

PLANNING AND THE URBAN POOR

THE CHANDIGARH EXPERIENCE

1

MADHU SARIN



— Le Corbusier, the French architect, has designed a new capital for the East Punjab (from PUNCH)

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THE CHANDIGARH EXPERIENCE 1951-1975

A Research Report with some reflections
on Policy, and Proposals

by

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GLOSSARY OF TERMS

Akhand path: continuous recital of the holy book of the Sikhs

Banya: professional trading caste

Bharpunja: a person who roasts corn, chickpeas, etc.

Bigha: provincial land measure (usually 1000 square yards but varies regionally)

Chowkidar: watchman

Chaat: popular savoury spicy snack

Chabriwalla: a hawker who carries his wares in baskets tied to a rod, the rod slung over the shoulder

Charpoy: traditional north Indian bed made of a timber or bamboo frame with woven choir covering

Chowk: crossing

Dhoti: traditional male dress

Granth Sahib: holy book of the Sikhs

Hakim: herbal practitioner

Jagrata: ceremony involving staying awake through the night.

Jhuggi: thatched mud hut

Khadi Gramodyog: handweaving and village industries

Karma: deeds

Kabadi: waste materials

Kabadiwalla: a person dealing in waste materials

Khokha: temporary stall

Kumhar: potter

Mali: gardener

Path: recital

Paan: beetle nut rolled in special green leaves

Pattri: pavement

Pattriwalla: a person selling from the pavement

Pucca: permanent

Rehri: four wheeled barrow

Rehriwalla: a person plying a 'rehri'

Sari: traditional Indian women's dress

Sardar: 'Sikh'

Serai: common inn

Tandoor: traditional earthen oven used for baking 'rotis', chicken, etc.

Tempo: a term denoting a three wheeled goods transport vehicle

Conversions

In the early 1950s £1.00 was equal to Rs.13.00

At present £1.00 = Rs.18.50 approximately.

CHAPTER 1

PLANNING PERSPECTIVES AND THE URBAN POOR

1. Urbanisation and Urban planning in Third World Cities

The rates of urban population growth in less developed countries have reached formidable heights. A recent survey for example showed that in 1950 roughly one in ten of the population of the less developed countries in the Commonwealth lived in urban areas as conventionally defined; by 1970 this proportion had risen to one in five. Given that in the same period there was a 50 per cent increase in the total population of these countries, the urban population trebled; in absolute numbers close to 80,000,000 people were added to urban settlements in two decades (1). This accelerated urban growth is accompanied by two additional characteristics. The first is the increasing role of rural-urban migration, and the second the increasing concentration of growth, and migration, in the larger cities and metropolitan areas. There is little evidence of any slackening of growth, even in the case of multi-million agglomerations.

Countries where growth rates of production, employment and incomes over the same period have only lately outstripped overall population increases simply do not possess either the formal resources or the organisational capacity to sustain large urban agglomerations containing ever larger groups of poor and unskilled migrants among their fast rising numbers. Further, where poverty is aggravated by gross inequality and maldistribution of resources and opportunities, the urban system fails to provide the basic network of services and opportunities to the vast majority of the urban poor or to stimulate new avenues of advance. The result is all too obvious in the levels of poverty and unemployment, the proliferating squatter areas, the inadequate and chaotic transport systems and the lack of any real provision for water and sewerage. This is accompanied by the increasing incapacities of urban authorities to prevent further deterioration. 'Unplanned' urban development is bypassing the conventional frameworks of urban planning and administration at an accelerating rate.

Yet careful consideration of lessons from recent experience indicates that the overall character, spatial distribution, and individual performance of cities undergoing rapid growth can be progressively directed and influenced by appropriate public policy and planning. This planning must however essentially incorporate an adjustment of the perception of planning problems based on an understanding of the complex process of socio-economic transformation that the societies of the less

developed countries are undergoing at present. If planned urban growth is to make a positive contribution towards achieving national development priorities, the objectives of planning policies and programmes must be clearly defined in these very terms.

1.2 Conceptual models for societies with extreme polarization

The experience of the past two decades has made it abundantly clear that even to begin to ask the question what form planning should take in cities of the less developed countries, it is essential to develop new conceptual models. The extreme social and economic polarization evident in third world cities has of late been recognised as necessitating a conceptual model different from that applicable to western cities, as an indispensable prerequisite to the formulation of relevant planning policies. Their inflated tertiary sector with its particular socio-economic characteristics, ignored until recently by both economists and planners as uneconomic, inefficient and marginal to the total economy and space, has been the subject of increasing attention. Debates and discussions have produced such terms as the 'formal' and 'informal', 'organised' and 'unorganised', or 'modern' and 'traditional', sectors of the urban economy.(2) All such discussions have tended to imply the existence of a 'duality' in the socio-economic structures of such urban societies. For example, one such conceptual model, attempting to come to grips with this economic, social and technological dualism (developed by Franklin) has been used by McGee in analysing the functional and ecological role of 'hawkers' in the socio-economic development of Hong Kong. According to McGee,

"Where Franklin's model differs from others is in his emphasis upon the two systems of production as sub-systems operating in an interlocking fashion within the urban structure and within the total economy of a country. As Santos has pointed out, these two systems of production are better described as 'circuits', a word which more effectively portrays the dynamic aspects of activity and flow within and between the sub-systems. In Santos' model the sub-systems are seen as part of the interlocking overall economic structure of the city. Santos further describes them as the 'upper' and 'lower' circuits of a city's economy. The economic activities of the upper circuit are banking, export trade, modern industry, modern services, wholesaling and some forms of transport (shipping and airlines). The lower circuit consists of non-capital intensive industry, services and trading. There are, of course, intermediate types of activity, but these do not invalidate his model of the two circuits."(3)

It is because of a continuing dualism in urban economies, a widening of social distances between the ruling elite and the new urban poor, constraints on newcomers coming to the city seeking work and shelter

and the financial and political weaknesses of conventional urban authorities that the fortunes of so many cities and of so many of their citizens have been blighted and ambivalent. The patterns of urbanisation and urban development with increasing accentuation of economic inequalities as have emerged since the middle of the century have largely been a result of the definition of developmental objectives in terms of economic growth alone. But economic growth involving the use of sophisticated technology and capital intensive techniques without a definite incorporation of the objectives of reducing inequalities has itself become a cause of the accentuation of the very problems of mass poverty and unemployment that it attempts to solve. If the patterns of urban development have to be altered to incorporate the over-riding objective of redistribution with growth, a wide range of planning assumptions and conventions will have to be fundamentally questioned and substantially altered in the near future.

1.3 Response of the Urban Poor

The history of the response of the urban poor in third world cities has been one of improvisation of employment, shelter and services more or less totally outside the existing formal frameworks of planning, administration and fiscal controls. The response of urban authorities towards them has been mostly one of hostility and the imposition of restrictions and controls. One component of this response, the improvisation of shelter by the urban poor, has been widely studied and documented by planning analysts like Charles Abrams and John Turner (4). They have attempted to focus attention on the positive aspects of 'popular housing' and 'squatter settlements', making a plea for developing new planning conceptions for cities in less developed countries. McGee has examined another component of this response by analysing the ecological role of hawkers in the socio-economic development of Hong Kong (3). However, the structural inter-relationships and dependence of various components and their implications for planning policies in third world cities remain to be examined in a comprehensive manner.

1.4 Basic Premises

From the above enquiries and analyses, a number of basic premises on which policies for planned urban growth in third world cities must be based may be deduced;

- i) Demographic and socio-economic evidence of the history and patterns of urbanisation in the less developed countries over the past decades suggests that the high rate of urban population growth is

likely to continue at least for some decades to come.

ii) Owing to the conditions of poverty and over-population in rural areas and the limited potential of increasing employment in agriculture in the future, cities are not only likely to continue receiving increasing numbers of rural migrants, but also a large proportion of them are likely to continue belonging to the poorest sections of the population displaced either from land or traditional occupations.

iii) The experience of the past decades has made it clear that without a deliberate policy to ensure an equitable distribution of the gains of development, the processes of development benefit the upper middle and richer sections of the population much more than they do the lower middle and the poorer sections, particularly in urban areas.

iv) Policies for planned urban development, therefore must incorporate positive efforts towards increasing all possible opportunities for the dislocated newcomers as well as the existing poor to gain access to employment and incomes adequate to meet their basic needs.

v) Within the existing social, economic and political frameworks of development, unless a combination of plans, programmes and policies aimed at maximising the role of cities in generating redistribution with growth are devised, the reality of urban population growth is likely to by-pass the urban administrative and planning institutions which are supposedly there to govern its actions and meet its needs.

