estimate is based upon several inter-related variables, which are difficult to foresee with accuracy for a long time ahead, particularly in a period of economic flux. However, in framing a housing programme for Delhi till the year 1981, an attempt has been made to estimate the total housing requirements, taking into account the projected population for 1981, the expected family size, the rate of construction, and other related factors. These estimates serve as a general framework for working out projects programming

@ Insulation of roofs and walls for the retention of sun's heat and heat produced in the winter. The insulation also would work in the reverse cycle during the summer.

*[*1] See Report on "Climatological Study for Delhi Region" by Conklin. Excessive shading can reduce the desirable heat intake during winter, particularly in certain orientations .*

[@1] The placing of non-vertical elements such as stair-cases, toilets to function as shading or protective devise for adjacent buildings.

and for determining priorities in each succeeding five year plan period.

The existing housing deficits, the acute congestion and physically deteriorated structures that characterise the urban scene, indicate that in the coming two decades, things are likely to get worse, before they change for the better. Thus a two-fold aim highlights the 'Proposed Housing Programme': ***(i)*** to accelerate the rate of housing construction so as to keep pace with the increasing population, and ***(ii)*** substantially to narrow down the huge back-log of housing, if not completely wipe that off. Though a greater emphasis has been placed on the low-cost and low-income group housing in this programme, yet there may arise a possibility in the near future to upgrade and revise the housing needs for this group, as the economy gets strengthened towards self-generation. Therefore, only a quantitative programme upto 1981 has been proposed here, which calls for the building of 7.5 lakhs of dwelling units during the next twenty years. A modest programme of construction of 25,000 dwellings was suggested during 1961-66 but this is to be gradually increased through the five year plans to reach 50,000 dwelling unit level per year in the Sixth Five Year Plan.

Proposed Housing Programme embodies construction in the three major groups:

A. Housing to be built by the government, other public agencies or local bodies for their own employees;

B. Housing to be built for rehousing and rehabilitation of squatters and slum dwellers, including housing of transit camp types ; and

B. Housing to be built for public by the private sector and cooperative societies.

The distribution of the dwellings to be constructed in these major groups for each of the five year plan period till 1981 is presented in table below.

TABLE NO. 9.

PROPOSED HOUSING PROGRAMME 1981 - DELHI URBAN AREA.

		Third 5 Year Plan			Fourth 5 year Plan		Fifth 5 year Plan		Sixth 5 Year Plan		Total Programme 1960-1981
		1960-61	1961 - 1966		1967 - 1971		1971 - 1977		1977 - 1981		
			Rate /per year	Rate for Plan period.	Rate/per year	Rate For plan period	Rate/per year	Rate For plan period	Rate/per year	Rate For plan period	
1.	Government Housing	8,000	5,000	25,000	6,000	30,000	7,500	37,000	10,000	50,000	150,000
2.	Squatters and low cost housing.	10,000	5,000	25,000	5,000	25,000	25,000	25,000	5,000	25,000	110,000
3.	Private Housing.	15,000	15,000	75,000	19,000	9,500	25,500	127,500	35,000	175,000	487,500
	TOTAL/YEAR		**25,000**		**30,000**		**38,000**		**50,000**		**747,500**
TOTAL/PLAN PERIOD		**33,000**		**125,000**		**150,000**		**189,500**		**250,000**	
Percentage increase cover the 5 year plans.						**20%**		**33%**		**32%**	

(a) Housing to be built by the government for its employees:

The total anticipated employment in government services at the three levels - centre, state and local - has been estimated at 310,000 in the Delhi Metropolitan Area by 1981. In this connection, a proposal has been made that -with the synchronized development of "ring towns", a few government offices may be decentralized with a total employment load of between 45,000 and 50,000 workers*, outside of the Delhi urban area. Thus it will leave approximately 265,000 employees, for which providing accommodation should constitute the government's responsibility.

The Government of India has a tentative programme for constructing some 13,512 dwelling units during the third five year plan period. Assuming a reasonable rate, of growth, there will be atleast 150,000 government employees in Delhi urban area by 1966,** If a policy decision is taken to provide accommodation to 80 per cent of government employees,

* *See Chapter: The Role of Government Employment.*

** *It is estimated that there would be approximately 180,000 government employees in 1966, but consequent upon the proposal made in the chapter on government, roughly 30,000 employees are supposed to have shifted to the proposed ring towns. A great deal will, of course, depend upon the Government's policy towards decentralizing certain office in the metropolitan area, and also in the region.*

the total dwelling unit requirements would be approximately 120,000 by 1966, Taking into account the existing stock of housing and the anticipated construction during 1961-66, the net shortage will be of the order of 67,000 dwelling units. Perhaps, a more reasonable policy for the government would be to provide residential accommodation to 70 per cent of its employees in Delhi, and to another 10 per cent in the ring towns of Ghaziabad, Faridabad, Narela and Loni, It is apparent that the government will have to adopt a much more liberal policy towards employees working in the offices located in the ring towns. In fact, the government may have to provide housing even to 90 per cent of its working force, as none of the proposed ring towns have any stock of un-used or vacant housing. The shifting of the Government offices to these ring towns may present complications if housing along with shopping and educational facilities is not provided therein.

Within the Delhi urban area, even with a lower assumption of 70 per cent housing to be provided by government to its employees the number of dwelling units to be constructed by the government would be approximately 185,000 by 1981. Taking into account the present stocky which is nearly 40,000 units, the programme should envisage the construction of 140,000 to 150,000 dwelling- units in the next two decades: 1961-1981. The programme is presented in the table below:

TABLE NO 10:

PROPOSED HOUSING PROGRAMME FOR GOVERNMENT EMPLOYEES : 1961-81. DELHI URBAN AREA

Period	Number of Government employees	Number of dwelling unit required (70 per cent)	Construction programme.	Existing stock housing (commulative)	Deficit to the targets
1960-61	**140,000**	**91,000**		**40,000**	**51,000**
Third Five Year Plan = 1966	150,000	105,000	25,000	65,000	40,000
Fourth Five Year Plan = 1971	170,000	119,000	30,000	95,000	24,000
Fifth Five Year Plan = 1976	220,000	154,000	37,000	132,000	22,000
Sixth Five Year Plan = 1981	265,000	185,000	50,000	182,000	3,000

The programme calls for the construction of at least 25,000 dwellings during the third Plan, upto 30,000 during 1966-71, upto 40,000 dwellings in and another 50,000 dwellings during the Sixth Five Year Plan period. Notwithstanding the heavy construction programme, approximately 3,000 families will have to seek private accommodation on their own. In addition to this, the government must be prepared to augment their replacement and renovation programme for the obsolete houses, particularly in low density areas, for which the redensification schemes have been prepared, and offer economic returns as against existing uneconomic land use. Roughly four to five thousand dwelling units would perhaps need replacement, remodelling and rebuilding every year, depending upon the age of structures, and land use proposals as embodied in the Master Plan.

(b) Housing to be built for rehousing squatters and slum dwellers

Emphasis on the squatters and slum dwellers housing is inevitable in any housing programme, especially where this problem is being tackled at the national level. It is evident that due to economic backwardness, a total clearance of the slum dwellings and bastis is not feasible in the near future: in fact, the magnitude of the problem is such that even the task of clearing a majority of such structures cannot be undertaken, atleast for the next two decades,. It is suggested to step up the construction of low cost housing, at least to prevent the formation of new slums. Thus a modest number of 5,000 dwellings, mainly of the 'core housing' type are suggested to be built every year.

The details of This programme have been presented in the chapter on Urban Renewal and Redevelopment. The majority of the dwellings proposed are the 'core' house, to be built in stages at an initial minimum investment "sweat equity"* method of financing i.e. the amount of manual labour the proposed occupant is able to contribute to reduce the actual cost of the project, shared by the occupants and the government.

A total of 110,000 dwelling units is proposed to be built for this group, which should go far to eliminate the present housing deficit of over 125,000 dwellings. Of course, it will

* *If the proposed occupant contributes 25 percent of the labour himself, his "sweat equity" would be equal to 15 percent of the total value of the project as labour represents approximately 60 percent of the total cost of the project.*

not take care of further obsolescence, for which special consideration must be made as the housing programme is geared into action.

The Municipal Corporation of Delhi has already launched a Jhuggi-Jhopri scheme to rehouse and rehabilitate the basti dwellers. The scheme has been detailed out in the chapter on Urban Renewal and Redevelopment.

The financing of squatters housing is proposed on the following basis. The cost of land and the site development plus the utility core would be provided as a subsidy in the form of a capital grant. The cost of constructing the house would be partially subsidized depending on the proportion of 'sweat equity' provided.

(c) Private Housing:

The role of the private investor, who provides the major housing, cannot be under-estimated in evolving any housing programme. It has been made clear in the earlier pages that subsidized housing by the public sector alone cannot meet the increasing housing needs, and the private enterprise has to step in to fill the gap. Incentives to the private enterprise for higher investments must be provided to obtain the targets. Approximately five lakhs of dwelling units are required in the next twenty years if the minimal housing needs are to be met.

The programme envisages an initial construction, rate of 15,000 dwellings per year which, however, signifies only a slight increase over the present estimated rate of construction*[1]. It is suggested that this rate must be progressively increased from 15,000 to 35,000 dwellings per year by 1981.

One of the important keys to accelerate housing is the availability of suitable and developed land for private investors. The government has already issued a notification to acquire approximately 35,000 acres of land for controlling the rise in land prices, which; has been steep in recent years. It is proposed here to develop the land and release it to the Private investors - individuals as well as co-operatives on a long term lease, with a premium equivalent to the cost of land, plus marginal profit. This would pay for the compensation for acquiring land, and also for subsidizing land development and squatters housing. The development of land should he the prime responsibility of the government. A revolving fund of Rs. 5 crores for the Third Five Year Plan period specifically designated for the development of land to be leased, has been created.

V. THE ACTION PROGRAMME; THIRD FIVE YEAR PLAN:

The magnitude of the housing problem and the qualitative analysis of the existing housing have provided the rationale for the preparation of an action programme of construction during the third five year plan period.

The action programme envisages the construction of

25,000 dwelling units per year to a total of 125,000 in the 1961-66 period. For the achievement of this programme, over 1,200 acres of land will be required every year, or a total of 6,000 acres for the Third Five Year Plan.

Action on three fronts is suggested;

(a) The squatters and slum dwellers rehousing; **(b)** housing for government employees; and **(c)** private housing. The squatters and slum dwellers rehousing programme consists of constructing 5,000 dwelling units per year. All the dwellings in this type are designed to be upgraded and expanded over the years. The housing component for the government employees has also been proposed at 5,000 dwelling units per year. The construction of the rest 15,000, or 60 per cent of the total dwelling units, to be completed during this period has been delegated to the private enterprise.

The housing programme thus suggested is expected to meet the requirements of roughly 80 per cent of those earning less than Rs. 250 per month, which is the minimum at which a family can obtain minimal accommodation at the prevailing market rates. With low levels of rent in the central city, the other competing uses like manufacturing and commerce have further reduced the housing in addition accelerating the obsolescence. Viewed in this context, the proposed housing programme is extremely modest in scale. However, there is a built-in scope for upgrading the structures as the general level of economy rises. 'The programme is composed basically of dwellings which are privately owned on land leased by the Government. This will permit an incentive to families to improve their houses and reduce the burden of maintenance from the already extensive expenditures by government.

With an anticipated average family size of 4.6 in Delhi a family would require three sleeping rooms, which could be obtained by converting the living room into sleeping at night, and two additional rooms for the separation of the sexes. This only could provide a healthy family life. But economic limitations prohibit 80 per cent of the families from obtaining what is normally considered the 'average size of a dwelling-unit' with three rooms. It is mainly on this limitation that the overall housing programme has been prepared.

The annual housing programme by income groups, number of living rooms and type of houses is presented in the following table.

*[1] *This rate includes the unauthorised construction as well.*

TABLE 11.

Proposed Annual Housing Programe : Five Year Plan Period.

	ONE ROOM					1 ½ Room		TWO ROOM		THREE ROOM		FOUR ROOM		Total
Inc. Group Rs./month monthly income	MUI URBAN DW' ING 55 Sq. YDS.	UVI URBAN VILLAGE 200 Sq. YDS.	CHI CORE HOUSE (SELF-HELP) 90 SQ. YDS.	MFD MULTI FAM 57 SQ. YDS.	MF2 (s) MULTI FAMILY SHARED 2 DW.	MF 1.5 MULTI FAMILY 83 sq. yds.	C.H. 1.5 CORE HOUSE SELF-HELP 100 sq. yds.	MF2 MULTI FAMILY 60 SQ. YDS.	CH2 CORE HOUSE SELF-HELP 100 SQ. YDS.	MF3 MULTI FAMILY	R3 ROW HOUSING 200 SQ. YDS.	MF4 MULTI FAMILY	R4	
0.50	1650	600	-	-	-	-	-	-	-	-	-	-	-	2,250
50-100	2000	600	2980	1500	1800	-	-	-	-	-	-	-	-	8,880
100-150	-	-	-	-	1200	800	1750	-	-	-	-	-	-	3,754
150-250	-	-	-	-	-	400	600	2000	2350	-	-	-	-	5,350
250-350	-	-	-	-	-	-	-	600	350	-	-	-	-	1,250
350-800	-	-	-	-	-	-	-	400	-	140	1436	-	-	1,970
800 & above	-	-	-	-	-	-	-	-	-	100	700	250	500	1,550
Sub-total	3650	1200	2980	1500	3000	1200	2350	3000	3000	240	2130	250	500	
Total			**12,330**				**3,550**	**6,000**		**2,370**		**750**		**25,000**
Percentage			50%				14%	24%		9%		3%		100.00

ANNUAL HOUSING BY INCOME GROUPS AND NUMBER OF ROOMS

Three types of housing of varying sizes and for varying income groups have been suggested for the Third Five Year Plan period A minimum urban dwelling of one-room is essentially designed for families having an income of less than Rs.100/- per month. Of the total 3,650 minimum urban dwellings in this group, 1,650 are for the lowest income group of Rs.1-50, and the remaining 2,0 dwellings are expected to house families of income group Rs. 50-100.

A proposal to re-house a certain, class of people in a few "urban villages" has been advanced in the chapters on Rural Delhi and Urban Renewal and Redevelopment. The types of people to be re-housed are those who are engaged in village like trades, which cast an un-healthy influence in the urban setting, and which can be conducted efficiently in villages. A phased programme has been - envisaged to shift them to such villages gradually. Approximately 1,200 dwelling units in such villages are to be constructed every year for such people, of which 600 are designed for income group of Rs.1-50, and the rest for Rs.50 to Rs.100.

The Size of the dwellings in core housing type varies from one to three rooms, and thus these dwellings are proposed for low, middle, and upper middle income groups. In all, approximately 10,500 dwelling units with a minimum of facilities, are to be constructed in this type, of which 28.4 per cent or 2980 dwellings of one-room size are for the income group of Rs.50 to Rs. 100. Approximately 1,750 dwellings with a capacity of 1½ rooms are to be constructed for the income groups of Rs.100 to Rs.150 and another 600 for income group of Rs.150 to Rs.250. Approximately 2,350 number of dwellings but with two rooms are to house families whose monthly incomes vary between Rs.150 to Rs.250. There are yet another 650 dwelling units of two rooms, which are to be constructed for an even higher income group of Rs.250 to Rs.350. For the upper middle class, whose monthly incomes are anywhere between Rs.350 and Rs.800, 1430 three room dwellings are designed, and for the highest income group of Rs.800 and above 700 such dwellings are proposed.

Besides these three types, there are proposed to be constructed multi-family houses of different sizes for various income families, Approximately 9,200 dwellings are to be built as multi-family houses, of which 3,300 of one-room size are for the income group of Rs.50 to Rs.100. Another 2,600 dwellings of two rooms are designed for income groups of Rs.150 and Rs.350, while the-remaining are for the higher income families.

The housing (programme, suggested during the Third Five Year plan period, and as given in table No.11, duly provides for the needs of low income groups. In all 44.5 per cent of the total housing is for families whose incomes are less than Rs.100; another 41.4 per cent are for families having monthly incomes between Rs.100 and Rs.350, and only. 14.1 per-cent caters for families whose incomes exceed Rs.350 per month. Evidently the housing programme catering far low income groups, has to be less ambitious in terms of space or number-of living rooms. Half of the total dwellings consist of only one room; 14 per cent have one and a half rooms, approximately' one- fourth have two rooms, and only 12 per cent consist of 3 and more rooms. The description of housing by house types has been detailed by the Plans of various house types.