1.5 Planned New Towns

While the circumstances of individual low income groups, slums and squatter settlements and recent immigrant communities have been repeatedly investigated, the impact of urban planning and Administration as practised in the less developed countries on the living conditions and income opportunities of the urban poor is only imperfectly understood. Attempting such a comprehensive study in an old or metropolitan city with the complexity of historical, cultural, social and economic factors at play would prove a monumental, if not impossible task. Their origins and histories of unplanned growth until recent times do not make older cities suitable for a study of the impact of planning intervention.

In the course of the past two or more decades during which rapid urban growth has been experienced by the underdeveloped countries, most have also attempted to plan completely new towns for specific purposes in chosen locations. Although displaying considerable diversity in their planning objectives and methodologies, the planned new towns in most of these countries represent the most determined planning

efforts of their respective governments in which the aims of planning as perceived by the responsible authorities have been put into practice. Many of these towns now represent at least one or two decades of the experience of planned urban development in these countries. From the point of view of examining the impact of planning intervention on the problems of poverty and unemployment in situations characterised by a scarcity of financial, technical and managerial resources, the new towns offer almost laboratory conditions.

This report attempts to examine the role and impact of planning on the conditions, problems and opportunities of the urban poor in one of the most famous of the new towns planned since the middle of this century: Chandigarh, planned as the new capital of East Punjab in India in 1951.

1.6 Elements of Analysis and Policy Making

To enable an objective analysis of the performance of an urban system from the point of view of its inhabitants, the following nine elements, individually and in relation to each other, are considered essential policy issues. These underly the structure of the description of the Chandigarh experience of planning forming the main body of the report.

- i) The Basic Economic Activities of the working population, conditions of employment and related income levels.
- ii) The range of Employment Opportunities and access of different sections of the population to them.
- iii) The systems for the provision of essential Consumer Services to different sections of the population and associated overheads accompanying them.
- iv) Systems for the provision of Shelter and its accessibility.
- v) Urban Form and its spatial characteristics, in terms of land use, buildings, densities, transportation and other infrastructure.
- vi) Access to the use of Urban Land, associated tenure status and the role of public authorities in the matter.
- vii) Access to Finance for maintenance and further development.
- viii) The structure of Public Administration and the processes associated with the formulation of planning and management policies.
- ix) The use of Planning Instruments for control.

1.7 The Indian Context

Although most of the observations made about the nature and scale of urban growth in underdeveloped countries in general are equally

applicable to India, before examining the particular importance of Chandigarh for urban planning in the country, the general Indian context is described in greater detail to highlight the significance of the findings.

The two crucial objectives of planned development of the country, as stated by the Government of India, are the "attainment of economic self-reliance and the removal of poverty". Further, it is conceded that "growth and reduction in inequality are both indispensable to a successful attack on mass poverty."(5)

The general context within which this is being attempted can be briefly summarised as that of a high rate of population growth in a situation of chronic poverty and unemployment and an acute scarcity of financial, technical and managerial resources.

1.8 The scale of poverty in India

At the beginning of the 1960s about 40 per cent of the rural and 50 per cent of the urban populations in India lived below the stated desirable minimum per capita consumer expenditure of Rs.15 (£1.15) and Rs.22.5 (£1.73) per month respectively. 42 million urban (about 54% of the urban population) and 135 million rural (38% of the rural population) people lived on diets inadequate even in respect of calories.(6)

The incidence of poverty in rural areas is predominantly confined to agricultural labour households and small cultivators, constituting approximately 25 per cent of rural households. In 1963-64, nearly three quarters of them worked as casual labourers and the remaining quarter as attached labourers. The two groups would also include village artisans progressively thrown out of their traditional employment.(7)

1.9 Economic Growth and Redistribution of Income during 1960-69

Between 1961 and 1969, the per capita consumer expenditure increased by less than half a percent per annum. Besides, the small gains of development did not get equitably distributed among all sections of the population. In rural areas, greater benefits were derived by the upper middle and richer sections. The condition of the lowest 20 per cent remained more or less stagnant, that of the poorest 5 per cent having actually worsened. The conditions of the lowest 20 per cent of the urban poor definitely deteriorated and for the next 20 per cent, they remained more or less stagnant. Thus, while the character of rural poverty remained more or less the same as before, that of urban poverty deepened further. According to Professor Dandekar,

"This is a consequence of the continuous migration of the rural poor into the urban areas in search of a livelihood, their failure to find adequate means to support themselves there and the resulting growth of roadside and slum life in the cities."(8)

1.10 Policy of Land Redistribution, Rural Poverty and Unemployment

With 80 per cent of the population dependent on agriculture, the distribution of land among rural households has been recognised as a crucial factor in promoting socio-economic development in the country. Since the beginning of the 1960s, ceilings on agricultural landholdings were introduced by most state governments with the intention of redistributing surplus land thus acquired among the landless. The objectives of this policy have remained far from achieved in 15 years.

However, even assuming a successful redistribution of agricultural land, its contribution towards the alleviation of rural poverty remains questionable. The per capita availability of land in India is less than in most other countries;* further, the land:man ratio has been declining because of the increasing population.

With the introduction of advanced technology in agriculture for increasing productivity, the demand for rural labour is likely to decrease as already witnessed in the pockets of the country where the 'Green Revolution' took place. Higher agricultural productivity to feed the growing population is likely to be the determining factor in future policies. As pointed out by Professor Dandekar,

"Undoubtedly, this will increase the number of landless and, though some of them will find more regular and better paid employment in agriculture, on balance, the employment in agriculture will decline... It is important to recognise that their number will grow rather than believe that they can be settled on land."(9)

1.11 Urban Population Growth and Urbanisation

Urbanisation in India needs to be viewed in the above context. From 1901 to 1971, the percentage of urban population increased from 10.9 to 19.9 and the last three decades witnessed a significant increase in the rate of growth of urban population. During 1961-71, although the proportion of urban to total population increased by only 2 per cent, the rate of growth of urban population was as high as 37.8 per cent.

*In 1961, the per capita land area in India was 1.8 acres as compared to 181.9 acres in Australia, 26.5 acres in the USSR, 12.8 acres in USA, 4.9 acres in China and 2.5 acres in Pakistan.

In sheer numbers, the urban population increased by 29 million in only 10 years.

The natural rate of growth of the total population during this period was 25 per cent. Thus, the net rate of urban growth due to migration was 12.8 per cent. Further, the brunt of this increase was received by class I cities (populations above 100,000) which registered much higher rates of growth. This was a continuation of a pattern of Indian urbanisation which has been in evidence since the beginning of the century. Whereas, in 1901, class I cities accounted for 23 per cent of the urban population, in 1971 as much as 52 per cent was residing in them. Between 1961-71, the number of class I cities increased from 113 to 142. Class II towns displayed only a marginal increase in the proportion of urban population living in them, towns belonging to urban classes III, IV, V and VI (as used by the Indian Census) having actually registered a decrease in the proportion. Thus, the process of urbanisation has essentially been one of cityward migration.

1.12 Migration

Analysis of Census data suggests that the 'net' migration evident through dicennial censuses does not give a true picture of the extent of mobility among the population. The 1961 Census revealed considerable mobility: about one third of the total population was enumerated outside their place of birth. According to Ashish Bose,

"We are led to the conclusion that there is a large 'turnover migration' in India. In other words, many people move from one area to another without being able to settle down. The mobility need not necessarily be voluntary. It is possible that persons from rural areas are 'pushed' to the urban areas but what is more significant is that, probably, many of them are pushed back from the urban areas or pushed out to other urban areas."

Bose also points out that:

"The implication of our analysis in terms of economic development is that urbanisation in the face of rapid population growth (both urban and rural) has built in obstacles in the form of a surplus labour force in the urban areas which has to be employed before there is any scope for a significant shift of population from the rural to the urban areas. This not only slows down the tempo of urbanisation, but also worsens the situation in rural areas. While the pressure on land goes on increasing, the channels of rural-urban migration are closed or narrowed down on account of the 'push-back' from urban areas."(10)

1.13 Indian Cities, Industrialisation and Employment

The modern city of the west is evidently a product of the economic forces released by the Industrial Revolution. It was manufacturing industry which provided the basis of the growth of urban settlements. The history of the origins and the present functioning of Indian cities is considerably different. Even during the 1951-61 decade, when intensive industrialisation programmes were undertaken, the number of employees in large-scale factories increased by one million only. As pointed out by Ashish Bose,

"It is doubtful whether, even after twenty years, industrialisation will be able to keep pace with urban growth.... We must face the fact that industrialisation cannot be the solution to the problem of surplus labour in India."(11)

The occupational structure of some of the largest Indian cities is revealing. According to a classification attempted by Ashok Mitra from 1961 data, only 49 out of a total of 113 cities could be classified as manufacturing centres, the proportion of non-agricultural workers engaged in industry being more than 50 per cent in the case of 12 cities only. At the same time, service and tertiary occupations represent large proportions of the work force. In 1961, mining and manufacturing claimed 10.75 per cent of the urban working population as against 20.12 per cent for service industries. (12) At the end of the last decade, the Planning Commission concluded that "The trends in the growth of employment in the organised sector during the past decade reveal that the rate of employment growth has been maximum in the tertiary sector of trade and commerce, transport, storage and communications, and services. This sector is expected to grow at a faster rate in the coming years."(13)

1.14 Indian New Towns

Since independence, a considerable number of planned new towns have been built in different parts of the country. These vary in planned populations of 10,000 to 500,000, and include refugee townships State Capitals, steel and fertilizer towns and other industrial towns. Although even the combined projected population of all the new towns indicates their relatively insignificant role in the overall process of urban growth, these towns are important in that they represent the first major efforts at comprehensive intervention by planning authorities in urban development. More significantly, owing to the present concern with the need for diverting the growth of existing metropolitan areas in consonance with the objectives of reducing regional imbalances,

more new towns are likely to be developed in the future.

The experience of new towns developed so far indicates extremely high per capita capital costs to the government, ranging from Rs.2,300 (£125) to Rs.4,400 (£240). In addition, the maintenance costs as a percentage of capital costs amounted to almost 11 per cent in one year in one of these towns. (14)

1.15 Chandigarh, its significance and objectives of the study

Chandigarh, planned as the administrative capital for the State of Punjab in 1951, is one of the largest and most significant of the new towns in India. Although, as in the case of most new towns, Chandigarh was planned more or less as a single purpose capital city, it was also intended to be developed as a cultural centre to replace the vacuum created by the loss of Lahore to Pakistan and provided for a relatively more diversified economic base with provision for a small amount of industrial development in the city.

From the point of view of this report, the greatest significance of Chandigarh in the context of urban development in India, with important implications for the future, lies in the fact that the physical planning and design criteria used in preparing the Master Plan of Chandigarh were largely instrumental in defining the roles of the professions of Town Planning and Architecture in Independent India, which have remained largely unquestioned till today. Further, it was seen as a model for wider application which has led to the definitions of the objectives of urban planning, and the associated planning instruments devised to implement them, used in Chandigarh becoming absorbed within the vocabulary of planning and architectural practice in the country. As the network of planning control spreads over larger areas, including older cities, many of the assumptions inherent in the planning methodology applied in Chandigarh are also finding wider application. The same planning thought has also been absorbed in the teaching curricula of most architectural and planning institutions in the country and forms part of the professional know-how of present as well as future young graduates.

Secondly, over 25 years of its life, in spite of rigorous development control enforced on a completely new site, approximately 15 per cent of the population of the city lives in residential settlements which have developed outside the visualised framework of the Master Plan. 54 per cent of the commercial and service enterprises also operate in 'non-plan' locations and forms. A considerable amount of land use in the city is contrary to that envisaged in the Master Plan.

For the above reasons, Chandigarh was selected for an in-depth case study, the findings of which form the content of this report. It is attempted to trace the growth and development of the city from the point when specific historical circumstances made its creation possible, the origins of the definition of the objectives of urban planning and form which found application in it, and the experience of implementation of the same in the context of Indian urbanisation and poverty summarised above. It is particularly concerned with the implications of such 'planning' from the point of view of the urban poor who represent the majority of the Indian urban population, their response to the limitations of the Master Plan from their point of view, and the contribution of such 'planned' urban development towards the overall objectives of the 'removal of poverty' and 'reduction in inequality'.

The study essentially attempted to follow an interdisciplinary approach taking physical, social, economic, as well as political factors into account. Although such a multi-faceted approach can produce criticism from the practitioners of each discipline, it was felt that the complexity of factors involved could not be elucidated from a single disciplinary point of view. In fact, single disciplinary approaches to certain developments appeared to be largely responsible for misunderstandings about their significance.

1.16 Organisation of the report

Chapters 2 to 7 of the report, on white paper, contain the findings specifically related to the study in Chandigarh. Chapter 2 traces the origins of the planning theory and ideas which found application in the Master Plan, the process by which the plan was prepared and the consideration given to the nine elements of policy making and analysis during plan formation.

Chapter 3 traces the development of Chandigarh over the past 25 years, the situation regarding the nine components individually and in relation to each other, and the origins of two major forms of 'non-plan' developments in the city: the growth of residential settlements and informal markets and service enterprises. The term 'non-plan' has been used to indicate developments which have emerged outside the visualised framework of the master plan.

Chapters 4 and 5 examine the findings of fieldwork on the informal commercial and service enterprises which have emerged in the city, their modes of operation and the significance of these enterprises from the point of view of both the persons employed in them and the contribution made by them to the functioning of the city.

Chapters 6 and 7 are concerned with the residential settlements which have emerged outside the master plan framework and examine the role of these settlements within the master plan framework from the point of view of the section of the population resident in them. The tables related to each chapter are located at the end of the chapter concerned on green pages to facilitate identification. Figures and diagrams are interspersed with the text and are on yellow pages. Photographs are placed as and where considered helpful in facilitating an understanding of colloquial terms, modes of operation and local conditions.

Chapter 8 contains the policy reflections and proposals based on the Chandigarh study for Chandigarh in particular, for Indian cities in general and for cities of the third world.

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CHAPTER 2

2. THE CHANDIGARH PLAN: CONCEPTUAL BASIS AND DETAILED PREPARATION

2.1 Introduction: why Chandigarh

The new town of Chandigarh, founded in 1951, was a product of the conditions of crises and disorder prevailing in North Western India immediately after partition in 1947. The state (province) of Punjab had been divided. Its eastern half which fell to India's share was left without a Capital. Lahore, the ancient and beloved city of the Punjabis, having gone to Pakistan, had left a great sense of loss amongst the hordes of uprooted and homeless refugees who fled Pakistan during the appalling hindu-muslim riots preceding Partition.

The seat of the government of new Punjab was temporarily shifted to Simla, previously the summer Capital of the British government in India. Simla, however, was considered unsuitable as a permanent location because of its severe winter, its expensive and difficult approach from the plains and the limited scope it offered for future growth. The urgency of a decision on the matter was accentuated by the need of providing a permanent resettlement nucleus for the vast number of refugees and to bring order in conditions of political instability and general chaos.

Two major options were available to the government; to locate the permanent Capital in one of the existing cities of Punjab, or, to build an entirely new town. The first possibility was wrought with its own problems. All existing Punjabi cities had already received a phenomenal influx of refugees and their infrastructures were burdened to near breaking point. Besides, strong political pressure groups had emerged in support of different cities making the selection of any one difficult without displeasing the others. It was also felt that the cost of adapting an old city, with all the problems that would have to be faced, might prove to be even greater than starting afresh. Above all, it was felt that building a new city could provide a splendid symbolic expression of the aspirations of the new Republic and become a focal point of hope in the midst of disorder and suffering.