VI. TOWARDS A NEW COMMUNITY PATTERN

To evolve a well integrated new community pattern that would fit into the changed living conditions of the new age and promote genuine democratic growth, is vital in all planning for man's environment. Such a broad aim cannot be realized merely through the provision of a better shelter. Shelter represents only one of the many community functions. Full consideration of an 'organic community' as an indispensable framework has to precede any housing development. Without it, even new housing may degenerate rapidly into blighted areas and become burdensome wastes. Without a basic medium of cohesion of common civic interest and loyalty, the prospects of improved social contacts, which originally made urban life desirable now make it hazardous. The social initiative, of the people and their own life has to flourish at a local level viz., the neighbourhood or residential area and gradually reach out into the wider region viz., the city or the metropolis. Thus, the concept holds the main hope of a compromise between the basic human needs and the material requirements of the present age. This,, of course, is a Western concept, but applies with particular force to Indian cities, whose inhabitants are largely recent migrants from villages; and even when not recent, have spiritual orientation toward and active connections, with the village, and to their traditional 'mohallas' in the older towns.

This philosophy of planning envisages the complete urban complex, which is the entire city or metropolis, comprising a number of relatively self-contained communities, which have at the lowest tier a 'housing cluster'. The latter correspond to the traditional 'mohallas' and 'kuchas', and in fact are found in their rudimentary form in almost all of Indian cities and towns. These 'mohallas' which were often grouped round a street, small alley or some open court, though deficient in many basic community facilities, served to propagate a local fraternity. In

the future neighbourhoods, these mohallas comprising as they do 150 to 200 families each, can again form the smallest unit, thus promoting the old urban characteristics of intimate personal and family contacts. The focus for this 'housing cluster ' or mohalla should perhaps be a 'tot- lot'. Clusters or mohallas grouped together around some focal point such as a primary school and the convenience shops with a small park can form what may be called, a 'residential unit' containing a population between 3,500 and 5,000. A group of these units will ultimately form a complete physical neighbourhood referred here as a 'residential planning area' with a high school, a community hall with adequate neighbourhood shopping as the focii, where people have a chance to meet and establish contacts.

In this cellular pattern, the residential planning area forms the 'planning module' which permits the greater freedom in the layout of blocks, streets, shopping centres, schools, recreation spaces, houses etc. These community activities would have as their focal point a high school or the community hall. The area is large enough to be planned with a surrounding road network but not pierced. The size of each 'residential planning area' is measured jointly by the human scale of walking distance and the number of families whose children will fill efficiently one or a set of such schools. All points of activity and interest have been placed within 10 to 15 minutes walking distance of each 'cluster'. Enough local shopping facilities would be provided for the day to day purchasing needs. However, to provide additional facilities such as a health centre, library, cinema and better shopping plus a community hall or a recreation centre, three residential planning areas have been grouped to form what may be called a community ,with a 'community centre'. The next larger unit will be a district with a 'district centre', composed of a number of communities that can support a district shopping centre. In some cases, they may have a small area for government offices. This will serve a population ranging between 150,000 and 250,000. The composition of various residential units by community facilities is given in the table below.

TABLE - 12.

Composition of Residential Areas by Community Facilities.

Planning Unit	Number of dwelling units	Population	Description of community facilities.
1. Housing Cluster	150-200	750-1,000	Nursery School with a tool lot.
2. Residential Unit	750 - 1,000	3,500 - 5,000	One Primary School convenience shops and a small park
3. Residential Planning Area	2,400 - 3,000	12,000-15,000	One High School, Community Hall with adequate neighbourhood shopping.
4. Community Centre	8,000-10,000	40,000-50,000	Health Centre Library, Cinema better shopping and recreation.
5. District Centre	30,000- 50,000	150,000-250,000	Composite retail Shopping centre with commercial and service uses.
6. Planning Division	60,000 -150,000	300,000 - 750,000	

Educational & Facilities

In designing a new community, the provision of educational facilities, shopping districts and health centres are as important as the architectural pattern, the orientation and the inner components of a house. From the general thesis advanced in the earlier pages, it is apparent that the efficient sizes of educational institutions determine the composition and character of a residential units, and in turn that of the entire community structure. The highest educational unit proposed is a higher secondary school, with a capacity of approximately 1,000 students. It has been estimated that approximately 2,500 to 3,000 families or 12,000 to 15,000 population can maintain a higher secondary school efficiently and economically. The size of a school, however, varies with densities e.g. a residential planning area proposed to be developed on a gross density of 75 persons per acre will have about 8 acres under a higher secondary school as against only 5 acres in an area with a density of 200 persons per acre. In this "residential planning area", have been added facilities of a community hall and neighbourhood shopping, so that additional facilities will serve as social joiners essential to every community organisation. In between a residential planning area' and a 'housing cluster', there is the 'residential unit' in the planning sequence, whose focal point is a primary school. The optimum size of a primary school has been set at 600 students. The population which could sustain a primary school is between 3,500 and 5,000. A housing cluster which is the smallest unit in the planning module will have as its nucleus a nursery school with a tot-lot. More of the day-to-day domestic needs of-household could be met by the convenience shops that are added at this level. By this composition, the Residential Planning Area bears a definite relationship to the basic educational requirements of a city.

Shopping Facilities

The educational facilities have provided a means of classifying other facilities at different physical levels serving as a framework of social organisation. The residential planning area of 15,000 population would be able to maintain an adequate amount of local shopping in addition to convenience shopping proposed for a residential unit containing 3,500 to 5,000 population. The shopping proposed at the housing cluster level would be provided by 4 to 6 shops, which may, however, represent only 10 per cent of the total shopping needs of the people, on a small plot of 0.20 to 0.50 acres. The shopping at the residential planning area level would provide 15 to 20 shops on an approximately 0.80 acre to 1.75 acres plot, depending on the proposed densities.

At the community centre level, a fuller life with libraries, religious buildings, cinemas, petrol pumps etc. would be provided with 300-to 500 shops in two or three places. A community centre is estimated to fulfil 30 per cent of the people's needs. For the special and occasional needs of the people, district centres, each expected to meet 20 per cent of the demands, have also been suggested. This proposed structure of shopping and of various levels of educational facilities will permit great flexibility in development.

Health Facilities

At present, a number of dispensaries-under different managements-are functioning in various residential areas. They provide service for out-door patients only. The Director-General of Health Services has recommended a 15 bed health centre, which could serve 22,500 to 25,000 persons. Consequently, two health centres would be required for three residential planning areas, or two would be required for a community of 40,000 to 50,000 persons.

Community Centre

The modern concept of designing a new community revolves round the theory that the whole fabric of social activities must be inter-woven in such a way that the anonymity of city life does not establish itself firmly. It is suggested to have a community hall for every "residential planning area". This is designed as a place where people could fraternize with their relations during their leisure and recreational hours, and the more efficiently it is done, the easier it is for the community to function.

The size of a Planning Unit in the schematic form will vary with the density. An area developed on an average gross density of 75 persons per acre will measure 200 acres for 15,000 population. It would not take more than 15 minutes for anyone to reach any of the community facilities provided in the unit, allowing a normal speed of two to three miles an hour. The provision of these community facilities in a neighbourhood would entail considerable capital expenditure. However, it has been estimated that the per capita cost of these amenities will not be more than Rs.165. The per capita cost per house is approximately Rs.1,690 therefore, the per capita cost of community facilities is less than 10 per cent of the cost of housing, taken separately. These facilities are vital in every housing programme, and the relative cost is so small that priority should be given to such facilities. A sequence, therefore, has to be adopted for housing and community improvements programme:

(1) the demarcation of the residential planning areas with their own distinctive sphere of social activities;

(2) the construction of suitable facilities for each level within the residential area;

It has generally been observed that different economic groups tend to segregate in different quarters. Unfortunately in works of deliberate planning also, the same tendency has been marked in the past. This segregation foils the very concept of the neighbourhood integration. To promote proper community feeling and genuine democratic growth, an integrated community is socially desirable. The admixture should comprise not only of different income groups but also of families with different household compositions, irrespective of the different cultural and social background.

"Group Housing" and "Block Development".

In this regard, the proposals for the redensification of certain central areas of New Delhi have special meaning. At the moment the residential areas are one-type and inhabited by one-income people, who have but little social contact with each other. Besides, being an un-social and un-economic development, it does not promote a feeling of belonging. The redensification of Mata Sundri area, York Road and DIZ Scheme area, having full consideration of neighbourhood facilities., will create a balanced, harmonious and desirable environment.

This Aspect of housing cannot be overemphasized. The notion that housing consists of no more than putting up a string of tenements, generally monotonously repetitive in design and facade, provided with bare amenities like water, sewerage and electricity, is not only inadequate but lacking in human quality. To put it strongly, as indeed it deserves, on account of the present indifference, it may even be kinder to leave communities in sub-standard housing but with

greater human atmosphere than to move families into arid and soul-less colonies of tenements, Housing is basically a multi-dimensional thing where the human beings live, not merely exist. Housing implies, therefore, the creation of the 'neighbourhood' in all its variety, and richness with all its intimate relationships. Then alone can some of the evils of urban life be avoided and its benefits fully enjoyed.

CHAPTER - TEN

URBAN RENEWAL AND REDEVELOPMENT

I. Old Delhi - Its growth and decay.

Delhi was typical of the walled cities where defence against invaders necessitated compactness of structures. This old city of Shahjahanabad was built under the influence of Mughal architecture, which was characterised by strength and magnificence. There was no clear cut functional zone, except the central business section, consisting of bazaar and residential houses. The majority of buildings were huddled together and looked like fortifications having only a single entrance and with trellised ventilators perched in balconies, to provide security of property against dacoits and to protect the women folk from the gaze of men. Only the rich Nawabs palatial quarters had vast open spaces. There was ample provision for sanitation and environmental hygiene. The streets and roads were of varying width and shape, designed primarily to make the slow movement of people and animal-drawn vehicles easy and natural. Three main thoroughfares radiated from Shahjahan's citadel, the Red Forts one was the well known Chandni Chowk with a canal in the middle, the second was the road to Jama Masjid, while the third led to Delhi Gate, But this state of affairs did not last long. The passage of time and the transfer of rulership from the Mughals to the British in 1801 brought about great changes in the political, social and economic life of the city. The gradual growth of industries and commerce began to attract people from the neighbouring rural areas, many of whom could not adjust themselves to the urban ways of living. The large estates and houses were divided and sub-divided, with no proper plan or provision for sanitation and public health, and the city also extended in all directions beyond the fort walls. The old streets and roads and even the lighted Chandni Canal became out-of-date and were discarded or changed. The urban social structure changed from a coherent body to a hetrogenuous group of diversified elements and interests.

All this resulted in serious physical disorder and unplanned concentration of people, with attendant problems of congestion, functional obsolescence, ugliness, poor housing, filthy katras and bustis and all round blight and decay. The old part of Delhi became crowded to such an extent that it is no more than an array of brick structures with hardly any green patches and lacking in civic services and community facilities but retaining in a highly unplanned manner the most essential urban functions - work, trade, transport outlets, civic administration and entertainment. Thus Shahjahanabad has decayed through the ages and is in a state of dilapidation. The stages of this disorganized congestion are indicated in the map facing page 108 of Draft Plan Volume I.

Slums are not confined to the walled city alone. They are spread over the whole of Delhi and are a result of the "expanding metropolis". The city, which was sparsely populated during the last century, experienced an increase of population after its proclamation as the capital of India in 1912. The population of urban Delhi rose from 3.04 lakhs in 1921 to 14.4 lakhs in 1951, and stood at 23.5 lakhs in the census of 1961. The rate of growth for Delhi State was 90 per cent in the decade 1941 to 1951 and 51.4 p.c. between 1951 and 1961. This rapid increase is due both to the push from the rural areas of Delhi and the bordering districts of Punjab, U.P. and Rajasthan, where unemployment and under-employment prevail and the pull of the city, with its enormous building activities and expanding commerce, industry and transport, especially during the Second World War. To this has been added the influx of displaced persons from West Pakistan as a result of the partition of the country and the expansion of the administrative machinery after Independence.

This pace of urbanisation can be characterised as a demographic phenomenon of changing population concentration, rather than that of social change. The great disparity, cultural as well as economic, between the residents of the metropolis and the rural in migrants with their disinclination to give up their old ingrained habits, has posed many problems. The strong brotherhood ties amongst the slum dwellers have often resulted in increasing congestion and the present housing deficit is estimated to be near about one lakh. The impact of all these factors has been a vitiated environment which is manifest in the economic distress and physical disorder.

Delhi is being planned at a level where human considerations, physical disposition and social structure are in keeping with the high standards required for the metropolis of a country like India, with its growing importance, both national and international. This planning has to be dynamic and comprehensive. The solution lies in evolving urban renewal plans as an integral part of the general plan for the

city and the region and not just in clearing slums.

II. The problems of Urban Renewal in Delhi.

Housing shortage afflicts practically every metropolitan city of India, and Delhi is no exception. The housing situation which was never satisfactory in Delhi became particularly worse after 1947, both quantitatively & qualitatively Now, Delhi is confronted with a grim housing situation caused primarily by an inordinate growth in population unaccompanied by constructional activities sufficient to sustain it. The housing shortage for Urban Delhi which was to the tune of 66,088 dwelling units in 1951 rose to 1,03,920 dwelling units in 1956. Various projections estimate the deficit at 1,40,000 dwelling units for the year 1961. Investigations into the structural soundness revealed that 52.2 per cent of the total structures in Old Delhi are in poor condition, and have, more or less, outlived their utility. Surveys further assessed only 6.1 per cent of the total structures in good condition. The rest constituting approximately 42 per cent are in fair condition and with periodic improvements could be made to serve a little longer.

To add to the magnitude of this- problem, there are approximately 2.56 lakhs squatters in Urban Delhi, who live in jhuggis, tents and in other similar temporary structures. As many as 1,16,500 of them were found to be squatting in Old Delhi alone, and thus whatever little open spaces were available in this rather compactly built area, are now occupied by these people, A large number of unauthorised structures have also come up in defiance of law, allegedly under the stress of long denied shelter, and now constitute a serious challenge to local government.

The low rental value of the houses precludes the possibility of any large scale improvements in the houses by their owners. The average for the walled city zone, calculated from the House Tax Assessment Registers of the Municipal Corporation of Delhi, was only Rs. 41.43 per month and, as is apparent, the house owners are left with no incentives to effect physical improvements in houses which fetch so little. The Rent Control Act which came into force not too long ago has since acted as a further deterrent to the proper maintenance of houses. The let stipulates that the house owners cannot claim higher rents from their tenants, even if they bring in certain structural improvements. For lack of periodic maintenance, the structures are becoming obsolescent, as it evident from the figures given above. To add to this there is a large amount of absentee ownership, which further indicates that the landlords are not interested in improving the houses they do not live in.

Civic amenities which are basic to human existence are sorely lacking from the urban core. Surveys revealed that in the walled city zone, there is no water for 42 per cent of the households as against 56 per cent in Motia Khan Zone and 46 per cent in Subzimandi Zone. There are no private latrines for approximately two-fifths of the households living in Old Delhi. Electricity connections are meagre and far from satisfactory.

Community facilities also record the sorry tale of deficits and backlogs. According to various estimates, approximately 1.56 lakhs children of age groups 5-16 year are not on the rolls in Urban Delhi for lack of educational facilities. A backlog of 382 basic and primary schools and 44 higher secondary schools was revealed by the surveys conducted by the Town Planning Organisation*; of course this figure includes replacement for those municipal, government, and private schools which operate in tents, hutments and other similar improvised structures. Only 0.2 acre per 1,000 population is available as open spaces in Old Delhi. Whatever few facilities exist, they reflect the confused haphazard growth of the area. There is no organic relationship between the locations of institutional facilities and the areas they serve; and as such they do not form an integral part of the neighbourhood, as very necessary for an orderly and socially integrated growth of the city.

The low income of the people is the basic reason for their living in squalid conditions. A study of household incomes revealed an average monthly income of Rs.162.17 for Old Delhi. Approximately 40 per cent of the households living in Old Delhi had a monthly income of less than Rs.100, and another 36 per cent had incomes between Rs. 100 and Rs. 200. This means that 76 per cent derive a monthly income of less than Rs. 200. Though a zone-wise distribution does not show wide differences, a detailed study show the average income of one of the study areas at Rs. 116.8 only.

The economic conditions of the majority of city dwellers being so unsatisfactory, the rent paying capacity cannot be but limited. As many as 48.6 per cent of the households pay a monthly rent of less than Rs. 10.00. In Subzimandi zone, the number of such households constituted 56.1 per cent. It is, therefore, too much to expect the bulk of the city dwellers to be able to afford even the economic rent of just a one-room dwelling of standard size, which, as recently estimated by the Ministry of Works, Housing and Supply, is Rs. 28, while the bulk of the households pay a monthly rent of even less than Rs.20. In the face of such stark realities, it is no surprise that the housing industry is not keeping pace with the fast increasing

* *School Surveys: Town Planning Organization (1959).*

population. Even assuming that an adequate number of houses were somehow constructed, the problem of inducing people to move into them would remain, because most of them, may have no other alternative except to continue living under the worst of living conditions, rather than make the sacrifices that the economic rent of the new dwellings may entail.

The occupational structure of the people shows that an appreciably high percentage of earners (72.4) is engaged in subordinate technical and sales and related occupations including a large percentage of self-employed persons. Considering the low standards of literacy, and also the inelasticity of vertical occupational mobility, there seems to be little chances of people raising themselves to higher standards .