Taking all these factors into account,

"in consultation with the Government of India, it was decided to build a new Capital to cater ultimately for a total population of 500,000 and to locate it at Chandigarh."(1)

2.2 Selection of the site

The site was selected literally by flying over various tracts of land to choose the most desirable location. The Chandigarh site was chosen to offer almost ideal conditions. Locationally, it was close to a road junction and a railway line offering easy possibilities of linking the new city with other parts of the country. Its not being in the immediate vicinity of any existing city was considered a great advantage with regard to its potential for future expansion. Topographically, it was almost flat but with a gentle slope ideal for drainage. Two seasonal rivers 'Sukhna cho' and 'Patiali Rao' form its natural boundaries on the east and west respectively. It was felt that these 'chos' and some of the smaller hill torrents running through the site could be dammed up and reclaimed for providing beautiful green parks. Situated at the feet of the Shivalik range, the permanent background of the Himalayas invested it with great scenic beauty. The land was fertile and abounding in a natural supply of underground water. The site was also close to sources of building materials like sand, cement and stone. The decision received the enthusiastic support of the then Prime Minister Pandit Nehru, who said on his first visit to Chandigarh,

"The site chosen is free from the existing encumbrances of old towns and old traditions. Let it be the first large expression of our creative genius flowering on our newly earned freedom."(2)

The mass dislocation of population caused by partition had left whatever demographic and socio-economic data that existed out of date and unusable. Therefore,

"Before a detailed scheme could be prepared for the construction of the Capital, it was felt necessary to ascertain the extent of public demand for plots at Chandigarh. With this idea in view, applications were invited from the public as far back as 1948. The response was overwhelming. Over 60,000 applications for plots of various sizes and kinds were received till the end of June 1951."(3)

2.3 Town planning in India

'Town planning' as a profession in the country was virtually non-existent at the time of Independence. Local government intervention in the physical growth of towns in India had originated from the same problem as it had in Britain: Public Health. Deteriorating environmental conditions in the growing urban centres had led to the appointment of

Royal Sanitary Commission by the British Parliament as early as 1859. A number of preventive measures were introduced as an extension of municipal functions, the emphasis remaining on the maintenance of essential services. Worsening conditions led to the creation of Improvement Trusts in a number of cities at the beginning of the century. Their limited administrative and financial powers restricted their activities to piecemeal efforts at urban development. In 1915 Patrick Geddes came to India for four years and prepared reports on 18 cities. Following his advocacy of the approach of 'conservative surgery', some states, particularly Bombay and Madras, enacted Town Planning Acts on the lines of the British Housing and Town Planning Act of 1909.

However, the progress in Town-Planning and Improvement remained sluggish. The impetus given to Industrialisation by the First World War led to the construction of a number of industrial new towns such as Jamshedpur. The latter was planned by Fred Temple, who was a British Sanitary Engineer. It was not till after the second world war, with the attainment of Independence on the horizon, that urban improvement and planning were given any serious thought. For the first time, an effort was made to view the problem from a national level.

Urban development projects undertaken by the British had largely been confined to the construction of separate residential 'colonies' outside several cities called 'cantonments' for their military staff, and 'civil Lines' for officials and businessmen. These were built on spacious layouts containing large 'bungalows' destined to become the haunts of the Indian elite after the departure of the British. In all cases, these had been designed and planned by British personnel. The most recent and largest British venture had been the building of the Imperial Capital at New Delhi, both planned and designed by Edwin Lutyens in 1912 in the Beaux Arts tradition.

Thus, at the outset, the picture from the point of view of the availability of technical Indian staff was dismal. Municipal bodies of most cities had posts for Chief Architects but their work was confined to drawing elevations for 'beautification' of building facades. According to Otto Koenigsberger, "nobody quite knew what to do with them". The J.J. School of Architecture was immersed in eclecticism. In 1948, when an Indian Board of Town Planners was constituted, it had only 8 members, most of whom were architects who had also taken on planning responsibilities.

The first major town planning efforts of the Government of Independent India consisted of the building of a large number of refugee

towns by the Ministry of Rehabilitation. Considering the scarcity of technically trained staff, they were planned and built on sound principles, as genuine rehabilitation centres.

During the course of the freedom movement, national leaders and intellectuals had been searching for an Art and Architecture which could serve as an expression of the attainment of Independent Nationhood. Many staunch nationalists favoured a search in the past. A number of prominent buildings were built in 'Mughal' styles. In the field of Town-Planning, some suggested using the 'Mansara Shilpa Shastras', one of the most ancient Indian treatises on town planning dating back to the 3rd Century A.D.

However, with possibilities open to choose any direction at that time, the choice was definitely in favour of moving forward and anything to do with 'tradition' was easily associated with backwardness. In spite of the nationalistic fervour and new energy manifest at the dawn of independence, on the auspicious occasion of building a new Capital, there existed no Indian tradition of planning which could be built upon. For these reasons, it was taken for granted that the planner for the new town must be sought from outside. The aspirations of the venture were crystallised in the words of Pandit Nehru, one of the staunchest supporters of the project who said:

"Let this be a new town unfettered by the traditions of the past,.... an expression of the nation's faith in the future."(4)

2.4 Punjab Government's Brief

The planning of the town was originally entrusted to Albert Mayer of Messrs. Mayer, Whitteley and Glass of New York. He had served as a Lieutenant Colonel in India during the second world war, was acquainted with Nehru and had gained a familiarity with India and its problems.

Late in December, 1949, the contract for the first master plan of Chandigarh was completed and the work begun. According to the specifications of the programme, the plan was to be prepared in detail for a population of 150,000 with indications of future expansion showing roads and land use. The plans to be furnished would include a master layout for the city showing the location of major roads, road sections and grade separations required and indicating areas for residence, business, industry, recreation and so on. Plans were to be made of special areas including a capital complex containing the provincial assembly, the governor's palace and high court, a main business area, a city government building area, and the residential neighbourhoods. Indications were to be

made of the locations of special buildings such as hospitals and museums, and sites were to be established for bus terminals, schools and local shopping centres. Landscaping would be indicated for typical parks, principal avenues, squares and parkways. Architectural control of the design would furnish plans and perspective sketches of several important avenues and squares or areas, including the capital area, main business area and railway station. A site for the university was also to be established. Connections were to be indicated between the city and the regional rail and highway routes. Indications were also required of areas to be placed under temporary or permanent prohibitions in respect of changing land usage of the area. Finally, sites were required for service industries and a reasonable area needed for such light and medium industries which might spring up with the growth of the town. The fee for the work was fixed at ₹30,000, ₹9,000 of which would be paid in rupees. (5)

The initial work on the plan was to be done in New York. To assist in the preparation of the master plan, the services of a number of specialists were engaged. These included a consultant on city economics and transportation, an expert on utilities, roads and site engineering, an adviser on landscaping and a climatologist. For working on problems of architectural design and control, a young Polish architect, Mathew Nowicki was invited to join the team.

2.5 Mayer's aims at Chandigarh

In may 1950, in an address given in Washington D.C., Mayer described his aims at Chandigarh. He felt that the basic purpose must be to create a sense of pride in the citizen, in the city, and in India. After the political and economic problems following partition of India,

"we are seeking symbols to restore pride and confidence.... We are trying not so much to express ourselves or to obtrude ourselves, but to develop the city as modern self-confident Indians would, if there were such a group. We cannot only do a more viable job, but a more Indian job than they could, because I think we can really enter into their spirit, Practically all forward looking Indians have been educated in and dazzled by the Western world, so that for a considerable time to come, they will be doing western work."(6)

The basic unit of his plan, 'super-block' or neighbourhood unit, was described as particularly suitable for India, where

"many city dwellers are still villagers and small community people at heart and fairly recently by origin."

While planning for traffic separation within and around the 'superblocks', Mayer experienced certain problems peculiar to the Indian situation - for, the mixtures of traffic found on Indian roads is unknown in Europe and America. As Mayer put it, it "demands a prognostication for which, I believe, no western example is applicable." (7) The plan ultimately developed provided accommodation for pedestrians, cyclists and animal drawn vehicles.