One of the major problems that has always obstructed the urban renewal programme is the nearness of the slum dwellers to their places of work. Surveys show that in the walled city zone, the distance of places of work does not exceed one mile for 39.5 per cent of earners. In Motia Khan zone, 16.2 per cent of the earners were found working within their residences, as against 13.2 per cent in the walled city and 8.6 per cent in Subzimandi zone. The attitude surveys which supplemented the socio-economic surveys further showed that the majority of the people have expressed their desire to be relocated near their places of work, This makes slum rehabilitation not only a physical problem of providing housing and other concommitant institutional facilities but also an economic one of providing employment near the residences.

Non conforming land uses, as also the misuse of land, invariably vitiate the healthy environment of the city and are instrumental, to a large extent, in converting good residential areas into slums. These are wide-spread in Old Delhi. Industry, trade and commerce co-exist along with the residences and many of them are of such types which can function more efficiently in areas other than .residential. For instance, in the walled city zone, 42 per cent of the structures are put to non residential uses, and a large percentage of them are incompatible. Obnoxious trades like pottery, dairies, slaughtering of animals, tanning and a host of similar nuisance and noxious trades are conducted right in the heart of the city, causing insanitation and unhygienic living. Surveys showed that many of these trades are harmful to the health of the citizens if allowed to continue in residential localities. Coupled with physical deterioration, functional obsolescence has created serious problems for the city.

The continued and unabated inflow of migrants into Delhi from practically every corner of this country has further complicated the urban scene. It is estimated that roughly half of the migrants who move into Delhi are from rural areas, and the rest from urban areas, indicating stages in migration. "The migrants drawn to the city", surveys revealed, "tend to be semi-literate, of low income groups and of rural origin". And it is the impoverished rural background of the migrants that counts in further deterioration of the areas where they house themselves. In their desire to create a homely environment for themselves, they settle in small clusters, where they pursist in rural ways, like keeping milch cattle and preparing cow dung cakes, etc. Besides, the strong brotherhood ties amongst them result in attracting fresh migrants. So this endless stream has compounded the shortage of housing and has resulted in insanitation.

The cumulative effect of all these problems is chaos, disorder and confusion. Today, disorganized congestion, functional imbalance and traffic bottlenecks characterise the urban core. The fact that this problem has not been adequately dealt with has been sufficiently indicated above. But the failure of earlier attempts has been instructive, and certainly has cleared the way for a realistic and well planned assault on the problem in the future.

III. The modern concept of urban renewal.

The modern concept of urban renewal envisages a positive programme of action for achieving better living conditions for the people and broader and more specific goal of integrating new growth with comprehensive planning and reconstruction. Its aim is to engergise and revitalise the urban environment by injecting into it such elements as are necessary for its proper functioning. The process ultimately involves the whole pattern of population distribution and functional organization of the urban area, including well planned and coordinated layout and expansion of the city. Urban renewal operates to shape the urban structure so that all human activities may take place in environments conducive to their proper functioning and in harmony with other activities - all within human possibility, comprehension and dignity. It is thus not merely a physical operation, but a major socio-economic one involving the people, their ways of life and encompassing the political, social and economic aspirations of the community. It is much more comprehensive than slum clearance and implies the correction of the mistakes of the past and focussing attention on the redevelopment of physically and socially deteriorated areas. On the other hand slum clearance is negative in its approach. At best it is a part of the urban renewal programme.

FUNCTIONAL AFFINITIES OF URBAN RENEWAL:

The degree of deterioration and obsolesence classifies an area into conservation, rehabilitation and redevelopment

and relocation is the essential link between these three major components of urban renewal. The process involved is a chain of inter connected development and redevelopment efforts, making appropriate and balanced provision for the proper rehabilitation of people, commerce, industries and other activities which are displaced from the areas proposed to be demolished or thinned out, as indicated in the Functional Affinities Chart facing page 114 Draft Plan, Volume I.

It will be seen from the chart that each of the three major components of urban renewal are to be dealt with in a distinctive manner, though there are some common factors linking one to the other and leading eventually to relocation schemes as Stage I in the renewal process and reconstruction of the cleared areas as Stage II.

REDEVELOPMENT AREAS:

Areas marked out for redevelopment and clearance are characterised by acute congestion, dilapidated housing intermingling of incompatible land use result in unwholesome living conditions and gross inadequancy of basic civic amenities and community facilities. In short, these areas are both economically and physically beyond repair, where major clearance is to be carried out, the people involved are to be relocated under various schemes and the area cleared is to be reconstructed according to the particular needs of the locality and its situation. The provision of transit camps for the displaced persons until they are permanently settled is a major necessity in this operation.

The reconstruction plans will consist of both residential units in the pattern of neighbourhood blocks and separate manufacturing and commercial work centres, including flatted industrial estates. Such an arrangement will permit intensive utilization of land and protect as far as possible the displacement of people from their work centres, thus providing them with opportunities for employment and earning. The financing of these projects in small lots would also be easier.

REHABILITATION AREA:

Areas selected for rehabilitation are partially blighted localities where slum conditions prevail. These can be converted into healthy neighbourhoods by judicious planning; viz. by pulling down dilapidated structures and removing congestion and re-organizing street and road pattern, by providing open spaces, parks and play grounds and other amenities, by preventing incompatible uses which have a blighting effect on the appropriate uses on land and buildings. Thus, the processes involved in rehabilitation are clearance, redevelopment, improvements and provision of community facilities and enforcement of zoning regulations. All these are linked with relocation schemes. In this way much can be done to improve the locality without much dislocation and within sizeable investment of funds.

CONSERVATION AREA:

Conservation areas are good residential ones which need protection against undesirable influences, such as, a relatively high degree of squatting and encroachment upon open land, which is usually available in such areas; infiltration of incompatible and conflicting land uses; gradual congestion due to moving in of the families from run down neighbourhoods; location of excessive institutional and regional facilities which lower residential values by increased activity and traffic congestion. The conservative programme strives at economy in redevelopment by minimum demolition, minimum road widening, and minimum ownership changes and provision of community facilities. It implies replanning and improvement of the locality as well as protective measures as a part of the normal operations of the municipal administration involving prescribing and enforcement of proper housing, sanitary and building codes and the prevention of squatting, encroachment and infiltration of undesirable elements.

RELOCATION SCHEMES:

The most essential and important feature of urban renewal plans is relocation, which includes the setting up of urban villages on the fringes of the city, establishing new housing colonies and industrial and commercial centres, and providing transit camps for those who will be displaced from their present places till they are permanently resettled. Relocation is the first and most necessary stage in the functional movement of people involved in the urban renewal process.

Land in the city which will be cleared during the process of urban renewal would be put to better use and in a well-planned manner, if relocation schemes are sponsored and executed with speed and according to requirements. Relocation will thus help in easing to some extent the scarcity of suitable land for improving the heart of the urban area and for providing the much needed community facilities.

(a) Urban Villages

The scheme of urban villages is a plan for relocation and envisages the development of villages on the outskirts of the city to act as receiving centres for industries having a rural character and people engaged therein. There are distinct advantages in this scheme.

Some industries and obnoxious trades at present carried on in the heart of urban residential areas are not only rural in character but exert an unwholesome influence on the locality (like pottery, tanning, lime kiln, milch cattle keeping, pig rearing, hand loom weaving, chick bamboo and reed work, artistic metal works, zari and zardosi making, shoe making etc.). It has also to be noted that these industries consume a lot of valuable urban land which can be put to more effective use. By shifting to urban villages these industries will thrive better in terms of efficiency, production and working conditions, not to speak of the very healthy surroundings under which people will live and work. Both for construction of houses and the running of these industries, organization of co-operative societies will be very useful and economic. Lastly, these newly created urban villages, humming with activity and life, will attract and to some extent absorb the rural population, who otherwise would migrate into Delhi in search of employment.

(b) New housing:

New housing colonies are a necessary part of relocation schemes for providing suitable accommodation to people who have been displaced on account of the functional reorganization of redevelopment, rehabilitation or conservation areas as also for meeting the acute housing shortage. Such colonies are planned where ever suitable land is available and can be developed in relation to work areas, basic civic amenities, community facilities, and the social needs of the people. The areas selected for new housing being not too far away from the core of the city, the relocation of people will not raise the problem of dislocating their economic base. Land here being cheaper than in the centre of the city, the cost of acquisition will also be much less. It will be more economical and financially feasible to link these areas with water, sewerage and electricity connection than with isolated distant places.

(c) Transit camps:

In all relocation plans, there is a need for transit camps where families to be shifted from the cleared areas can be accommodated for temporary periods, before being sent back to the redeveloped areas or to the new relocation colonies. Unless such an arrangement is made the people affected will be put to great inconvenience and frustration. In fact, in many Instances, for lack of transit camp facilities, the people from evicted areas have continued to squat in existing slums or moved to other areas creating new slums.

Transit camps should be located as far as possible, near the clearance areas so as not to dislocate the social and economic life of the people involved. Though intended for a temporary period, the camps should be well planned with necessary services and facilities, which the people should be taught to use properly. It is thus a great opportunity for training people for cooperative and healthy living, under the guidance of trained community organisers. Community organisations with local leadership should he sponsored in the transit camps to look after welfare activities and also help in the collection of rent, etc. This period of protection, as it were, will enable them to adapt themselves to their new dwellings more smoothly when they finally wove into them.

(d) Industrial and commercial centres:

The setting up of industrial and commercial centres is yet another essential part of relocation schemes. Since in the urban area both industries and commerce are closely interlinked with residential blocks, they should be subject to the same processes of urban renewal. Besides, it is essential in any urban setting for the people to have opportunities for employment and these are provided in good part by industries and commerce.

The relocation of industrial units depends largely on their nature and the ancilliary facilities required to support them, such as Storage space, transport, banking etc. One of the means of intensively developed land, for industrial use is the scheme for flatted factories, which are multi-storeyed industrial buildings, so designed that the space within can be sub-divided into units of various sizes, to accommodate small scale industries present in very congested areas. The scarcity and high cost of land in the heart of the city requires intensive multi- storeyed development and flatted factories permit this at substantially high densities of employment. While those engaged in village-like industries would be shifted to urban villages, large scale ones will have to be shifted to industrial areas outside the city core so as not to affect the harmonious growth of residential units. Small and some medium-sized industries can be suitably located in flatted industrial estates in the heart of the city.

The development of commercial centres at various places is essential in order to accommodate displaced commerce from the city as a result of the operation of urban renewal plans. Many areas which are primarily residential in character are experiencing mushroom growth of business and commerce in and around it and in many places this has created undesirable living conditions, adversely affecting the health and welfare of the people and also preventing the expansion of business. Hence, the planning of District Shopping Centres will form a link in the relocation schemes and they will have two major divisions - shopping centre and community centre. The former will include the bazaar area, bigger shops, and

commercial and professional offices, while in the latter will be located the block and zonal municipal offices, fire station, post office, clubs, cooperative societies, reading rooms, etc.

The clearance, rehabilitation and relocation of people, industry and commerce will be planned in such a way as to cause the minimum of dislocation.

IV. IDENTIFICATION OF AREAS

The problem areas, chiefly in Old Delhi, were taken up for intensive socio-economic and physical study. The whole area was broken up into zones and smaller units. The heterogeneity of the study units, which is a characteristic phenomenon of urban areas reflected through a series of inter-related variables has been used in a systematic identification of areas into redevelopment, rehabilitation and conservation. The identification is essential to ascertain the degree of obsolescence, and to help in evolving a comprehensive and integrated approach towards urban renewal. It can be the basis of a system of priority based upon scientific analysis rather than an ad hoc municipal action.

A multiple index has been constructed for this purpose. It indicates the relative positions of the different study units with respect to physical conditions, economic position and amenities provided to the inhabitants therein. The preparation of a multiple index involves adoption of a particular degree to which some of the basic necessities of urban existence are present or absent in particular areas. It can well be a sort of demarcation line delineating the salvable areas from non salvable ones. Seven factors have been taken Into account for the construction of the index. These, were chosen because their absence negates the basic requirements of urban existence. They are (i) percentage of households with monthly income of less than Rs. 100; (ii) percentage of structures in poor condition; (iii) percentage of households without water; (iv) percentage of households without latrine; (v) percentage of households without electricity; (vi) percentage of households without kitchen; and (vii) average number of persons per living room.

The base figures for Old Delhi (1956-58) were obtained from the Greater Delhi Survey conducted by the Delhi School of Economics. In the case of households without water facilities, the Greater Delhi Survey had figures for only two parts instead of three into which they had divided the Old City. It has been assumed that the figures for the figures for these two parts hold good for the entire area. In the case of the percentage of structures in poor condition, the base figures as well as the figures for different study units were obtained from the comprehensive lot-to-lot land use survey conducted by the Town Planning Organisation.

Since these factors vary in importance, it was considered necessary to multiply each item by a suitable weight corresponding to its importance. While the condition of structure was decidedly the most important variable amongst the seven, the factors like absence of electricity and kitchen were relatively less important than the remaining ones. The weights as selected are given along with the table. The multiple index was obtained by taking a weighted arithmetic mean of the seven figures corresponding to the seven factors.

For a final classification of the study units into redevelopments, rehabilitation and conservation, double criteria were adopted:

(i) All the study areas which have more than 75 per cent of the structures in poor condition were to be marked as redevelopment areas. The technique of multiple index, which was more comprehensive, inasmuch as that it took into account several other factors, was not applied to such areas. The area qualified for redevelopment since it is almost completely deteriorated physically.

(ii) For the remaining study areas: a study unit having an index of more than 125 has been taken as a redevelopment area, a study unit having an index between 75 and 125 has been taken as a rehabilitation area; and a study unit having an index below 75 has been taken as a conservation area.

The identification of study areas in Karol Bagh Zone is primarily dependant on the structural data collected by the Town Planning Organisation. The multiple index for this zone could not be prepared as the socio economic, and housing surveys were not conducted there.

Besides the study units which have been identified with the help of the multiple index, and given in the table, there are four study units in the Walled City Zone viz. Jamuna Basti; Lai Darwaja -Chari Walan; Motia Mahal and Sui Walan, and two study units in Motia Khan Zone viz. Motia Khan; and Paharganj, which by virtue of having more than 75 per cent of the structures in poor condition, are redevelopment areas.

Jamuna Basti - 84% are poor structures
Lai Darwaja - 84% are poor structures
Motia Mahal - 77% are poor structures
Sui Walan - 98% are poor structures
Motia Khan - 98% are poor structures
Paharganj - 78% are poor structures.

Covering an area of 535.6 acres, and inhabited by 196,865 persons, these localities show the extent of dilapidated housing

and the population living therein. They are an example of extreme congestion and filth. While the average gross density in these areas is 363 persons per acre, in individual study areas, the densities are even higher than 500 persons per acre. These areas are grossly inadequate in respect of basic amenities.

Table 4 is a consolidated table showing area, population and densities in the four study zones, according to the identification. The delineation of the various study units as Conservation, Rehabilitation and Redevelopment is shown in the Map Identification of Areas.

CONSERVATION AREAS :

According to the table given above, the total conservation areas in all the study zones is 1,307 acres, and the total population living in these is 2,46,809 which means that 29.2 per cent of the total area of the study zones contain approximately 25 per cent of its population. In Walled City Zone, Katra Neel, Ballimaran, Dariba Kalan and Daryaganj are grouped in this identification category. They occupy 408 acres and are inhabited by 1,01,538 persons, giving a comparatively low density of 249 persons per acre. As is apparent, the conservation areas contain the least percentage of structures in poor condition. In the Walled City Zone, this percentage varies between 24 to 27 only. The socioeconomic surveys generally accord with the identification reached with the help of multiple index, putting the above four study units in the highest income ranges. Of the total area of Subzi- mandi zone, 39.3 per cent is conservation area, with a population of 70,400 with a gross density of 133 persons per acre. The areas are Kamla Nagar, Jawahar Nagar, Shakti Nagar and Railway Colony of Sarai Rohilla. In Karol Bagh Zone, Prahlad Market, part of Tibbia College, a portion of North of Rohtak Road and part of Western Extension Areas were identified as conservation areas. The total area of these study units is 371 acres, and population 74,571. As is defined by the term itself, these areas are essentially good. But only enforcement of planning and housing codes and ordinances can stop the inroad of blight and protect the future of the areas.

REHABILITATION AREAS:

In all the four study zones combined, the total rehabilitation area is 1,412 acres with a population of 3,86,501 giving a gross density of 273 persons per acre. Subzimandi zone has 360 acres under rehabilitation with a population of 80,400. The areas are Sohanganj, Arya- pura and Andha Mughal. In the Walled City Zone, Mori Gate, Phatak Habash Khan, Kashmere Gate, Chandni Chowk, Naya Bans, Farash Khana, and Kucha Fati Ram are rehabilitation areas, covering 443 acres, and inhabited by 1,41,287 persons. In Motia Khan Zone, Bara Hindu Rao, Deputyganj, and Qasabpura were identified as rehabilitation areas. They comprised 31.5 per cent of the total area of Motia Khan Zone, and approximately 39 per cent of the total population of this zone. The rehabilitation area in Karol Bagh Zone is 254 acres, and the population living in these is 33,810. These are the areas which with some reconstruction and functional rearrangement can be made to serve as residential areas for a long period. The areas are shown in the map Identification for urban Renewal.

REDEVELOPMENT AREAS:

As has been referred to earlier, the redevelopment areas do not possess either structural stability or functional utility. They are a constant drain on the individuals and on the community. According to the consolidated table given above, the total redevelopment area in the study zones is 1,762 acres, which is roughly 39.3 per cent of the total area. The redevelopment areas which, by definition, have to be cleared and reconstructed, would displace temporarily as many as 3,68,093 persons living presently in these areas. of the total area of

Table 1.

IDENTIFICATION BY MULTIPLE INDEX - WALED CITY ZONE.

Variable	Kashmere Gate		Mori Gate		Phatak Habash Khan		Katra Neel		Chandni Chowk		Naya Bans		Ballimaran	
	%	Index	%	Index	%	Index	%	Index	%	Index	%	Index	%	Index
Percentage of household with income less than Rs. 100	46	110	23	55	24	57	29	69	38	90	37	88	43	102
Percentage of structures in poor condition.	27	118	51	222	52	226	25	108	35	152	45	196	27	118
Percentage of households without water.	32	76	33	79	8	19	5	12	28	67	25	60	25	59
Percentage of households without latrine	37	142	12	46	4	15	8	31	15	58	2	8	4	15
Percentage of households without electricity	34	45	44	58	23	30	8	11	39	51	39	51	40	53
Percentage of households without kitchen	61	74	23	28	50	61	50	61	65	79	59	71	59	71
Percentage of households without per living room	3.1	91	3.9	115	4.2	124	3.1	91	2.9	85	4.4	129	3.4	100
Multiple Index		94 @		86 @		76 @		55 +		83 @		86 @		74 +

@ Conservatioin + Rehabilitation * Redevelopment

. . . . . Walled City continued.

Variable	Maliwara Gate		Farash Khana		Kucha Pati Ram		Daryaganj		Base	Weightage
	%	Index	%	Index	%	Index	%	Index		
Percentage of household with income less than Rs. 100	29	69	47	112	42	100	27	64	42	1
Percentage of structures in poor condition.	24	104	67	292	36	156	26	114	46	2
Percentage of households without water.	11	26	44	105	43	102	24	57	42	1
Percentage of households without latrine	6	23	8	31	21	81	27	104	26	1
Percentage of households without electricity	22	29	59	78	54	71	28	37	57	0.75
Percentage of households without kitchen	60	73	67	81	66	80	38	46	62	0.75
Percentage of households without per living room	3.0	88	4.3	126	3.7	109	2.3	68	3.4	1
Multiple Index		59 +		119 x		100 x		70 +		

Table 2.

IDENTIFICATION BY MULTIPLE INDEX - MOTIA KHAN ZONE.

Variable	Bara Hindu Rao		Deputy Ganj		Manakpura		Qasabpura		Jhandewala		QadamSharif		Base	Weightage
	%	Index	%	Index	%	Index	%	Index	%	Index	%	Index		
Percentage of household with income less than Rs. 100	38	90	43	102	41	98	44	105	63	150	46	110	42	1
Percentage of structures in poor condition.	42	182	29	126	42	182	55	240	38	166	74	322	46	2
Percentage of households without water.	47	112	37	88	55	131	53	126	98	233	67	160	42	1
Percentage of households without latrine	18	69	24	92	42	162	25	96	87	335	61	235	26	1
Percentage of households without electricity	52	68	60	79	70	92	65	86	99	131	73	96	57	0.75
Percentage of households without kitchen	41	50	64	77	80	97	69	83	86	104	80	97	62	0.75
Percentage of households without per living room	3.9	115	3.6	106	4.1	121	4.2	124	3.8	112	4.1	121	3.4	1
Multiple Index		98 @		96 @		126 *		123 @		176 *		163 *		

Table 3.

IDENTIFICATION BY MULTIPLE INDEX - SABZIMANDI ZONE.

Variable	Sohanganj		Aryapura		Base	Weightage
	%	Index	%	Index		
Percentage of household with income less than Rs. 100	44	105	34	81	42	1
Percentage of structures in poor condition.	35	152	40	174	46	2
Percentage of households without water.	41	98	44	105	42	1
Percentage of households without latrine	30	115	29	112	26	1
Percentage of households without electricity	64	84	56	74	57	0.75
Percentage of households without kitchen	73	89	74	89	62	0.75
Percentage of households without per living room	4.2	124	4.2	124	34	1
Multiple Index		110 +		108 +		

+ Rehabilitation.

Table 4.

AREA POPULATION AND DENSITY IN THE VARIOUS ZONES ACCORDING TO IDENTIFICATION

Name of study zone	Redevelopment		Rehabilitation		Conservation		Total		Density Gross.
	Area (acres)	Population	Area (acres)	Population	Area (acres)	Population	Area (acres)	Population	
Subzimandi	457	32,300	360	80,400	528	70,400	1,345	183,100	136
Walled City	284	105,595	443	141,287	408	101,538	1,135	348,420	307
Motia Khan	765	197,430	355	131,004	-	-	1,120	328,434	293
Karol Bagh	255	32,768	254	33,810	371	74,571	881	141,449	160
Total	**1762**	**368,093**	**1412**	**386,501**	**1307**	**246,509**	**4,481**	**10,01,403**	**223**
Density (Gross)	209		273		188		223		

Motia Khan Zone, 765 acres (or 67.4 per cent) are redevelopment areas, and its affects approximately 1,97,430 persons. In Subzimandi Zone, 457 acres, which is roughly 34 per cent of the total acreage of this zone, were identified as redevelopment areas. In the Walled City Zone, Jamuna Basti, Lal Darwaja, Motia Mahal and Sui Walan are redevelopment areas, covering 284 acres, and 1,05,595 persons. These are areas built on high densities.

The data presented in the identification tables speak of the colossal nature of the problems of redevelopment, rehabilitation and conservation. However, it is worthwhile mentioning here that the identification was made primarily for the areas under the jurisdiction of the erstwhile Delhi Municipal Committee and the problems are by no means, confined to the areas mentioned above. The identification can be extended to cover the whole of Urban Delhi, in order to tackle the problem on a city wide basis.

V. Approach and proposals for urban renewal:

From what has been stated before it is seen that urban renewal is not merely a problem of slum clearance or of redeveloping the physically deteriorated areas; rather it envisages a positive programme for better living conditions for the entire city. This requires that the future growth of the areas is properly regulated and organized, and their liveability protected through slum clearance and redevelopment 5 through rehabilitation of sub-standard areas and blighted neighbourhoods; and through conservation of good areas.

Urban renewal is part of a larger planning process, and it has been evolved within the general framework of the Master Plan for Delhi. It is conceived here as a comprehensive activity to counteract functional obsolescence of the urban structure as a whole, and of parts and elements of it, and to revitalize continually all elements and parts of the urban area. The process of renewing the city involves the whole pattern of population distribution and functional reorganisation.

The major recommendation of the plan for urban renewal limits itself to giving only a sense of direction. This programme is kept flexible so that necessary adjustments, necessitated by the human problems encountered can be made from time to time by the implementing agency.

Relocation and new housing:

The pre-requisite for effectuation of the urban renewal programmes is new housing. In view of the huge housing deficit as stated earlier in the chapter, emphasis should be placed on the building of new houses, and on carrying out improvements in the existing structures to make them habitable. A positive development programme should be prepared to meet this emergency, and whatever resources are available should be harnessed for the purpose. Without additional houses coming up fast, it is unlikely if any urban renewal plan can be put into operation with any degree of success.

Viewing the problem in the perspective of the economic conditions of the people, especially those living in slums and bustis, it would become evident that the craving need of the day is low cost housing. In this connection, it is worthwhile mentioning that the Municipal Corporation of Delhi has launched what is called the "Jhuggi Jhonpri Scheme" of cheap dwellings to rehouse people presently living in bustis. For this, purpose adequate funds have been placed at its disposal by the Union Government. The Municipal Corporation of Delhi has set up a special section which is carrying on a detailed survey of all busti slum in Delhi and also selecting suitable localities for the relocation of the slum dwellers.

AS a first step in this programme the Corporation has tentatively selected the following 13 sites in consultation with the Delhi Development Authority.

1. A site of 100 acres near the Marginal Bund in Shahdara
2. An area of 50 acres east of Jhilmila Tahirpur
3. An area of 200 acres on Najafgarh Road, north of Rajouri Garden.
4. An area of 50 acres out of the Ranjit Nagar Shadipur Scheme.
5. An area, of 50 acres in Sarai Rohilla area.
6. An area of 50 acres east of Dhaka village near Kingsway Camp.
7. An area of 50 acres north of Rajpur village (Gurmandi)
8. An area of 200 acres west of Wazirpur village.
9. An area of 75 acres north of Naraina village.
10. An area of 20 acres originally reserved for labour camp off Ring Road near Moti Bagh.
11. An area of 20 acres in Government Colony south of Housing Factory..
12. An area of 60 acres, north west of Kalkaji temple.
13. An area of 80 acres near the Kilokri village.

All the 13 sites are indicated on the map which also gives the location of the prominent slums which need to be cleared. The total area of the 13 sites is 1,005 acres and it is proposed to accommodate 30,000 families, on the average density of about 30 families per acre.

Site No. 4 Ranjit Nagar Shadipur, and site No.5 Sarai

Rohilla will, in addition to resettlement of families displaced as a result of redevelopment of these areas, also house the busti families from Pusa Road, Bapa Nagar, etc. Site No. 7 north of Rajpura village will resettle busti families of Sabzimandi zone. All resettlement schemes should form part of a larger neighbourhood and should have an inter mixture of lower middle and middle income groups to whom sites may be made available on a no-profit-no-loss basis. These are necessary to have integrated neighbourhoods and will also bring variety in housing development.

Site No. 6 in Kingsway Camp and site No. 8 near Wazirpur village will rehabilitate all the scattered bustis in the Civil Lines area. Site No. 9 north of Naraina village will be suitable for Patel Nagar and Karol Bagh busti dwellers and site No. 10 near Moti Bagh for those in the Diplomatic Enclave bustis. Sites No. 11, 12 and 13 being in the southern part of Delhi will accommodate Hardinge Bridge and Lodi Colony bustis and also some of the Raj Ghat busti dwellers. Many of these are construction workers who came here while construction was going, on. Since South Delhi is going to have full scale constructional activity these people are sure to find employment in this part of the city and gradually they will be absorbed in other urban occupations.

The proposed scheme is only the first phase in the Corporation's slum clearance and relocation plans and the above 13 sites will not be able to accommodate all the busti dwellers. However, as the scheme progresses and becomes acceptable to the people, the core of the busti population in such areas as Jhande walan, Motia Khan and Qadam Sharif will have been dispersed to some of these sites or to new sites which will be selected in due course. By providing for 30,000 out of the total of about 50,000 busti families in Delhi, the proposed scheme will go a long way in solving the problem of busti dwellers and pave the way for further well planned programmes.

But the problem of bustis mushrooming up every where is an economic and human one. The push from the rural areas, brings to Delhi a large number of people who do not have the resources either to pay rent or build their own houses by purchasing land. Unless the efforts of these people to find shelter are channelised and regulated, no sooner one busti is cleared and the people relocated there, another is bound to spring up on the same spot, or elsewhere. Recognising these factors that go to built up bustis, it is recommended that reasonable areas should be earmarked, in several zones for these low income groups who migrate to Delhi. These areas should not be on the periphery of the city because then the problem of transportation to work places will arise, but should be well distributed so that they are not too far away from the work places. The areas should form an integral part of the surrounding neighbourhood and should not be segregated in any way. They should have a proper layout and the space standards for the facilities like schools, open spaces, etc. should be those given for the, density on which the layout is planned. The development can be sub-standard and the minimum of municipal facilities need be provided, since public agencies will have to bear most of the cost. Building by-laws should be considerably relaxed in such cases not only to permit sub-standard development but also to enable the construction of low cost cheap houses.

another major recommendation is that the developed land, whereever available near the city, should be reserved for the relocation of people displaced as a result of clearance operations. Mata Sundari area, which lies between Circular Road and the railway line has single storey and low density residential development. The housing here has outlived its life structurally and the area is ripe for redevelopment. It is certainly not justifiable to redevelop this area again on low density, because land values here are very high and the neighbouring districts are acutely congested having some of the highest density in urban Delhi. This area should be put to more intensive residential use in order to rehouse the people displaced as a result of the Ajmere Gate Redevelopment Scheme. Unless this area is utilized for this purpose, it is going to be difficult to tackle the redevelopment of the walled city. Similarly areas in Sarai Rohilla and Shadipur - Khampur should be redeveloped at a substantially high density of 200 persons per acre, to relocate people who will be displaced from the old city area.

All this calls for a long range housing policy, broad-based. and comprehensive in scope. So far as the financial aspects are concerned, it is evident that neither the private nor the public sector individually can undertake the task of filling up this great housing deficiency. At present, there are several agencies connected with housing activity in Delhi, like the Delhi Development Authority, the Municipal Corporation of Delhi, Delhi Administration, Railway Board, Labour and Industrial Board, Ministry of Works, Housing and Supply. Then there are housing co-operatives and private colonizers. No single authority was aware of the whole problem of housing and there was inordinate delay in getting land. Realizing this, the Government of India have invested in the Chief Commissioner of Delhi full powers for large scale acquisition, development and disposal of land in Delhi. It has also provided the necessary revolving fund for this purpose.

* *Old city include walled city, Motia Khan and Subzimandi zones.*

Comprehensive Redevelopment Proposals:

The approach to the problem of busti dwellers has been outlined. What of the Old City which has varying degrees of slum condition? Having identified areas in the Old City as conservation, rehabilitation and redevelopment areas, certain comprehensive policy decisions have been made as to the nature of the measures to be taken for the urban renewal of the built up areas of the city. These have been influenced by the enormity of the problems, financial, physical, and human as described earlier in this chapter. One of the basic policies arrived at is that in the near future there will be no large scale mass demolition of structures here, even in the redevelopment areas. Instead, it is hoped that the systematic weeding out of noxious industries and village-like trades will reduce congestion to some extent. New housing made available in the middle and higher income groups will induce these people to move out of the congested and insanitary areas. Each year a large number of houses fall down or are demolished by the Corporation as dangerous or unfit for human habitation. These will not be allowed to be rebuilt by the owners, but the land will be acquired for community facilities. It is not desirable to have a density of more than 250 persons per acre in the Old city*. For a population in each unit arrived at on the above density, every effort will be made to provide schools, open spaces, health centres and other facilities. These will be located according to zonal development plans but the Corporation, until then, will provide these facilities on an ad hoc basis whereever some vacant plots are available or acquire derelict properties for the purpose

Realising that if space standards adopted for open areas are followed here it would be extremely difficult to open up the built up areas involving large scale displacement of population, it has been proposed to lower the space standards for the community facilities. Schools and other buildings will be multi-storeyed. Play grounds will be smaller. So, too, local parks and open spaces. The large open spaces on the periphery of the Old city, like the Parade Grounds, the open area outside Kashmere Gate, etc., will be utilized for play grounds and Ram Lila Grounds, Yamuna River front, etc., will be used as park and recreational areas. The standards are given in the Chapter on 'Land Use Plan'.

At present, traffic conditions in the Old city are deplorable and the right of way of streets is inadequate to cope with the traffic generated by the high residential density and intense commercial and small scale industrial uses. Hence it is proposed to work out a system of traffic streets and pedestrian ways, resulting only in the minimum of demolition of buildings but on the other hand ensuring a smooth flow of traffic. Any dislocation of commercial and residential units will have to be dealt with as inter-linked schemes and will have to be phased, as part of the comprehensive urban renewal programme. The plan showing the proposed right-of-way of streets in the Old city is shown in the Chapter 'Land Use Plan'.

(1) Lampur;
(2) Nangli Puna;
(3) Bhalswa Jahangirpur;
(4) Shamapur ;
(5) Sahibabad Daulatpur;
(6) Barwala;
(7) Kirari Subiman Nagar;
(8) Nangloi Jat;
(9) Nilothi;
(10) Ranhola;
(11) Hastsal;
(12) Motola;
(13) Kakrola;
(14) Nangal Dewat;
(15) Mehpalpur;
(16) Samalka;
(17) Kapas Hera;
(18) Bijwasan;
(19) Ghatorni;
(20) Sultanpur;
(21) Chatarpur;
(22) Badarpur; and
(23) Molarband.

These measures alone, however, will not help in eliminating all the maladies associated with slum formation. There is sufficient evidence that even the new colonies which have been built recently are far below the standards of^ healthy and proper living. Unauthorised construction, squatting, poor layouts with no functional relationship between the various uses, can in no time convert new areas into slums. It is, therefore, necessary to adopt a comprehensive system of building and other codes, which prescribe adequate minimum standards of health, sanitation and safety.