The question of whether or not Chandigarh would be able to grow to the projected population size seriously worried Mayer. In a letter to Maxwell Fry he wrote, "A big problem and question mark is whether this city will reach its initial figure of 150,000, let alone 500,000." He reasoned that Chandigarh had no compelling impetus for growth. It was neither a centre of natural resources or of a large purchasing area, nor was it at a natural and much used transportation crossroads or river confluence. The only sure factor would be the provincial capital function, and that Mayer felt, was "demonstrably not enough to make a city of the size contemplated." (8) In order to stimulate population growth, he felt that industry should be given immediate encouragement.

Essentially, the Mayer plan was based on humane ideals and sprang from an almost anti-urban aesthetic owing its origins to the Garden city movement started by Ebenezer Howard at the end of the 19th Century.

However, before construction in accordance with Mayer's plan could be started, Mathew Nowicki, the architect in charge of building design, was killed in a plane crash in August 1950.

2.6 Le Corbusier's appointment

Nowicki's death left the Punjab Government with a completed Master-Plan on the basis of which a detailed project estimate had been prepared. The latter included budget allocations for specific buildings and development costs, including thirteen types of houses for government employees in accordance with their salary scales. The two Indians in charge of the project were P.N. Thapar, a former member of the British Civil Service in India, and P.L. Varma, the Chief Engineer of Punjab. At the time of Independence, P.L. Varma was in the United States as head of an Indian mission studying road construction. In October 1947, he was asked by the Punjab government to investigate city planning in the United States owing to the anticipated construction of the new Capital. He had studied the project planned for United Nations headquarters on Lake Success which he later recalled as having proved a "valuable book of

reference." The determination of these two men has been widely recognised as being responsible for rescuing Chandigarh from the arena of vested interests and political controversy and bringing it to the stage of materialisation.

The problems experienced with the arrangement of having a planner based in New York in a consultant's capacity in the absence of a local technical organisation, led to a change in the terms of agreement with the second team. Barely a month after Nowicki's death, and taking with them the completed master-plan, Thapar and Varma set out for Europe. Their objective was to engage two good architects who were not tied down to a particular style and who would be willing to and capable of taking on overall responsibility of devising an architectural expression in harmony with local Indian conditions. One of the pre-requisites of signing a contract this time was that the two architects would have to reside in India for a minimum period of three years to help build up a local organisation and train Indian architects to take over responsibility for the project after the departure of the foreigners.

Le Corbusier's association with Chandigarh, was an outcome of this trip. When first approached in Paris, he told the Indians "Your capital can be constructed here. You can rely on us at 35 Rue de Sèvres to produce the solution to the problem."(9). However, he was completely unprepared to leave his practice in Paris for three years. Prolonged negotiations and practical arrangements resulted in Thapar and Varma returning to India with agreements signed with four architects, three of whom, Jane Drew, Maxwell Fry and Pierre Jeanneret, were to work full time on the project for three years. Le Corbusier was employed in an advisory capacity. Maxwell Fry and Pierre Jeanneret were to begin work almost immediately whereas Jane Drew was to join the team a few months later.

According to the contract signed between Le Corbusier and the Government of Punjab on the 19th of December 1950, Le Corbusier was appointed as "Architectural Adviser" to the government in connection with the new Capital Project. Under the agreement, he was required to render the following services:

- "a) Advise and actively assist in the determination of the general style of architecture to be adopted for the new capital town.
- b) Advise and actively assist in the preparation of the designs of the Principal buildings and, in this connection, even to furnish the sketch studies for some of them.

c) Advise and actively assist in the laying down of the architectural treatment and control of the prominent features of the new town, such as important roads, streets, squares, public gardens and water features.

d) Advise and actively assist in the work connected with the landscaping of public places in the new town and its surrounding areas.

e) Advise and actively assist in the development and detailing of the Master Plan.

f) Advise and assist in working out of a programme of work for the architectural branch."(10)

Further it was agreed that Le Corbusier "may continue to reside and work in France but shall visit India and stay at places nominated by Punjab Government for at least sixty days in every twelve months of the period of the contract."(11)

The payment for his services was to be in the form of an honorarium of two thousand pounds sterling per year. In addition, for every day of his stay in India, in connection with the Government's work, a daily allowance of thirty pounds was to be paid subject to a maximum of £4000 per year including the honorarium.

The signing of the contract included the acceptance of the Mayer Plan and the project budget as the working basis of the agreement.

2.7 Le Corbusier, Architecture and 'Urbanisme'

The association of Le Corbusier, one of the most prominent if controversial figures in the fields of urban planning and architecture of this century, with Chandigarh dramatically changed the course of the city's destiny. What might have happened if Mathew Nowicki had lived and Mayer's plan been followed can only remain a matter of speculation. What did take place can be better understood by tracing the development of Corbusier's thought in the first half of the twentieth century and the impact it had at the time of Chandigarh's creation.

Born in a Swiss watch maker's family in La Chaux de Fonds in the Jura region of Switzerland, Le Corbusier was largely a self taught man. Brought up by God-fearing and nature loving parents who had a formative influence in his childhood, his own life became a search for the principles of artistic creation and the role of an artist as an individual in society. He made significant contributions not only in the fields of Architecture and Town Planning, but also as a prolific writer, painter

and sculptor. He may safely be called one of the prophets of Modern Architecture and was responsible for completely liberating it from the bonds of tradition. One of his main preoccupations in life remained a synthesis of the Major Arts and in all his work, there is in evidence a search for fundamental principles applied with a unique sensibility and a rigorous passion for order.

Le Corbusier's interest in 'town planning' dated back to the second decade of this century. Western cities were in disarray. Planning practice was largely confined to a number of preventive controls. There was a lack of a sense of direction and 'town planning' was in a formative stage. It had been professionalised in Britain only in 1914. Owing to the felt need for it having originated in the deterioration of the physical environment, physical, especially design professions, were attempting to wrest it from the impasse.

It was in this context that Le Corbusier made a bold and dramatic appearance on the scene. In 1923, with the publication of his first book 'Vers Une Architecture', he created a sensation amongst architectural circles. In 1925, his first book on Town Planning was published under the title 'Urbanisme'. Seeking to define the principles of both Modern Architecture and Town Planning, he quickly took the lead of what has been referred to as an International Movement (although it was mainly confined to Western Europe and to some extent North America) which was to dominate Architectural and Town Planning thought up to the 1950s.

Le Corbusier's interest in town planning was a natural consequence of his involvement with architecture. During his wide travels in the early years of his life, he had found that

... "when an architecture was genuinely appropriate to its environment it gave a pleasing sensation of harmony and was profoundly moving. Only when this was so, and without recourse to the text books, did I feel the presence of one essential factor: Town Planning, a word I only learnt later." (12)

That with the onset of the industrial era, the whole basis of traditional society had undergone revolutionary changes, demanding radically different solutions particularly with regard to the City, became for him a central concern in life. He later recalled

"In 1922, I began to walk into a dream that I never left again: life in the modern city." (13)

In a manifesto accompanying the presentation of his first major planning project 'A Contemporary City of 3 Million Inhabitants' in Paris

in 1922, he attempted to focus attention on the changed circumstances in relation to the city:

"The great city is a recent event and dates back barely fifty years. The growth of every city has exceeded all provision. This growth has been a mad one, with disturbing possibilities. The industrial life and the commercial life which are adjusting themselves to it are new phenomenon on an overwhelming scale. Means of transport are the basis of all modern activity. The new phenomenon of the great city has arisen within the framework of the old city. The disproportion is such that an intense crisis has been brought about. This crisis is only at its beginning. It's a constant source of disorder..... The cities of today cannot respond to the demands of the life of today unless they are adapted to new conditions. The great city determines the life of a country. If the great city is stifled, the country goes under. In order to transform our cities we must discover the fundamental principles of modern town planning."(14)

In 'Urbanisme' he attempted to lay

"the foundations of modern town planning, based on four direct and concise requirements which are capable of meeting effectively the dangers which threaten us:

1. We must decongest the centres of cities in order to provide for the demands of traffic.
2. We must increase the density of the centres of cities in order to bring about the close contact demanded by business.
3. We must increase the means whereby traffic can circulate i.e. we must completely modify the present-day conception of the street, which has shown itself useless with regard to the new phenomenon of modern means of transport; tubes, motors, trams and airplanes.
4. We must increase the areas of green and open spaces; this is the only way to ensure the necessary degree of health and peace to enable men to meet the anxieties of work occasioned by the new speed at which business is carried on.