The existing codes need to be revised to conform to the present higher standards of environmental and social hygiene. In addition, the plan sanctioning authority should ensure that all developments take place with proper layouts and adequate community facilities, and in accordance with the desirable and optimum densities prescribed in the Master Plan. It is equally necessary to set up a firm administrative machinery for effective enforcement of planning standards including adequate community-wide inspection of services and preventing squatting and encroachment.

Many of the existing residential areas give an impression of no more than a confused mass of brick and mortar. They need to be regrouped into neighbourhoods and equipped with self -sufficeient community facilities like shopping, recreation, schooling, etc. Such regrouping is necessary because at present, the community facilities are inadequate both qualitatively and quantitatively, and also their location has seldom any relation to the needs of the area or to the existence of other facilities.

Though surveys showed that people have preference for living with their own caste, language, education and income

groups in the neighbourhood, but as a matter of social policy, mixed and heterogeneous neighbourhoods are advocated in redevelopment areas. This is necessary for the social integration of the community.

Civic amenities like water, latrine and electricity which are the absolute essentials of urban life are nonexistent for a large percentage of the population. This- necessitates that a policy decision be taken to provide all the areas with these basic amenities. Even if a few areas have qualified for redevelopment purposes, these amenities should be provided on a short term basis.

Elimination of undesirable uses and their relocation:

Non-conforming land uses have to be controlled and gradually weeded out from the residential areas as they intensify slum and blight conditions. Residential neighbourhoods should be protected from infiltration of undesirable activities. It has been recommended as a policy that such industrial uses that do not conform to the land use shown in the plan, will have to be shifted in gradual stages to industrial areas earmarked in the plan. It is recognized, however, that this process must be largely governed by the fact that there should be minimum amount of dislocation of production and the industries should not be put to undue hardship. Noxious industries such as those emitting smoke or fumes containing foul gas or throwing out bad smelling effluent or making continuous noise thereby causing nuisance and unhealthy conditions for the whole locality, should be shifted from their present location in the heart of the city to the industrial areas earmarked in the Master Plan. Such industries are the slaughter house, tanneries, chemical works, metal smelting and moulding, electro-plating, foundaries, heavy engineering workshops, etc. Lime and brick kilns should be shifted outside the urbanisable limits of 1981.

Besides the above, there are some trades which are likely to cause damage to property and life, of the people in the locality due to fire hazard. These are timber deposits, fodder shops, storage of films, etc., and they should be shifted to warehousing and storage areas allocated in the plan.

The industries with a village like character (pottery, milch-cattle keeping, handloom weaving, artistic metal works, zari and zardosi making, etc.) which are situated in the heart of residential areas intensifying the slum conditions should be relocated in the clusters of urban villages on the fringes of the 1981 urbanizable limits. Obnoxious trades like tanning, slaughtering of cattle should be dealt with likewise. These urban villages will be planned by public agencies with proper layout and provided with, adequate amenities and services, as well as facilities, for carrying on the occupation on an economic and profitable basis, through industrial co-operatives. The newly created economy of the urban villages should be put on a firm footing so that it will also revitalize village life.

Surveys conducted by the Town Planning Organization indicate that there are about 1.5 lakhs i.e. nearly 30,000 families of slum dwellers who are in this category. Some of these families have other sources of income in the city and some have their own houses and might be unwilling to shift to the proposed urban villages. However, it can be roughly estimated that about half the number of 30,000 families can be easily rehabilitated and for this purpose the following 23 villages have been selected.

Each of the above villages will accommodate about 600 to 800 families and all the villages excepting Lampur lie within 3-5 miles of the compact urban limit and Lampur itself is near the proposed satellite township of Narela. Already, in many of these villages hereditary rural trades and crafts are being carried on and this will greatly assist in the relocation of rural craftsman shifted from the urban areas. Details of the urban village scheme are given in the Rural Planning Chapter.

Integrated Urban Land Policy:

The unmitigated flow of migrants from rural areas and small towns to Delhi, which is primarily responsible for the creation of slums can only be checked through regional planning, envisaging a balanced development of city, town and country. Regional planning being based on the dimensions of time and space is usually a long drawn out process, but such a long range view is necessary to enable optimum development of the city and its region.

The pull of Delhi has to be neutralized by setting up countermagnets. This implies planned relocation with a view to decentralization, taking into account the economics of industries and trades to be displaced from the residential areas. Also new industrial estates should be set up, in the ring towns and in planned industrial estates in urban Delhi, and certain types of industries should be encouraged in the villages to stop migration into the urban areas. This will help in reducing congestion, and would put a restraint on the high rate of inmigration. The proposals relating to these aspects are contained in the Chapter on Regional Aspects of the Plan.

In the urban area itself, especially in the old areas, the Rent Control Let needs to be reframed, and it should be so done that its revised and additional provisions do not affect either the house owners or the tenants unfavourably. Incentives

should be given to the house owners to bring their houses to a reasonable standard by allowing a rent which should be commensurate with the expenditure involved in repairs and renovation. Interests of the tenants should also be protected by giving them the right to continue to live in the houses and it should be seen that on the pretext of house repair the tenants are not evicted. The repair, if need be, should be carried out by the local authorities.

It is necessary to introduce legislation to control land speculation within the urbanizable limits of 1981. A step in this direction has already been taken by the Chief Commissioner of Delhi by notifying approximately 35,000 acres of land in the Union Territory of Delhi for acquisition. Mow a land policy, defining the terms and conditions of lease, and the terms of development and construction has been laid down. On the basis of this, land will be released to various bodies so that the construction of houses is taken up without delay.

Urban Community Development:

The efforts to improve living conditions is closely linked with the rise in the incomes of people. Economic impoverishment is the basic cause of slums. While the improvement in economic conditions is related to the general economic prosperity of the country, steps could be taken to provide semi-technical training to the people. The women folk should also be taught trades and crafts, which may help in supplementing the family income. The idle manpower should be employed in such pursuits.

Slum conditions are also, to a large extent, due to the habits of slum dwellers and due to lack of understanding of the ways of hygienic living. Social education is, therefore, absolutely necessary to eradicate illiteracy, to improve the outlook of the slum dwellers and orientate them in the ways of healthy living.

The goal of urban renewal is community development. It strives to create an environment, both physical and social, in which citizens can lead a full life. It involves the people and their way of life. Urban renewal implies, Integrated planning, and its success depends on how best the coordination of the efforts of all organizations - governmental and non-governmental, can be achieved. It has to be explored how each of the related agency can contribute to make the Urban renewal programmes a success. The process is a difficult one, as it involves considerable displacement and relocation. The people have attachment towards the area due to their continued residence; their places of work are usually near their houses; some live in their own houses, some may have developed a sense of belongingness or may have Identified themselves with the social group from which they might not like to be separated. Social organizations have a great part to play in bringing home to the slum dwellers the advantages of living in a new and improved environment.

VI. Citizen Participation:

Urban renewal is not only physical planning but involves people's lives and their economic and social needs. It is therefore necessary to create and sustain people's interest in all plans effecting their welfare. Citizen participation in urban renwal can become a powerful force in accelerating the work by mobilizing people's enthusiasm, engergy, talent and spare time, and the execution of plans can be made successful speedily and also at less expense. Only such plans will become effective and permanent where people's participation is maximum.

The desire to live in healthy surroundings and to improve the standard of living is inherent in all human beings, as also the desire to cooperate, though these may not be manifest in the initial stages. By associating people, with the plans, scope is provided for training them in leadership, initiative, responsibility and self- help and cooperative action. Strong kinship ties are fostered which help in organizing and sustaining community welfare activities.

Citizen participation is thus an essential prerequisite to all urban renewal programmes, not only in their implementation stage but also in pre-planning and planning stages. It gives the people a feeling of partnership in the planning process and hence of being a party to the programme which they have themselves helped to develop and not just one which has been forced on them by the authority. It eliminates apathy, indifference or even organized opposition, which has been the doom of many sound urban renewal plans. The usual, though mistaken, attitude of people that they and the civic and governmental agencies are at cross purposes will be completely changed. Suspicion having been removed, understanding will grow, criticism will become constructive and a responsive and responsible attitude will naturally develop. Often due to inertia and fear of consequences likely to arise out of changed conditions, people offer resistence in the first instance, which is overcome through education and proper public relations.

The urban renewal authorities usually realize in a short time that theirs is not merely a physical problem but a human one in which people's preferences should be given due consideration. Certain broad principles can be outlined about the method of securing citizen participation. Citizens live and behave either as individual or as members of the family or community. Though individual and family efforts are valuable in keeping the house and immediate surroundings clean

and in good repair and in preventing blight, it is only sustained group action -which can in the long run save a neighbourhood or a city. Community organization brings all individuals and groups together for the attainment of a common objective and to identify their problems with facts and evolve values based on good judgment. It helps the community to work on agreed goals and brings about coordination between private effort and plan implementation by public agencies.

The first step is the setting up of a citizen's Committee at the city level. The function of this committee will be to advise on the different aspects of urban renewal, such as, broad policy decision; selection of areas for redevelopment and relocation; compaigning to create a suitable political atmosphere for smooth implementation of the urban renewal schemes, helping ward and mohalla committees in their programmes and thus facilitating both vertical and horizontal cooperation. The next step is to set up citizens' committees at the ward level to coordinate the work of mohalla committees, which in turn will be set up at the neighbourhood level. In case organizations like panchayats, community centres, cooperative societies, etc., already exist in the neighbourhood, their activities should be coordinated. Neighbourhood committees will bring into focus all problems of the neighbourhood, to enable the people to see for themselves that only through organized activity it is possible to solve their problems. These bodies will serve as vehicles of communication at different levels of participation.

To enable each of these committees to function properly, the inclusion of representatives of various interests affected by urban renewal plans such as, property owners, traders, industrialists, etc., and experienced leaders from different fields of social, civic and religious life will prove very helpful. These committees can either be advisory or directive. In the case of the former, people's view points are presented while decisions and responsibility for action will rest with the authorities; while in the later, the committees themselves are entrusted with the execution of specific functions.

The professionally trained community organizer is the key person in all organizational attempts or citizen participation for urban renewal. He or she can play a vital role in educating the people to understand and accept the changes involved in the redevelopment plans, as well as act as an effective liaison to secure essential amenities and services from the civic bodies. He brings with him the skills necessary for organizing the groups into action. He coordinates the efforts of individuals who wish to contribute their mite for urban renewal programme. He stimulates the people to action, making them shed their inertia and apathy and creating lasting interest in the community's problems and in this process discovers and trains local leadership to take responsibility in their own welfare. In all this, the community organizer completely identifies himself with the community and always acts as a catalytic agent of the community organization.

The Delhi Municipal Corporation has embarked upon 8 scheme of urban community development. At the lowest level, they have formed 'Vikas Mandals' whose jurisdiction spreads over 250 families. Their object is the all round development of the community. For a group of ten Vikas Mandals there is a Neighbourhood Council. The representatives of Neighbourhood Councils, other welfare agencies and the civic administration form an Advisory Committee. The actual organization work of the Vikas Mandal is in the hands of community workers. At present it has practically no connection with the Urban Renewal Planning Authority. With some reorganization it would be possible to dovetail the two, and then the Neighbourhood Council and the Urban Renewal Authority can work hand in hand towards the goal of urban renewal which is urban community development.

VII. BUSTIS OF DELHI.

As in most cities of India, Bustis abound in Delhi and are found in almost all parts of the city. A 'busti' is identified as a cluster or conglomeration of kacha huts or shacks of tin or wood, built on any conceivable open piece of land and almost always in an unauthorised manner.

It is extreme poverty and low standard of life which forces human beings to huddle themselves in such squalor and filth, under most dehumanizing conditions. The only saving feature, if at all, is the air and sun-shine penetrating into these hovels which make life possible. Bustis are plague spots in any urban setting and are concentrated areas of Insanitation, crime and vice, which are both a disgrace and a source of danger to the city as a whole. They are also very often subject to the devastating fires, which not only destroy the bustis but also sometimes engulf neighbouring buildings.

CAUSES:

Rapid urbanisation with the consequent pliability to provide shelter for the ever-growing numbers of in-migrants, who are pushed from rural areas on account of dire poverty and unemployment and who are unable to pay any rent, is the main cause of busti formation. Added to this is the primal urge of people to seek kinship ties and security with members of similar caste or place of origin. These people, being ignorant of urban ways of life and persisting in their old village patterns, have made busti conditions more sordid. The civic authorities have also not been able to provide the barest of amenities,

nor have any steps been taken to properly resettle the busti dwellers.

FEATURES:

All bustis have certain characteristics, physical and human, which distinguish them from other slums. Invariably the land on which the bustis are built is an abandoned grave yard, embankments of drains, pits which have been filled with city's refuse, dumping ground, land along the railway line or any other piece of forsaken open space. The dwellings consist of temporary structures ranging from mud-walled huts with sirki or thatched roofing to 'khokhas' made of wooden planks and tin sheets. There is hardly any lay-out plan.

The human characteristics of these bustis are that the people who live here are all migrants from adjoining states of Punjab, U.P. and Rajasthan, mostly from rural areas. The occupational pattern of busti dwellers is an odd assortment. They are mostly unskilled workers in building trades, beldars, hawkers, rickshaw pullars, tonga drivers, and petty shop keepers. Potters, leather workers, handloom weavers, artisans, sweepers and sca- vangers also inhabit the bustis in several places. Criminal tribes have their own clusters in the bustis, where in hide-outs many of them carry on the profession of illicit distillation of liquor and also rear pigs. The economic standard, of busti dwellers is very unsatisfactory. They normally belong to the low income group earning less than Rs. 100/- p.m., except some categories of skilled and semi-skilled workers and petty shop keepers whose total family income goes upto even Rs. 200/-.

BASIC CHARACTERISTICS:

(a) Age and growth :

It is difficult to determine the age of bustis in Delhi since they do not come into being in their full and final form all at once, growing as they do from a small nucleui of a few huts. Attracting similar types of inhabitants, they increase in occupied areas, dwelling units and population. Many bustis have started as small labour camps of those engaged in quarrying or construction work nearby. With the arrival of more members of the family or from the same village of district, more huts begin to be built. Thus in course of time a busti assumes a settled form, an surrounding open areas becoming crowded with huts. There are one or two old bustis, where people have been living for more than 50 years, but the large majority have come into existence during the past 20 years, more so after 1947, when refugees poured into Delhi from West Pakistan and squatted on any available open land.

(b) Ownership of land and dwellings:

A major portion of land occupied by bustis, belongs to public bodies, such as, the Delhi Development Authority, the Custodian of Evacuee Property, the Northern Railway, or Delhi Municipal Corporation. Land belonging to private parties include Muslim grave yards, Idgah, Goshala grounds, temple area and individual owners. In very few cases, the owners of huts also own the land.

It is significant that a large proportion of bustis, have been built on Government property. The dwellings are mostly self-owned and the owners pay nominal lease or ground rent. Private parties on the other land charge exorbitant rent for the plots, though they provide no convenience nor any facilities. There are some dwelling units in the bustis, which the owners have rented them to tenants, making money even from the ram shackle huts or 'Khokhas'. Delhi since they do not come into being in their full and final form all at once, growing as they do from a small nucleui of a few huts. Attracting similar types of inhabitants, they increase in occupied areas, dwelling units and population. Many bustis have started as small labour camps of those engaged in quarrying or construction work nearby. With the arrival of more members of the family or from the same village of district, more huts begin to be built. Thus in course of time a busti assumes a settled form, an surrounding open areas becoming crowded with huts. There are one or two old bustis, where people have been living for more than 50 years, but the large majority have come into existence during the past 20 years, more so after 1947, when refugees poured into Delhi from West Pakistan and squatted on any available open land.

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(c) Structure of dwellings :

Busti dwellings are all kacha huts, built of mud or stone walls and bamboo posts and covered with 'thatch', 'sirki' and tin sheets or rags and card-boards. In some long-established bustis, there are a few semi-pucca structures Most of the dwellings being temporary and built with mud their walls are washed away and their roofs blown off, during heavy rains and gusty winds; not to speak of fire accidents which are quite common. There is hardly any ventilation, except through the crevices between the tin sheets or sirki roofing. The flooring is in most cases of mud. Busti huts have thus to be constantly patohed up and kept in tolerable condition; or else they will crumble to the ground. There is no drainage either within or outside the huts.

(d) Civic amenities :

As regards civic amenities, such as water, latrine and electricity, there is an appalling lack, which makes life very uncomfortable and hard.

(i) **Water :** Some bustis have no water taps at all, while others have very few taps as compared to the large population. In many bustis people get water out of hand pumps and even wells, which are not clean.

(ii) **Latrines :** Bustis are very inadequately served by public latrines and people use surrounding open areas and pits making the whole place stink with foul smell. This leads to breeding of flies, communicable diseases and epidemics.

(iii) **Electricity :** About one third of the bustis have public electric lights in their lanes and by-lanes but these are by no means adequately lighted. Hardly any house has electric connection.

(iv) **Communication :** There are very few internal roads, except what the squatters have, of their own accord, left as common passage in front of their houses. All lanes are zig-zag and being kacha, they become slushy during rains, in low-lying areas these are impassable and water enters into the huts as well.

(e) Community facilities :-

To the absence of basic human needs, is added the utter lack of community facilities, such as, schools, medical aid, shops, parks and playgrounds, community centres etc. It is a common sight to see children playing in dirty drains and dung heaps, adoloscent youths wander about aimlessly, labile adults either gamble or gossip. Only women and girls are busy with their household chores. It is no wonder that bustis are a breeding ground for delinquency and crime.

(f) Obnoxious trades :

The existence of obnoxious trades and keeping of animals such as, milch cattle, tonga horses, donkeys and pigs, worsen the already bad and insanitary conditions. Pottery, dhobi ghat, tanning and lime kilns which are located in the midst of the busti huts emit both smoke and throw out foul-smelling efluents,

LOCATION AND DISTRIBUTION.

The following table gives the distribution of bustis, number of dwelling units, population, area and density in the different planning divisions of Delhi as well as for the whole of Delhi :-

See table on Next page.

There are no parts in Old and New Delhi where there are no bustis; but they are mostly concentrated in A, B and D planning divisions, in each of which the total number of dwelling units exceeds 10,000. These include such well-known and large-sized bustis as, Motia Khan Jhandewala, Qadam Sharif, Pusa Road, Bapa Nagar, Defence Colony, Chankyapuri etc.

Divisions E, F and G may be said to be almost free from bustis, because not only the total number of dwelling units, in each of them is less than 1000, but the average number ranges from 42 to 300. Division C has medium-sized bustis, except the large Jamna busti which has nearly 2000 dwellings.

The density of population per acre is greatest in A and B divisions, ranging from 421 to as high as 1634, while in C and D divisions, it is from 129 to 613; and considerably thins down in E and F divisions from 123 to 27. Decrease in density does not always connote less congestion, because in many bustis there are open patches of land such as graves, pits or drains, unfit for erecting sheds. Congestion in bustis is further revealed by the fact that about 60% of dwelling units are built on 45% of the total area under bustis and these units average more than a thousand per basti.

Location of bustis bears close relationship to places of concentrated employment such as mills, factories and small-scale workshops, mandis and shopping centres, or construction works of building, roads and bridges.

In A and B divisions where the greatest number of the largest bustis are situated, important major industries such as Delhi Cloth Mills, Britannia Biscuit Factory, saw mills, foundaries, tanneries, quarries, railway workshop, small-scale metal and electric industries, hosiery factories etc. are

situated. Also, in these divisions are the big wholesale and retail markets for cloth, grain, consumer goods, metal ware etc. Construction work is also in full swing along the Pusa Road and Patel Nagar, Thus, these two divisions A and B have very intensive industrial, commercial transportation and construction activities.

	DIVISION - A				DIVISION - B			
Range of Dwelling Units	No. of dwelling units	Population	Acres	Density	No. of dwelling units	Population	Acres	Density
25 - 200	873	4016	8.74	459	744	3422	12.32	278
201 - 400	839	3859	4.80	804	1207	5552	10.95	507
401 - 600	479	2203	1.58	1394	1000	4660	10.93	421
601 - 800	-	-	-	-	1240	5704	4.31	1323
801 - 1000	-	-	-	-	803	3694	4.52	817
1000 and more	12550	57730	128.98	448	12351	56815	34.77	1634
Total:	**14741**	**67808**	**144.10**	**471**	**17345**	**79787**	**77.80**	**1026**

	DIVISION - C				DIVISION - D			
	No. of dwelling units	Population	Acres	Density	No. of dwelling units	Population	Acres	Density
	624	2870	10.53	273	642	2953	19.62	151
	535	2461	6.22	396	2812	12935	21.20	610
	1460	6716	15.16	443	1616	7434	12.52	594
	2295	10557	38.22	276	1501	6905	10.67	471
	1700	7820	12.76	613	880	4048	15.95	254
	1988	9145	70.09	129	5834	28836	51.28	523
	8602	39569	153.98	257	13285	61111	131.24	466

	DIVISION - E				DIVISION - F			
	No. of dwelling units	Population	Acres	Density	No. of dwelling units	Population	Acres	Density
	227	10442	0.66	15822	213	980	8.70	113
	-	-	-	-	682	3137	25.59	123
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	227	**10442**	**0.66**	**15822**	**895**	**4117**	**34.29**	**120**

DIVISION - E				TOTAL						
No. of dwelling units	Population	Acres	Density	Percentage	No. of dwelling units	Percentage	Population	Percentage	Acres	Density
433	1992	73.54	27	6.8	3756	6.7	17277	21.0	134.11	129.00
306	1408	21.73	65	11.6	6381	11.4	29352	14.2	90.49	324.36
-	-	-	-	8.3	4555	8.2	21013	6.3	40.19	522.84
-	-	-	-	7.4	4036	9.0	23166	8.4	53.20	435.45
-	-	-	-	6.2	3385	6.1	15562	5.2	33.23	468.31
-	-	-	-	59.7	32729	58.6	150526	44.9	285.12	527.90
739	**3400**	**95.27**	**36**	**100.0**	**54842**	**100.0**	**256896**	**100.0**	**636.34**	**403.70**

In division C are located the Birla Cotton Mills, Ganesh Flour Mills, electric and metal industries, workshops wholesale vegetable and fruit market, quarries, and building works in the University campus, Model Town, Timarpur etc. In division D, industrial units are only few namely the Govt. Housing factory, potteries, motor repair shops etc. But construction work is going on in the new extensions such as, Defence Colony, Diplomatic Enclave, Ring Road, Friends Colony, Moti Bagh etc.

Division E under which is included Shahdara has a number of small-scale industries, potteries etc., besides construction of new colonies. In F and G divisions, where, bustis are few in number there are big industrial units like D.C.M. New mills, Chemical works and several factories in Najafgarh industrial area. But in most cases, employers have provided housing facilities in well-built quarters.

DESCRIPTION OF MAJOR BUSTIS:

Any report of bustis in Delhi will be incomplete without a detailed socio-economic and neighbourhood survey of important bustis, whose population exceeds 5000. The following fall under this category:

(a) Jhandewala, Motia Khan Qadam Sharif and New Link Road bustis situated in 'A' division;

(b) Bapa Nagar, Amrit Kaur Puri and Pusa Road bustis situated in 'B' division;

(c) Jamuna basti in 'C' division; and

(d) Hardinge Bridge, Defence Colony and Vinay Marg bustis in 'D' division.

BAPA NAGAR AND AMRIT KAUR PURI.

PHYSICAL FEATURES :

This busti is located at the end of Karol Bagh, W.E. Area, and the beginning of Anand, Parbat, with the Military Road as the dividing line. It occupies an area of 18.97 acres and has 4391 dwelling units with a gross density of 231 dwelling units per acre and a population of 20,198 with a gross density of 1065 persons per acre.

On its Western part, the busti is rocky and elevated while on the eastern side towards Karol Bagh, it is level. Inside there are several deep pits where rock was once quarried. The whole area is unplanned and very closely built. The internal lanes are narrow and zig zag and have recently been paved with bricks, and open drains have also been built. The land belongs to D.D.A, and was left undeveloped when Karol Bagh was formed. The Scheduled castes who were allotted plots in Regarhpura sold their houses to displaced persons and occupied this vacant and rocky land. In course of time other migrants from Rajasthan, U.P. and Punjab also came and built their unauthorised huts. Many displaced persons owning milch cattle and running dairies in Karol Bagh and other places also shifted to this busti. The huts are all cluster-built and kacha, though along the main boundary roads and internal lanes, pucca houses are being built,

PEOPLE.

Scheduled caste Harijans, Jatav, Khatik, Rehgars and Chamars form about 70% of the population and these people are mostly from Rajasthan, The remaining 30% are migrants from U.P., West Punjab and Sind, More than 65%, mostly Rajasthanis, are building workers, 15% are engaged in tanning and leather work; 10% are petty shop keepers, dairy owners, tailors, and sheet metal workers, and the remaining 10% are criminal tribes whose occupation is the brewing of illicit liquor. The different castes live in separate portions of the busti, with the brewers huddled in the safe hide-out of rocks and pits. The income level of two-thirds of the people Is below Rs. 100/- p.m. and of the remaining one-third between Rs. 100-200. About one-fifth work at home, including the brewers; about one-third who are hawkers and drivers have to move around; one-fourth have their places of work within two miles; and the rest above two miles.

Besides Panchayats of different scheduled caste communities, there is a well-organised people's committee to secure civic amenities from the Corporation and also -mobilize the busti dwellers to Improve their living conditions through house cleaning and sanitation drives. This Committee also settles quarrels and keeps peace in the locality. The building workers have their union to help with their labour problems, A Co-operative House Building Society of Harijans has acquired an adjacent piece of land and built the Ramesh- wari Nagar Colony, The houses have been given to the members on easy hire-purchase basis.

AMENITIES AND SERVICES:

After organised representation to the Corporation, both by the local organisations and outside social welfare agencies, lanes, drains and latrines have been built and street lights and water taps have been fixed, though they are not adequate. There are shops supplying provisions, vegetables, meat etc. as well as for tailoring, cycle repair, barbers and also quack doctors.

There is one Govt. Higher Secondary School and one

Municipal Primary School. The Gandhi Smarak Nidhi is also conducting a primary school for children and a handicraft centre for women. There are four Hindu temples and a Gurdwara.

PROPOSED DEVELOPMENT AND RELOCATION .

The area occupied by these busties has been earmarked in the Master Plan for schools, a college and a hospital, The facilities are badly needed by the congested and fully built up area of Karol Bagh, and hence the busti will have to be cleared.

From the nature of people living in the busti and their occupations, almost all of them, barring a few factory workers can be shifted to Sarai Rohilla, Ranjit Nagar and other relocation colonies which are being planned nearly, The dairy cattle owners, tanners, shoe makers and cane workers can be relocated in the proposed urban villages.

JAMUNA BASTI.

PHYSICAL FEATURES:

This is one of the largest, most congested and perhaps also the oldest busti in Delhi, It is situated on the banks of the Yamuna river along the Bela Road, now known as Ring Road, and on either side of the G.T. Road as it emerges from the road-cum-rail bridge across the river. The busti occupies an area of 71.08 acres and has more than 2000 dwelling units, with a population of about 10,000. The land is level and is subject to floods from the river during the monsoon. There are some internal streets and a number of zig-zag alleys. Huts are built in an unplanned manner but mostly on the row pattern facing the streets and lanes. The only drain is the Ganda Naia from Red Fort passing through the middle of the busti and discharging into the Yamuna. It is shocking to see people living in tiny hovels right on either side of the dirty Nala.

PEOPLE :

The busti owes its origin to the colony of beggars who built their huts and lived on aims from the people who come to baths in the river on auspicious occasions or to cremate the dead. Being near the walled city and on the Highway from Meerut and Ghaziabad, other in-migrants also found it a very convenient place to squat. After 1947, the displaced persons occupied every piece of vacant land. Thus, people from all parts of the country and of all occupations are found here, though the majority are from U.P., Rajasthan and Punjab. The scheduled castes for nearly half the population and the rest are high-caste Hindus and other communities like, Sikhs, chriatiane and Muslims. Two-thirds of the residents live in self owned huts while the remaining pay rent to the original hut owners who have shifted to other places in Delhi.

The occupational composition of the people is also varied. Unskilled manual workers, beldars, and hawkers from 40% shop –keepers 12% , skilled workers in factories and artisans like masons, carpenters, cobblers, barbers, tailors etc. form 20%; sweepers 8% clerks, teachers, peons and policemen 10%, tonga drivers and rickshaw pullars are 5% and beggars 5%. There are also some families keeping milch cattle and some rearing pigs.

On account of its size and location, this busti has attracted the attention of all political parties and social welfare organizations. The civic authorities, who were all along unwilling to provide even the minimum facilities lest the people refuse to shift, have of late given water taps, and lights and also built public latrines and drains. There are shops catering to the daily needs and a big vegetable market where the city people buy their requirements on their way home after a holy dip in the river.

PROPOSED DEVELOPMENT AND RELOCATION

The area occupied by this and other bustis between the National Highway(Bela Road) and the river Yamuna has been earmarked in the Master plan for river frontcremation ghat. It is further proposed to build double or triple-storeyed houses for the dwelling of those connected with the cremation and the bathing ghats, with shops on the ground floor on fire-wood depots etc. Hence, since been burnt to ashes) have to be shifted to the area across the river on the G.T. Road near the bund in shahdara. The owners of daries and those following rural occupations will be shifted to urban villages.

HARDINGE BRIDGE BUSTI.

LOCATION.

This is a very large, though not much congested busti in Delhi, situated between the railway line near Harding Bridge and the rain water drain. It occupies an area of 33.34 dwelling units per acre and a population of 5180, with gross density of 155 persons per acre.

PHYSICAL CHARACTERISTICS :

The land is level with a slight slops towards the drain. The busti began bout 10 years ago with hutments of building workers who were engaged in clearing the indraprastha Estate nearby and lying the National by pass as also the construction of buildings on Mathura Road and sundar Nagar. The

proximity to New Delhi and availability line are the main attracting causes for the growth of this busti.

The land belongs to the Northern Railways who have been constantly issuing eviction notices to the dwellers. However, on the intervention of social workers and organisation, the people have been allowed to continue till the corporation found alternate accommodation. The huts are all kacha, but many have fairly high walls and some have open space in front enclosed by fence. The open land between the huts and the railway line is used as the only main road and access to the interior of he busti and there is no regular street pattern, except some zig-zag lanes and alleys.

PEOPLE .

Seventy percent of the people are migrants from Rajasthan engaged in building trades; 20% are sweepers working in the corporation and also in the railways and remaining 10% are miscellaneous workers and petty shop keepers, with a sprinkling of those working in offices. Almost all the sweepers rear pigs making their dwellings and surroundings extremely dirty. Four or five households are keeping dairy cattle. The income level of the majority is below Rs. 100 p.m. only the shop-keepers, dairy owners and office-workers earn between Rs. 100 to Rs. 150 p.m.

Rajasthanis and sweepers have their separate caste panachayats and there is good relationship between the two sections. They have a common weekly Bhajan, meeting and satsang. Recently, however, some rivalry has been created by different groups of social workers working in the busti. The panchayats are, however, very strong and have agitated and secured civic amenities like water taps. They have also successfully warded off the eviction notices by the Railway authorities.

COMMUNITY FACILITIES AND SERVICES :

There are no public latrines for the whole of the busti, the drain and the Railway line being used for the purpose. After a good deal of agitation and representation through the panchayats and welfare organizations, the corporation has provided seven water taps, with the result that the surrounding areas are always slushy. There are no public lights for the whole of the busti.

The children's school which was originally run by the Delhi women League has been taken over by the corporation and is now located in tents at the entrance of the busti from Hardinge bridge. A social education centre for women has also been opened by the corporation, but very few women attend it. Even the corporation , but very few women attend it. Even the children school is not well-attended. Medical aid is provided by a group of young social workers headed by a qualified lady doctor.

There are about 15 food shops dealing in provisions, vegetables and sweet-meats. In the evening a vegetable market is held along he adjoining road by the cultivators from the neighbouring Indraprrastha Estate farms.

PROPOSED DEVELOPMENT AND RELOCATION:

Since the land belongs to the Railways, they have their own plans of redevelopment.

The sweepers living in the busti will be relocated in the sweepers colony to be built by the corporation. The Rajasthani construction workers will be shifted to the proposed building workers camp on Ring Road near Moti Bgah. Those keeping dairy cattle will be relocated to urban villages. The shop-keepers will be relocated along with the sweepers and building workers in their respective relocation colonies. As regards the remaining small percentage of offices and miscellaneous workers they will be relocated either in the Mata Sudari redevelopment area or in the colonies to be developed south of Govt. Housing Factory.

QADAM SHARIF.

LOCATION AND AREA:

The bustis in Qadam sharif are located both inside the Qadam sharif fort and outside in the grave yard land, in the open space near the slaughter house, and in nabi karim, occupying a total area of 10.9 acres, on which are 1700 dwelling units, giving a gross density of 156 dwelling units per acre and with a total population of 7820 persons per acre with a gross density of 71 persons per acre.

PHYSICAL CHARACTERISTICS :

Qadam Sharif is an old Fort built on elevated ground and surrounded by rampart walls, which in many places are showing signs of decay. Within the Fort is the old mosque and a number of ancient graves occupying a large area

Khokha and huts have been haphazardly built by displaced persons who have settled here after partition. There are no streets but only narrow lanes and foot paths winding up and down inside the Fort. In some places the corporation has built open drains along the lanes.