..... The technical apparatus and the organisation of this age are such as to offer a satisfactory solution; it is at this stage that the whole question becomes exciting, and that we can envisage the advent of a new age of grandeur and majesty."
(15)

During the 20s his projects displayed a complete acceptance of the large city and he felt deeply involved with the problems and appearance of Paris which he had directly experienced since 1917. His earliest proposal for a 'Contemporary City' was designed for a population of 3 million. It provided a new startling image of the city of high

density consisting of tall skyscrapers for both living and working, set in vast areas of parkland, with segregation of different speeds of traffic. It essentially attempted to re-organise the physical and spatial structure of the city to allow for greater efficiency, speed and the restitution of 'conditions of nature' in its midst:

Buildings covered only 12% of land area, the remaining 88% having been rescued for parks and circulation. It was almost like a poetic hymn to the machine age and provoked reactions of excitement and horror.

2.8 C.I.A.M. (Congrès Internationaux d'Architecture Moderne)

In 1927, Corbusier entered a competition for the Palais des Nations in Geneva. His scheme was set aside by the League of Nations in favour of what he termed the 'ancients'. The decision created a heated controversy in architectural circles. In Corbusier's own words,

"Aesthetic questions were not the only ones involved, The whole future was at stake. Architecture, which is the expression of the spirit of an epoch, delivered an ultimatum.

.....Such tensions created a spark. Spontaneously, a gathering took place at the chateau of La Sarraz, in Switzerland. Principles had to be formulated, a battle-front had to be chosen. So the 'International Congresses of Modern Architecture', (C.I.A.M.) were born in 1928."(16)

CIAM congresses soon became a rallying point of modern forces in the architectural world. For Le Corbusier, these provided up to the last congress in 1956, a powerful platform from which to air his ideas and to gather around him an international group of disciples and supporters.

The programme for the first congress attempted "to establish a general program of action aiming to wrest architecture from the academic impasse and to place it in its general economic and social setting."(17)

From the third congress onwards, CIAM tended to be more and more concerned with urban problems, although throughout, the emphasis rested on a synthesis of the major arts. From this point of view, architecture and town planning were considered as natural extensions of each other.

2.9 The Radiant City

By 1930, having refined his earlier projects, Le Corbusier produced the concept of 'The Radiant City', which, according to him,

"offered at one go an organism capable of housing the works of man in what is from now on a machine age society" and was defined as containing "the elements of a doctrine of urbanism to be used as the basis of our machine age civilisation".(18) It was first publicly exhibited at the Brussels CIAM congress of 1930. Here, the city of concentration (1000 persons per hectare) was set by him against the city of dispersal in order to avoid "waste of time, of energy, of money, of land." He termed the Garden City as a 'pre-machine age utopia' and took a bold stand for 'urbanisation rather than disurbanisation'. In his own words, "to urbanise the town and to urbanise the country" rather than to disurbanise both was the correct technical approach for the immediate future. While he denounced the American suburb as "the organised slavery of capitalist society"(19) as leading to isolated individualism and to the destruction of the collective spirit and, by virtue of an inherent increase in communication time, as being an actual attack upon human freedom, he also saw Soviet disurbanisation as being an uneconomic and inhuman technique of urban colonisation. For, he wrote,

"the USSR is also intent on dismantling its great cities, just as our own city authorities are all dreaming of sending us out into their fields (their garden cities) to scabble earth around a lot of hypothetical onions and to live out Jean Jacques' eighteenth century fantasies (without the wit)".(20)

Perhaps owing to the kind of problems experienced by large concentrations of population in cities during the depression, the 'Radiant City' reduced the optimum population of the city to one million. As in the case of the 'Contemporary City of 3 Million Inhabitants', this size was arrived at by intuitive judgement.

The socio-political structure within which the 'Radiant City' was set had as its ideal absolute respect for the individual subject only to the sanctions of universal, social and cosmic law and to the dictates of a plan collectively conceived and administered. The three main decisions set out as indispensable pre-conditions to the establishment of a planned economy as they appear in the text are:

- "1: To undertake a wholesale reorganisation of land tenure in the country as a whole and in the cities in particular."

He adds:

"The lawyers say that this means calling all the beliefs by which we live into question. I have expressed myself more clearly still; requisitioning of land for public good."

2. To take an inventory of our cities populations: differentiation, classification, reassignment, transplantation, intervention, etc."
3. To establish a plan for producing permissible goods; to forbid with stoic firmness all useless products. To employ the forces liberated by these means in the rebuilding of the city and the whole country."(21)

Le Corbusier was well aware that this represented a simplistic view of the inherent economic structure of modern industrial society and its decision making processes, for in his address to the Brussels CIAM congress he said:

"Let's not go into politics and sociology here.....We are not competent to discuss these intricate questionsI repeat: here we should make known.....the possibilities afforded by modern techniques and the need for a new kind of architecture and planning"

and later on,

"Hope in the present erarestitution of freedom which has been lostModern society is better prepared than its predecessor for collective disciplines. Disciplines which are beneficial so long as they tend towards individual freedom."(22)

2.10 The Charter of Athens

The 1933 CIAM congress in Athens formulated a treatise on town planning in the form of the 'Charter of Athens' which became a work of reference for CIAM members while dealing with urban problems. Its most significant aspect was the formal definition of four basic functions of the city as Living, Working, Recreation and Communication (these had originally been categorised by Patrick Geddes) and establishing that

"Planning determines the co-ordination of these four basic functions and determines their place in the master plan."(23)

It proclaimed that the materials of urbanism are Sun, Space and Greenery and that "conditions of nature", forgotten, abandoned and lost, should be reintroduced into urban life. Besides, the charter deplored the chaotic picture presented by most towns, dominated by private interests since the beginning of the machine age. It asserted the central importance of the 'home' in an individual's life and demanded large scale administrative and land reforms for controlling urban development and planning. In the epilogue, it clarified:

"The individual right has nothing to do with the mean interest which benefits a minority and condemns the remaining social masses to a mediocre life.

Therefore private interests require severe restriction. They must remain subordinate to collective interests. Each single person should be in a position to take part in the joys of life.

Comfort of the house = Beauty of the town"(24)

The Charter of Athens, along with other ideas emerging from subsequent CIAM congresses was responsible for a general acceptance of land-use planning and in many countries for the adoption of planning legislation including legislation for land reforms.

The outbreak of the war interrupted CIAM congresses for ten years. In 1947, the 6th congress was held at Bridgewater in England. For the first time the discussion included the relationship between architecture and aesthetics. Two attitudes emerged: the British Mars group took as its criteria the point of view of the 'man in the street' whereas Hans Arp and Sigfreid Giedion put the accent on the problem of collaboration between architects, painters and sculptors. The aims of CIAM were redefined as:

"To work for the creation of a physical environment that will satisfy man's emotional and material needs and stimulate his spiritual growth."(25)

The last three congresses concentrated more on the humane aspects of urbanism, first on the management of urban centres and then on the problem of the habitat. In 1956, the old members of CIAM retired en bloc passing on the responsibility to the younger generation.