The bustis on the grave yard and slaughter house land and in Nebi karim are clusters of huts and khokha some large

and some small. There is no street pattern but only narrow lanes and blind alleys. The growth of the bustisis house have been there since long and are occupied by people engaged I the slaughter and disposal of animals. The grave yard area here there is the largest concentration of huts and khokha, came to be occupied only after partition, when the Muslim Trusters began allotting land on lease to migrants from U.P. and Rajasthan and also Displaced persons from west Pakistan. The Nabi karim area is an old busti inhabited by migrants from rural Delhi and nearby districts of U.P., who are mostly shoe makers. After partition Displaced persons have occupied evacuee land and houses in this area.

PEOPLE :

About one-fourth of the busti popukation are diplaced persons and the rest are scheduled caste migrants. As regards their occupation, about 30%are unskilled manual workers; 25% are skilled workers- carpenters, masons and black smiths; 10% are tonga and thela drivers and hand cart men; 5% each are potters, shoe makers, dairy owners, tailors and petty shop keepers. The income level of the majority of people is below Rs. 100, except in the case of skilled workers, dairy owners and shop-keepers who earn between Rs. 150-200 p.m.

The sweepers, shoe makers and potters have their separate caste Panchayats. The scheduled caste Jatav community has a well- knit panchayat helping their poor members and also giving scholarship to students. In some of the bustis displaced persons have their associations to secure allotment of land and houses. The busti dwellers in this area, being of a very mixed type and also scattered in different places, do not function as a closely knit unit, except those belonging to the same caste or place of origin.

COMMUNITY FACILITIES AND SERVICES:

These bustis are woefully lacking in facilities and services. There are no public latrines and people use open spaces, lanes and drains for defecation. In the pis near the grave yard busti, mounds of fifth collected from other areas are dumped. One flush latrine was constructed by Lok Kalyan Samiti but it became blocked and is unfit for use. In the slaughter house area there are ten latrines which are used both by the busti people and those living in nearby houses and katras. Water taps have been provided inside the Qadam sharif Fort near the built houses and these are used by the busti people also. In other places, people use public taps on the main roads.

In each busti there are petty shops dealing in provisions and vegetables but for general shopping, people go to sadar Bazar and Qutab Road shops which are not far off.

There is hardly any provision in the bustis for either schools or medical-aid. The Bharat sewak samaj has started a community centre in the grave yard area, with a children school, adult women class, youth recreation club and free medical aid. The Lok Kalyan Samiti is also running a children school, and medical centre in the other part of the grave yard. The Indian cooperative Union runs a welfare centre inside the Fort and a school is being conducted by the sanation Dharam sabha in the temple inside the Fort. There are, however, corporation and private schools of different grades-primary, Middle and Higher secondary, running double shifts, both for boys and girls, in Qutab Road and paharganj, which are accessible to school-going children from the bustis.

PROPOSED DEVELOPMENT AND RELOCATION:

From the occupational classification of the busti dwellers in this area, it is seen that 30% of people are engaged in rural occupations, such as pottery,milch cattle keeping shoe making, etc. and they can all be shifted to Rohtak Road near Nagloi Railway Station about 5% of the quarters to be built there. The Rajasthan manual workers engaged in building trades can be shifted to labour camps along Najafgarh Road. The thele drivers and hand-cart pullers working in Loha and Lakkar mandis to Najafgarh Road. The rest will have to be housed in the residential blocks which will be built in the areas cleared of Qadam sharif, including the slaughter house.

DEFENCE COLONY BUSTI.

LOCATION AND AREA:

This busti is located on the fringe of the Defense colony along the railway line and the nalla, beginning from seva Nagar at one old and terminating at the railway level crosiing near Lajpat Nagar. It occupies an area of 9.10 acres and has 2690 dwelling units, with a gross density of 296 dwellings units per acre and population of 12374 having a gross density of 1360 persons per acre.

PHYSICAL CHARACTERISTICS

This busti was formed about 30 years ago as a building workers colony when the Lodi Road colony was built. With the ever-growing construction activities in Lajpat Nagar and Defense colony, the busti also expanded. The land which is a long rectangular level piece belongs to Govt. The people have put up temporary wooden bridges to cross the drain to reach the road. Inside the busti there I no road pattern except a narrow lane running lengthwise, on either side of which huts have been built in row pattern.

PEOPLE.

85% of the people are Rajasthanis, engaged in building work, both and skilled and unskilled. Ten percent are sweepers who live in two separate clusters on either side of the busti and the remaining 5% are domestic workers and shop keepers. There are no displaced persons in this busti. The income level of the majority of people is below Rs.100 p.m. except the shop keepers who earn upto Rs.200.

The Rajasthanis and the sweepers have their respective caste panchayats for mutual help, setting disputes etc. The Delhi Construction workers, Union, which is a well-organised body registered under the Trade Union Act, has an active branch in the busti. The people here appear to be politically conscious.

COMMUNITY FACILITIES AND SERVICES :

The corporation has built a block of 24 latrines for women 12 for men, and these being quite insufficient people use the nala and open space along the Railway line. In this basti there are about 40 kacha wells, built by the people themselves and it is only recently that the corporation has given four water taps and a few street lights inside the colony. The corporation is running a primary school in a pucca building nearby and there is also a private primary school in the basti. There are about half a dozen provision shops and people generally got the nearby Seva Nagar market for their daily requirements. There is no medical-aid, either private or public.

PROPOSED DEVELOPMENT AND RELOCATION:

The building workers will be shifted to labour camps in south Delhi area near Govt. Housing Factory, while the sweepers and scavangers will be accommodated in the colonies to be built for them by the corporation. The shop-keepers will naturally shift with along the people to the above mentioned colonies. The small percentage of domestic workers will be located in the residential blocks which will be built in kilokri.

CHANKYA PURI BUSTI.

LOCATION, AREA AND POPULATION:

This is a large busti situated near Ashoka Hotel and along the Vinay Marg Road, on the extensive open land intended for the development of the Diplomatic colony. It occupies an area of 8.84 acres and has 2018 dwelling units with a gross density of 228 dwelling units per acre and a population of 9283, having a gross density of 1050 persons per acre.

PHYSICAL CHARACTERISTICS :

The land is almost level with a slight elevation along the rocky border at the back. This busti began as a building worker camp about ten years ago, when Vinay Marg, Diplomatic Enclave and Ashoka Hotel were being built. Later, people evicted from Tin Murti and other places, migrated here. The land belongs Govt. and the huts are mostly kacha mud built ones. There is hardly any lay-out except the fairly large open space between the main road and the busti.

PEOPLE :

The people are mostly migrants from Rajasthan and some from U.P. and neighbouring villages of Delhi. There are about 200 households of displaced Sikhs from west Pakistan. The Rajasthani building workers from 70% domestic servants and miscellaneous labour 15%, Sikh carpenters and masons 5%, and the rest are sweepers who live in a group by themselves.

COMMUNITY FACILITIES AND SERVICES;

The busti has not been provided with any civic amenties so far. Only recently five taps have been fixed, two along the main road and three inside, and also 16 dry latrins have been built, The people have all along been using the open space behind the rocks for defecation. There are no electric lights, except along the main road.

The Delhi Women League had started some six years ago a primary school and a women handicraft centre which have now been taken over by the corporation. The scheduled Caste Valmiki Association is conducting a Gandhi Harijan Vidyalaya which is a private primary school. There is an Old Hindu temple behind the busti and the Sikhs have built a Gurdwara. There is no medical-aid, private or public in the busti or nearby.

There are some 60 shops of which about 40 deal in provisions and vegetables and the rest are non-food like tailoring, cycle repair, barber and cloth shops. The vegetable shops in the busti situated on the main road attract customers from the opposite Vinay Marg officers quarters.

The scheduled caste sweepers have a well-knit panchayat rendering mutual assistance. The Rajasthanis have also their caste association. Otherwise the community does not function as a closely unit one.

PROPOSED DEVELOPMENT AND RELOCATION:

Being in the heart of Vinay Marg officers' flats and Diplomatic Enclave and opposite the posh Ashoka Hotel, this squalid busti is an eye sore. The building workers who predominate should be shifted to suitable place in the labour camp of Ring Road, near Moti Bagh and south Delhi, where

construction works are to be started. The relocation should be according to a lay-out plan which will be integrated into the neighbouring. The domestic workers who are employed in the Diplomatic Enclave, Ashoka Hotel and Vinay Marg flats should be provided housing in multi-stroyed tenements in the nearby residential area.

JHANDEWALA BUSTI.

LOCATION AREA AND POPULATION :

This is one of the oldest and biggest bustis in Delhi, spread over an area of 53.42 acres and having 2192 dwelling units, with a gross density of 44.d.us. per acre and a population of 10,083, having a gross density of 192 persons per acre. It is triangular in shape and is bounded by Jhansi-ki-Rani Road, original Road and Faiz Road, tapering at the junction of Faiz Road and Jhansi-ki-Rani Road near the Idgah circle. The busti is intersected by Jhandewala temple road and the Rohtak Road, dividing it into three distinct blocks- the pit colony, Jhandewala top, and triangular area.

PHYSICAL CHARACTERISTICS :

The entire busti is built on rocky land, which was used till about 15 years ago for quarrying stones for New Delhi buildings, with the result that deep and uneven ditches, pits and high mounds have formed all over all the place. Parts of the area has been filled with the city refuse and made into level ground.

The land belongs to Govt. and now vests with the D.D.A., which collects monthly ground from rent the dwellers. Beginning originally some 40 years ago as a quarry-workers colony with only a few huts, the busti has now become very big, because of its location near Motia khan industrial area and proximity to New Delhi. Huts and khokhas have been built in a very haphazard way, both in the pits and on the elevated ground and rooks. After partition a large number of displaced persons have settled in this area. The houses facing the Faiz Road are mostly pucca built, while the rest are huts and khokhas made of all kinds of materials. Dairies, tonga sheds and pottery kilns are found in the midst of living quarters. There si a pucca-built block of double-stroyed tenements for sweepers of the New Delhi Municipality. On the top portion of the busti, the Delhi Transport Undertaking has built a large Depot and workshop for their buses. Other public buildings re a water tank, P and T stores, and electric substation. The water main connecting to the tank runs through the busti. Barring the main boundary and intersecting roads, there is no street or road pattern inside the busti. All lanes are kacha, unplanned and zig-zag. A foot path runs alongside the water main.

PEOPLE:

The people in the busti are of varied types and have grouped themselves in different parts according to their place of origin or caste. The scheduled castes form about 75% of the population and they have migrated from Rajasthan, U.P. and Gujarat, while the remaining are upper caste Hindu and sikhh displaced persons, who live mostly on the top area facing the Faiz Road. The occupational classification of the dwellers is also varied. Manual workers and hawkers are nearly 30%; sweepers, shop keepers, skilled workmen and artisans like masons and carpenters from 10% in each category, potters, cobblers, dairy keepers and tonga drivers are 5% each, and the remaining 10% are businessmen, office personnel and domestic workers. The income level of unskilled labours and sweepers is generally upto Rs. 100 p.m. while the skilled workers and shop keepers earn between Rs. 100-200 and the earnings of dairy owners and petty contractors range from Rs. 200-300.

There are caste panchyats amongst the sweepers, potters, Rajasthanis and Gujeratis, while the displaced persons have their own also citations. These bodies help members of the community in need and distress and in settling mutual disputes. All these bodies have taken keen interest in securing civic amenities from the authorities, in protecting the people from eviction and in regulating the levy and collection of ground rent. In the pit area, where the Indian cooperative Union has established a multi-purpose community centre, a Mohalla Committee has been prganised bringing all sections of the people together to solve their mutual problems and to promote be improvement of the basti.

In the temple area, there is an organization of displaced persons from pashawar who are followers of Durgah pir Rattan Lal Beradari and they hold satsang and religious function which are attended also by people from other parts of Delhi.

COMMUNITY SERVICES AND FACILITIES :

The basti, though big and old and that too in the heart of the city and on the main roads, has remained completely neglected by the civic authorities and lacks in basic amenities. There are only 15 latrines and 22 water taps for the whole population of over 10,000. Defecation is very common in the pits and ditches making the already stagnant pools of water stink and breed worms, flies and mosquitoes.

There are no public lights inside the basti except in the pit

area where the Mohallla committee organized by the I.C.U. has fixed a dozen kerosene lamps, whose expenditure is met by people contribution. Only along the main roads there are electric lights. There are about 50 shops in different parts of the basti of which the majority vend food, in the temple area there is an old Sanskit pathshala teaching Sanskrit and Hindi. There are two primary schools, one run by the I.C.U. in their community centre in the pit area and the other by Kala Kendra in the Temple area. A large majority of the children, specially Harijans go with out any schooling. There is an Akhara in the temple, where young men learn wrestling and indigenous games. It is only at the I.C.U. centre that there is a will equipped dispensary with a trained doctor attending daily and giving free medicines. The centre which is located in a specially built shed also conducts an adult education and handicraft class for women, milk distribution for children reading room, radio listening etc. The only industry in the basti is pottery in which about 30 families are engaged. There are also small work-shop manufacturing furniture, repairing auto-parts etc. situated along the main Jhansi-ki-Rani Road and Faiz Road.

Jhandewala temple is the biggest religious institution attracting worshippers from all over Delhi on special occasions. Displaced persons in the top area have built a Hindu temple where kirtan and satsang are held and important festivals are celebrated. There is one Gurdwara built and maintained by displaced Sikhs. The Harijan sweepers have built a Valmiki temple.

PROPOSED DEVELOPMENT AND RELOCATION:

This busti has attracted two much public attention and the busti dwellers have long been agitating to be resettled in or near the same place. However, potters, dairy owners and others following rural occupation will be shifted to the proposed urban village. Sweepers and scavengers will go to the colonies when will be built for them by the corporation. Skilled and semi-skilled workers in factories and workshops in Motia khan will be accommodated in the multi-stroyed tenements which will be built in Qadamsharif and Motia khan blocks. The other miscellaneous people will be shifted to sarai-Rohilla new colony and Shadipur Extension.

NEW LINK ROAD BUSTI.

LOCATION, AREA AND POPULATION:

This is an intensely populated busti adjacent to the newly developed commercial area and facing the Faiz Road. The busti occupies an area of 10 acres and has 1114 dwelling units giving a gross density of 111 dwellings per acre and with a population of 5124 persons, giving a gross density of 512 persons per acre.

PHYSICAL CHARACTERISTICS:

The busti is built on the top of rocky land which the portion is left out after the New Commercial area was leveled and developed. There is no street plan except the Faiz Road which forms the frontage to the busti. The dwelling units along this road are pucca built,though they are all unauthorized construction. Behind this row of buildings are clusters of huts and khokhas, interspersed by chunks of dairies and tonga sheds.. The entrance to the busti is through lanes from the Faiz Road corner. There is a long ditch running length-wise dividing the busti into two distinct blocks and which is also the receptacle for all fifth and water from the houses and cattle-sheds, not to speak of its being used as an open latrine. The land is owned by the Delhi Development Authority, which collects damages from the people for unauthorized occupation.

PEOPLE:

People in the busti are all displaced persons from West Pakistan who come and settled here after partition in 1947. Three-fourths are upper caste Hindus and the rest are shiks. Excepting a few, who are unskilled workers and tonga drivers in the low income group shop-keepers, clerks, drivers and skilled workmen as well as about a dozen dairy owners earning between Rs. 150 and 300.

There are well-knit community organization for mutual help and protection of rights. The displaced persons have their association whose objective is to prevent them from eviction and to secure allotment of the existing land. There is also every active socoi- religious body, by name Berwa pragatishheel panchayat, whose members are mostly displaced persons living in different parts of Delhi. The panchayat holds special religious discourses and also render help to their needy members. There are five temples and three Gurdwaras where satsang, kirtan and religious festivals are organized. There are also meeting places for Caste and Molalla committee to discuss their common problems. In these and other ways there is great cohesion amongst the displaced dwellers in the busti.

COMMUNITY SERVICES AND FACILITIES :

The busti is completely devoid of any community services. There are neither latrines nor lights. After much agitation six public taps have been installed and that tonly on the main

Faiz Road. There are 200 shops, of which three-fourths are food shops dealing in provisions, milk, tae and snacks and the rest are cycle repairers, barbers, tailors etc., people go to Karol Bagh and Ajmal khan market which are nearby. There is a big private High school with nearly a thousand students who come from the busti and also from Karol Bagh. There is no medical aid, either private or public in the busti itself and people go to Karol Bagh.

PROPOSED REDEVELOPMENT AND RELOCATION:

It is proposed to reserve this area after clearance, as a district park for Karol Bagh. The displaced persons who have built more or less pucca houses along Faiz road and ho belong to the lower middle income group, will be collected plots of land or tenements in the south Patel Nagar-Shadipur Scheme beyond Pusa road. Sweepers and scavengers will go to corporation colonies. Dairy owners and others following rural occupations will go to urban villages.

MOTIA KHAN BUSTI.

LOCATION AREA AND POPULATION.

Motia khan is a large and undeveloped area, predominantly industrial and commercial, situated between Paharganj and Karol Bagh. It is bounded on the east by Mundewala Road on the south by Deshbandhu Gupta Road, on the west by Jhansi-ki-Rani Road and on the north by idgah Road. The bustis are spread all over and occupy an area of 11.44 acres with a total of 2091 dwelling units giving a gross density of 183 dwelling units and a population of 9619 persons, giving a gross density of 841 persons per acre.

PHYSICAL CHARACTERISTICS:

The land towards the north is elevated and rocky and consists of mounds and pits. On the rocky top is the Idgah and in the pits below are huts and khokhas as well as temporary structures housing a large number of kabar shops and small-scale workshops. The pits have been formed by the quarrying of rocks several years ago and later failed with the city refuse, so much so that the area is knownas Motia khan dump. There are two main inter-secting roads inside the area- the idgah road and Jhandewala temple Road- but there is no street pattern where huts and khokhas have been built in a very haphazard way.

The eastern portion of Motia khan along the Mundewala Road was laid out nearly 40 years ago as part of Paharganj extension-the Multani Dhanda residential block and the Lohar and Lakkar mandis, the iron and timber depots. After partition all the vacant land both developed and undeveloped, began to be occupied by bustis, timber depots and kabar shops all belonging to displaced persons. The land is owned by the Delhi Development Authority and damages are collected from the owners of temporary structures both residential and non- residential. The built up area of Multani Dhnda has a regular layout facing Mundewala road, but the streets and lanes are very narrow. Here the houses are pucca, single and double stroyed, but very old and dilapidated, exceptsome on the Mundewala Road.

PEOPLE :

The busti population consists of migrants, majority of whom are displaced persons, who are employed in the industry and in Kabar shops and Lohar and Lakkar mandis, Motia khan and Paharganj. There is a cluster of huts in the pits below Jhansi-ki-Rani Road, which is occupied by Rajasthan sweepers and Gujerati rag sellers, as well as beggars. Patters, chick-makers, pig rearers, dairy owners, tannery workers and dhobis also live in the busti. Most of the people belong to low income group earning Rs. 100 and below, while the shop keepers and small scale industrial workers earn between Rs 100 to Rs. 200 p.m.

More than half are employees, one-third are self-employed and very few are employers. About one-fourth work at home, for another one-fourth the place of work is within a mile, yet another one fourth, who are drivers and hawkers the distance is variable and the remaining one fourth go over a mile and even upto a miles for work.

The different castes and communities, such as, potters, chick-makers, dhobis, Gujerati rag sellers and sweepers have their own caste panchayats for mutual help and settlement of dispute. The displaced persons who are industrialists and shop keepers have their well organized associations for different trades, with a common Federation, whose object is to secure allotment of land and other facilities. Displaced persons living in the bustis have formed Housing Societies in the hope of getting land for permanent settlement, though nothing has materialized so far.

COMMUNITY SERVICES AND FACILITIES:

Except the main boundary and the two intersecting roads, internal streets have been laid out by the D.D.A. to demarcate the different blocks. There are no roads nor drains in the places occupied by the bustis. The water from busti dwellings and also the rain water collect in pits or overflow into the neighbouring blocks and streets.

The corporation has built 32 dry latrines at the back of the Mundewala Road, which are used by the busti people and also those living in Multani Dhanda houses. The maintenance of these latrines is far from satisfactory. In other places there is no provision for latrines and people use pits and drains for defecation. In some of the bustis displaced persons have built private latrines. Thus, there is utter lack of sanitary convenience and drainage in the whole of Motia khan area. Added to this is the presence of about 50 tanneries and a big Dhobi Ghat, the dirty water from whose pits and washings flow along the streets and drains. There being no proper system for the removal of garbage, all ditches and vacant plots are filled with rubbish and human and piggery filth.

There are no public water taps in the busti and people use taps which are on the main road. Public lights have been provided along the main and internal roads and in some places inside the bustis.

In the busti areas, there are shops dealing in general provision and tea stalls as well as cycle repairers, tailors and barbers. People generally go to nearby Paharganj and Sadar Bazaar for their shopping needs. These is no school in any of the bustis and some children go to the corporation primary and Middle school near Mundewala Road and to private schools in Paharganj. There is no provision for any medical aid either public or private and people go to the corporation dispensary or to private doctors in Paharganj.

PROPOSED REDEVELOPMENT AND RELOCATION:

This area is predominantly occupied by small-scale industries and work-shops as well as junk shops. It is therefore proposed to construct a Flatted Industrial Estate, Bus Terminal Station, Junk Depot etc. over here. The Loha and Lakkar Mandi will be shifted to Najafgarh Road. Thus, all those who are living in Motia khan basti will be accommodated in the residential blocks to be built here itself and in Qadam Sharfi, excepting those working in Lohar and Lakkar Mandis who ill go to Najafgarh Road or sarai Rohilla. The sweepers and scavengers will be shifted to the corporation colonies. Potters chick-makers, and leather workers and others following rural occupation will go to urban villages. Others will be relocated in Qadam sharif block.

VIII. WALLED CITY.

Shahajahanabad is the oldest part of the inhabited city of Delhi. Old Delhi which grew as a politico-economic centre has a history going far back into the ages. It was (and still is) a compact city, and by far, the greater number of people lived in this part, other parts being sparsely populated. It is said that the gates of the city walled city were closed at sun-set every day, and opened at sun-rise the next day. The holy Yamuna provided a line of defense on the eastern border. The city had a design expressive in character, a street pattern to take only a pedestrian flow, and a rudimentary sanitary system. All these were in accord with the demands of the time.

The same city has outlive its life and utility, which is reflected in physical deterioration, functional obsolescence and social and cultural stagnation. Its labyrinth of narrow streets and dark dwellings, filth and squalor, are in sharp contrast with the present day demands of a healthy living. Much as the walled city retains the essential urban functions of work, trade and recreation, decay through the ages has taken away its usefulness.

The walled city presents a social, economic and historical structure widely different from the other areas of old Delhi, which are, strictly speaking, spatial extensions of this intra-rural part of the city. Now this is an area stigmatized by overcrowding, poor housing, and lack of public amenities and poverty. Economically, the areas are in obvious decline. Though a major redevelopment of the walled city may appear justified from several points of view, it is not feasible at the present moment for a variety of reasons. Hence this separate section gives the socio-economic background of the walled city, and the factors which deter major physical changes. It outlines the best possible course of action for the walled city.

Physical description:

The walled city, a physically compact area of about 1200 acres, is bounded by the river Yamuna, the city well and a steel band of railways. It was built by shahjahan in 1648 to accommodate only 60,000 people. In 1951 the same area had 3.81 lakhs of people and the recent census (1961) has revealed that it has Crossed the high figure of 4.2 lakhs. The average gross residential density has risen from approximately 310 persons per acre in 1951 to 350 persons in 1961. There are several areas, where the gross residential densities areas high as 500 persons per acre.

The physical growth of the walled city does not have any organic pattern and visually gives an impression of a conglomeration of structures of varying shape, size and construction, crass-crossed by an irregular street pattern throughout. There is no orderly arrangement according to which structures for different uses could be segregated in different areas. Indiscriminate inter-mixture of uses is a common feature and there are no areas which may be called purely residential neighbourhoods.

Housing in general is old and obsolete, except for New Daryaganj and Kashmir Gate, where housing activity took place only after 1935. The walled city is also the hub of the commercial activities of Delhi. Consequently shops of all types and sizes are found spread all over the area. The ground floor of structures abutting the main roads is invariably flanked by shops, commercial units and industries. The accompanying map shows the land use pattern in the walled city.

Out of a total area of 1,240 acres, only 43.11 percent or 534.58 acres are under residential use. Roads and streets cover 25.14 per cent of 311.79 acres. Public and semi-public facilities cover 8.62 per cent or 106.91 acres. Commercial use covers 10.50 per cent, or 130.19 acres. The land use survey counted approximately 9,300 shops of all sizes in the walled city area, having a total frontage of 113,320 feet. Industrial use covers 3.91 per cent or 48.49 acres, out of which 21.10 acres are occupied by nuisance industries. The total number of industrial units (major use) is 1,190 in this area. Government use occupies less than one per cent or the total area. 5.20 per cent of the total area is under open spaces, giving only 0.17 acre for 1000 population.

Socio-economic conditions:

The age-six distribution in the walled city does not differ from the other three surveyed zones. The socio-economic survey shows that 15.9 per cent of the total population are in the age-group of 0-4 years, 36.4 per cent are in the age-group 5-19 years (this may be taken to indicate roughly the magnitude of the needs of educational facilities), and 40.5 per cent in the age-group 20-54 years. Only 7.9 per cent of the total populations are above the age of 55 years.

Males outnumber females in all age-groups, but the sex ratio which is 1:0.87 in the walled city is very much even, indicating settlement of population. The trend towards individualization of households is gaining momentum even in the walled city, which is an area generations. The percentage of joint households is declining steadily. And was only 36.4 per cent, at the time of enquiry.

Single-member households constitute only 12.8 per cent of the total. Approximately two-fifths only 12.8 total households have 2 to 5 members, and the remaining 44.9 per cent have 6 and more members. Only 8.5 per cent of the households have 10 and more members. The average size of a household which is 5.3 is comparatively high in the walled city zone.

Students constitute approximately 28 per cent of the total population (excluding 0-4 years age-group). A little more than 50 per cent of the total number of students was found to be studying in primary grades. The average distance of school from the residences is only 0.73 mile, but the distance is higher for higher standards. The distance is 3.47 miles for those studying in collages. Among the non-student population, 48.4 per cent are illiterate. Illiteracy is significantly marked amongst females, where it is 62.7 per cent.

Of the total population, 25.1 per cent are earners. Female earners constitute only 1.6 per cent of the total female population, while main earners constitute 48.4 per cent. It is significant to note that half of the total population is idle, who are neither students nor earning members. More than half of the total earners are employees, while the percentage of self-employed people is 35 per cent.

The occupational distribution of earners shows that 34.3 per cent of them are engaged in subordinate technical occupations, while roughly the same number are following sales and related occupations. In the walled city area, the percentage of such earners as engaged in ministerial jobs is much lower (12.1%) than in other zones. Professional technical and related occupations constitute 7.4 per cent of the earners, and the same percentages of earners are in subordinate services. Of the total earners 43,7 per cent are working in the distributive services sector, which really is the most important of all the sectors. The livelihood class for 22.2 per cent of total earners is services.

Investigations into the income distribution pattern show that 38 per cent of the total households have monthly incomes below Rs, 100 and 71.6 per cent below Rs. 200. This reveals lo levels of income of people residing in the walled city. Only 6 per cent of the households were having income above Rs. 500/-. The average monthly income of a households comes to about Rs.184, while it is Rs. 141 per earner. The average number of earners per households is 1.3 only. In several areas, the average monthly income per households is even less than Rs.150 the highest average monthly income of Rs.175.8 was in chandni chowk study unit. Only 11.2 per cent of the total households have other sources of income.

Details about the housing conditions were also collected during the socio-economic survey. It reveals a gloomy picture by showing that approximately two-thirds of the households have only one living room. The average number of persons per living room is 3.5 and the extent of over-crowding can well be imagined from these figures. In many areas, the average number of persons per living is room I even 4.3 the average number of living rooms ore house-hold is 1.47 A little more than 60 percent of households pay a monthly rent of less than Rs. 10. The level of rents is very low, revealing both the low

rent paying capacity of the tenants and the difficulties of the house owners who have no incentive to effect improvements to their houses. The accompanying map the shows the physical condition of structures in the walled city.

Attitude surveys which supplemented the socio-economic and housing surveys show that in spite of the fact that people live in dilapidated structures, they are not prepared to leave them and change their abode to better houses and better structures for various reasons.

The Conclusions are obvious and challenging. The environment in the walled city has been badly vitiated in many ways and no longer sustains a healthy life. Structurally and functionally, the walled city has outlived its life. Now this zone qualifies for redevelopment and rehabilitation. The roads and streets can no longer take the flow of immense traffic, mostly commercial in character, which is generated in this area. The variety of modes of transport often results in traffic bootblacks. The economic conditions of the people such that they cannot afford better habitation, even if it is made available to them. People live in extremely congested and overcrowded dwellings. Which lack not only fresh air and ventilitation, but also facilities which are a must for every family. Community facilities are sorely lacking. There are virtually no open spaces, except for Edward park, parade grounds and Gandhi grounds which serve only the adjacent areas. Water and sewerage connections are sorely deficient. All this calls for an earnest effort to deal with this rather out-moded part of the city, keeping in mind the deeply rooted human elements.

A study of several factors which are instrumental in identifying the areas into redevelopment, rehabilitation, and conservations, (made earlier in the chapter) shows that approximately 284 acres of the total area of the walled city, forming 25 per cent qualify for redevelopment. The study further show that approximately 443 acres is rehabilitation area, inhabited by almost a lakh and a half people. Both the operations if geared into action involve large scale displacement from the area, and also large scale redistribution of population within the area.

The problem is enormous, especially so, if viewed in context of the existing economic conditions of the people, and the general finical limitations in the economy. Realistically speaking, redevelopment and rehabilitation of areas on such a large scale I hardly feasible at the moment.

Considering the serious repercussions that may follow as a result of redevelopment operations, it has been decided to prepare a conservative physical programme for the walled city zone. The plan has four main ingredients.

SPACE STANDARDS:

(1) According to the proposed plan, lower space standards for community facilities will have to be adopted in the walled city, and other older parts of the city, in view of extreme difficulty of finding adequate land for these purpose. It has been discussed earlier in the chapter that the walled city zone has practically very little land under schools, open spaces, health centers, police and fire stations and the like. The provision of these is a long felt need in this zone, but obviously they cannot be provided as adequately as in newly developing areas. It has been considered to adopt the following space standards for these facilities.

Table No. I :

Space Standards for walled City and areas required

Description	Standard for 1st stage	Standard for ultimate stage	Total requirement in acres.
1	2	3	4
1. Higher Secondary School.	1 acre (One school for 15,000 pop.)	1.5 acres (per school)	27
2. Primary School.	0.5 acres per school (4 school for 15,000 pop.)	0.75 acres (per school)	54
3. Open spaces.	0.25 acres per 1000 pop.	0.30 acres for 1000 pop.	100
4. Health Centres	300 sq.yds. per 22,000 pop.	Same as for 1st stage.	1.1
5. Police Station.	1.5 acres fir 75,000 pop.	,,	8.0
6. Fire Station.	1.5 acres for 100,000 pop.	,,	6.0
		TOTAL :	196

The above table shows that roughly 200 acres is required in the walled city for providing the essential community facilities. The area under the above mentioned facilities except health centres is 96.42 acres presently, and the deficit of 99.58 acres has to be met.

(II) DENSITY PROPOSALS :

The walled city presents some of the highest densities in Delhi. The gross residential densities are estimated to be approximately 350 persons per acre. While the proposed density for this is 250 persons per acre. It has been proposed that the walled city be divided into 15 or more sectors (development zones), and tat where the population in any sector is more than 250 persons per acre, than the fallen houses or houses considered dangerous and proposed to be demolished by the corporation under the slum Areas (Improvement and Clearance) Act, 1956 for providing school sites, parks and open spaces, and other community facilities. Though it is a long drawn out process, this would help gradually in reducing densities and I providing space for the deficient community facilities.

(III) Non-conforming Uses :

Indiscriminate inter-mixture of uses is a characteristic phenomenon of the walled city. The House Tax assessment registers maintained by the Municipal Corporation of Delhi show that approximately 40 per cent of the total structures have a non-residential use. Several of these have a nuisance and obnoxious character. According to the proposals, such uses that do not conform to the land-use shown in the plan, will have to be shifted in gradual stages to the areas earmarked for them in the Master plan. In shifting such industries, it has to be seen that there is minimum amount of dislocation of production and the industries should not be put to undue hardships. In the time schedule, noxious industries must be the first to go from their present location.* A three year period may be stipulated within which they have to be shifted with additional time if the capital value exceeds some lakh rupees. Industries which are not noxious but are causing nuisance are given four years for shifting. Additional time upto 10 years depending on the production floor space per worker, number of people employed, and capital value of land, structures and machinery allowing for depreciation, will be allowed. Non-nuisance industries are given time varying from 6 to 20 years.

The land use survey shows that in the walled city zone, approximately 21.10 acres are occupied by nuisance industries. The and thus released in gradual stage could be set apart for the community facilities.

(IV) TRAFFIC PLAN :

The fourth major suggestion relates to the widening of roads and streets, and regulations of traffic by gradual elimination of such types of vehicles, which hinder a continuous and free flow of traffic. It has been mentioned earlier that traffic in the walled city is largely commercial, and the loading and unloading of the trade goods takes place on the main roads. Obviously, the existing roads, which are much too narrow, cannot accommodate the vast traffic, and the commercial transactions. A traffic flow plan and road and street pattern has been prepared to eliminate the traffic bootlicks. Undue demolition of structures, in order to widen the roads and streets has been avoided. The details of this plan are given in the chapter on traffic and Transpiration.

* *The time schedule is fully given in the Land Use Chapter: Zoning Regulations.*