2.11 'The Three Human Establishments'

During the war years, Le Corbusier produced the concept of 'The Three Human Establishments' with the French group l'ASCORAL (Assemblée de Constructeurs pour une Revolution Architecturale). It was basically an extension of the physical ordering of the spatial structure within cities to a larger system of land occupation which proposed different forms and functions for different types of cities and relationships between them. Accordingly, the three human establishments of the 'machinist' civilisation were classified as:

1. The unity of agricultural exploitation.
2. The linear industrial city.
3. The radio-concentric city of exchange (see figures 2.1 and 2.2)

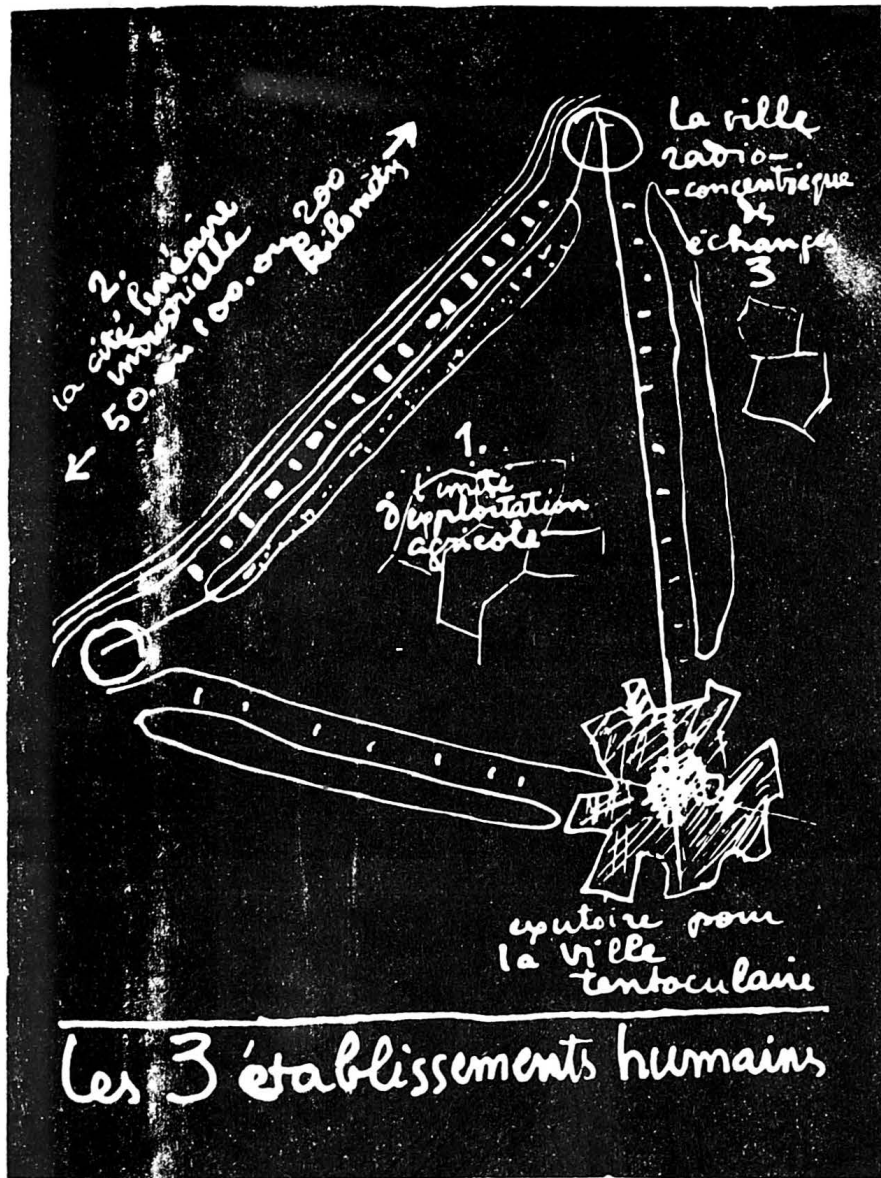
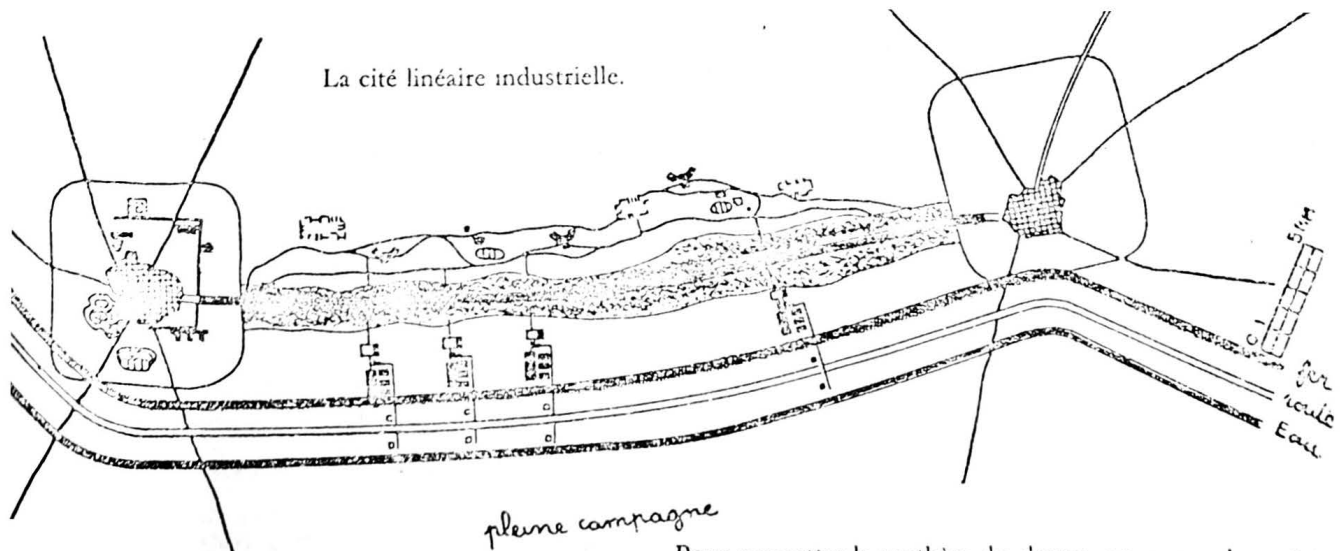


Figure 2.1 The Three Human Establishments (above)

Figure 2.2 The Linear Industrial City (below)



Pour permettre la synthèse du dessin, on a, ici, dessiné à trois échelles différentes, la cité industrielle, la ville radiale-concentrique, le dispositif des trois routes.

In the midst of rural areas of agricultural production, linear industrial cities along major routes of communication were to be located. According to Le Corbusier this implied "the co-ordinated redistribution of industrial establishments of proper size" and allowed "residence in proximity of work, dwelling and work henceforth being installed in 'conditions of nature'". It maintained "contact with the cultural exchange centres that have always been installed at road crossings".

The city of exchanges, according to the system is of radio concentric nature.

"Here, are merchants who distribute goods. Here transactions are made. Here are the large schools and universities. Here, authority has been established when necessary. Place of concentration and diffusion; place of exchange, place of distribution."(26)

According to this system, Chandigarh was to become classified as a Radio-concentric City of Exchanges.

Over the length of this period, besides being an active participant of CIAM publicising his own ideas and providing a basis for the Modern Movement, Le Corbusier had been demonstrating the application of his doctrine through planning proposals, largely based on redevelopment, for several major cities of the world. Not a single proposal, despite some promising opportunities after the second world war had reached the stage of materialisation. In fact, besides Chandigarh, it was only in Brasilia, the new Capital city of another underdeveloped country, that the basic principles of Le Corbusier's doctrine were uncompromisingly applied.

All his proposals and the principles underlying them were put across in a large number of books. These were supplemented by the 'Complete Works of Le Corbusier', a series of five yearly publications which described all his projects, realised as well as unrealised, giving the background to each, and where applicable, why they had not materialised. By these means, Le Corbusier was successful in keeping a vast propaganda machine mobilised to keep the world informed of his latest ideas, proposals and their fate in reality.

His prolific creations in the planning field, with their almost complete lack of success in finding materialisation, combined with his complete confidence in the rationale of his philosophy made him see himself more and more in the role of the persecuted prophet. He projected this image in much of his writing with a unique combination of wit and irony.

It was against this background, in late 1950, that Corbusier was approached by Thapar and Varma to work on Chandigarh. His response, with all previous failures, was a combination of disbelief in the likelihood of the project materialising, and, because of his inveterate optimism, of excitement and hope.

2.12 Summary: Le Corbusier and his urban doctrine

To summarise, owing to the 'brutal rupture' which had 'wrenched the social life of the West from its traditional framework,' Le Corbusier's search was for a new philosophy of life in harmony with the 'machinist' era which he viewed with supreme optimism. His call was for a bold expression, through urbanism, of society's confidence in the future. For him, city planning, besides being a science, was the noblest of the Arts and in his own words, it was the "expression of the activity of an epoch". As an individual, he had an abhorrence for the crude materialism by which he found himself surrounded. Faced with the conflict between individual freedom and collective interests, particularly in the field of aesthetics, he displayed a firm belief in an 'elitist meritocracy' of artists and technicians, which he felt should be put in charge of protecting the community from the 'mean private interests'. All the same, in spite of his strong advocacy for the responsibility of planning being entrusted to 'experts' with their 'strict scientific analysis', his personal work remained dominated by an intuitive method.

This intuition gave him such confidence in the validity of his planning system that he was able to rebuff criticisms with ease, indeed contempt, and was constantly surprised and impatient when it failed to convince people. Because of the arrogance resulting from this confidence, he was known to be a difficult person to work with. When first asked his opinion about introducing Le Corbusier to the Chandigarh team, Maxwell Fry had replied to Thapar, "Honour and glory to you, and an unpredictable amount of misery for us".(27)

Le Corbusier's urban doctrine consisted of a number of 'certainties' derived from observation which he considered as 'absolutes' independent of context. But this doctrine itself emerged from a particular context - that of the disorganised city of the industrialised countries, growing only by accretion, and subject to no public control within free market economies based on unrestrained private enterprise. These countries were among the wealthiest in the world and could look forward to an increasing level of affluence. But, industrial development had fundamentally dislocated their social structure and, by advocating uncompromising controls over the physical environment, Le Corbusier sought to rectify the distortions brought about by the new socio-economic order.

His concern with visual expression, and his belief that his inspiration was underpinned by the laws of nature, made him confident that control of the physical environment was a major, if not the major, factor in the creation of an ideal society. In the 'Three Human Establishments' he seemed to take the final step in isolating the physical environment as the key determinant of human happiness, leading almost to a kind of 'environmental determinism'.

Nonetheless, up to the early 1950s when Chandigarh was planned, Le Corbusier's doctrine and the 'Charter of Athens' embodied the latest ideas in planning. Since then, the experience gained through the practice of such planning has demonstrated the inadequacy of ideas based on purely physical design and aesthetic considerations, even in the industrialised countries - leading to the evolution of comprehensive planning. The consequences of the application of these ideas in the case of the less developed countries, attempting industrialisation under conditions historically quite different from those prevailing in the West, have remained less understood.

2.13 Le Corbusier's views about his role in Chandigarh

When the possibility of working on Chandigarh first arose, the prospects were exciting for Le Corbusier in several ways. Firstly, it was to be a Government Capital in a country whose civilisation had been attractive to many people for different reasons. While preparing for Thapar and Varma's arrival, he noted:

"It is the hour that I have been waiting for: India that humane and profound civilisation. To construct a capital:

Urbanism is the activity of a society.

A capital is the spirit of a nation.

A set of tools, its a conjuncture.

Le Corbusier is an optimist, His name is not mentioned but in 20 years of urbanism, Le Corbusier is in all the projects."(28)

His supreme confidence in his planning abilities has been referred to earlier. While negotiations about the details of his agreement were under way, he made his views about his capabilities explicit to the Indian Government. In a letter addressed to an official in the Indian embassy in Paris he wrote:

- "1. I consider myself the only person at the moment, prepared by 40 years of experience and study on this subject, capable of usefully helping your government. I greatly insist on this information given without modesty.
2. In my participation in this project, I place the pursuit/desire of my career through a work of harmony, of wisdom, of humanity in precise opposition to the chaos generally manifest in urbanism which is only the expression of the chaos reigning in the minds of people on this subject.

The raison d'être of my life is expressed by one word: harmony and this resembles beauty 'first above all', order, serenity, effectiveness, economy: in one word wisdom. This wisdom is, alas, a fruit slow in reaching maturity; it is positive if the heart remains young, failing which, it is only a brake."(29)

As described in 2.6, one of the functions of the Architectural Adviser, and the three other foreign architects, as required by the Indian Government, was to assist in training young Indian architects who could take charge after the former's departure. The role of guide or teacher was particularly to Le Corbusier's liking; he wrote:

"The Indian youth must take a fundamental part in the enterprise, it is they who will be realising it in the course of the years; but I shall have been able to provide them with a useful springboard to jump from."(30)

and again,

"The young Hindus whom you will gather together from various universities of the old or the new continent, need a basic point of view from the outset, in a way they need a friendly shepherd: they are young, consequently they have to grow, to be nourished, to be completed, to find their direction: you can arouse enthusiasm in them: everything lies there. If you do not succeed in this, your enterprise is lost."(31)

However, Le Corbusier had seen himself not only as the 'berger amical' of the young Indians, but also as the spiritual director of the whole enterprise including the other foreign architects of the team. In another document he had outlined his ideas on the organisational structure

of the team as follows:

"I have qualified this theoretical conception and in practice I have proposed:

1. To assume spiritual and technical direction of the enterprise so as to give it unity.
2. I shall nominate two architects of our spirit, capable and devoted and sufficiently experienced who would fulfil the functions outlined below.
3. 3 Hindu architects would be permanently attached to our atelier on the rue de Sèvres to carry out in turn studies as the work proceeds in order to give them an education of the university type, which remains in full contact with the Hindu civilisation."

and again:

"The role of M. Le Corbusier will be that of co-ordinator and consultant.... This contract will be bound to that of the two foreign architects who will be under the control of M. Le Corbusier. He will give them orders of a technical and aesthetic nature."(31)

The role of almost prophet that Le Corbusier saw himself in is best illustrated by the diagram which was attached to the document quoted from above (figure 2.3). He saw himself as the sole supplier of ideas for a city of 500,000 inhabitants.

One of the most significant aspects of working on Chandigarh for the foreign members of the team (all of whom were active participants of CIAM) was, that it was going to offer the first real opportunity of applying the thinking on urbanism and architecture developed at the congresses. Soon after appointments of all the architects had been finalised, Le Corbusier wrote to Jane Drew and Maxwell Fry in December 1950:

"After 22 years of CIAM action the moment to be heard has arrived, to realise a magnificent work through a productive reassembling of talents and efforts."

and after proposing an organisational structure within which to work:

"Dear friends Jane Drew and Maxwell Fry, the problem is magnificent. At this moment in the evolution of modern civilisation, India represents a quality of spirit particularly attractive. Our task is to discover the urbanism and architecture to be passed through the sieve of this powerful and profound civilisation and the endowment of favourable modern tools to find it a place in the present time. It is a task of thinkers and technicians....."

"It is a grand victory for CIAM, it is also an occasion to prove that the CIAM congresses are capable of real action. One without the others, isolated, nothing can be done. Grouped, all is possible."(32)

With regard to preparation for the particular Indian conditions to be designed for, Le Corbusier visualised the

"creation of a plans office on the site where the objective is to establish topographic conditions and necessary preparatory statistics for the formulation of the problem and its comprehension."(33)

According to the programme of work envisaged by him he wrote:

"M. Le Corbusier can leave for Punjab immediately. He is sufficiently well informed about the Hindu civilisation, its art, its architecture."

and clarifying on the nature of services he could render, he said he

"offered a part of his experience in these sort of matters (habitations, offices, urbanisation of cities, parks and streets, etc....) the benefit of his recent inventions which bring a unity of measure as well as a unity of scale in construction, thus assuring a figure of indestructible beauty.

He brings the 'Modulor', the harmonious measure on a human scale universally applicable in architecture and mechanics.

He will also be able to bring the benefit of the 'CIAM GRILLE', which since 1947 has permitted the bringing of considerable means to urban plans."(34)

And as to where the work was to begin:

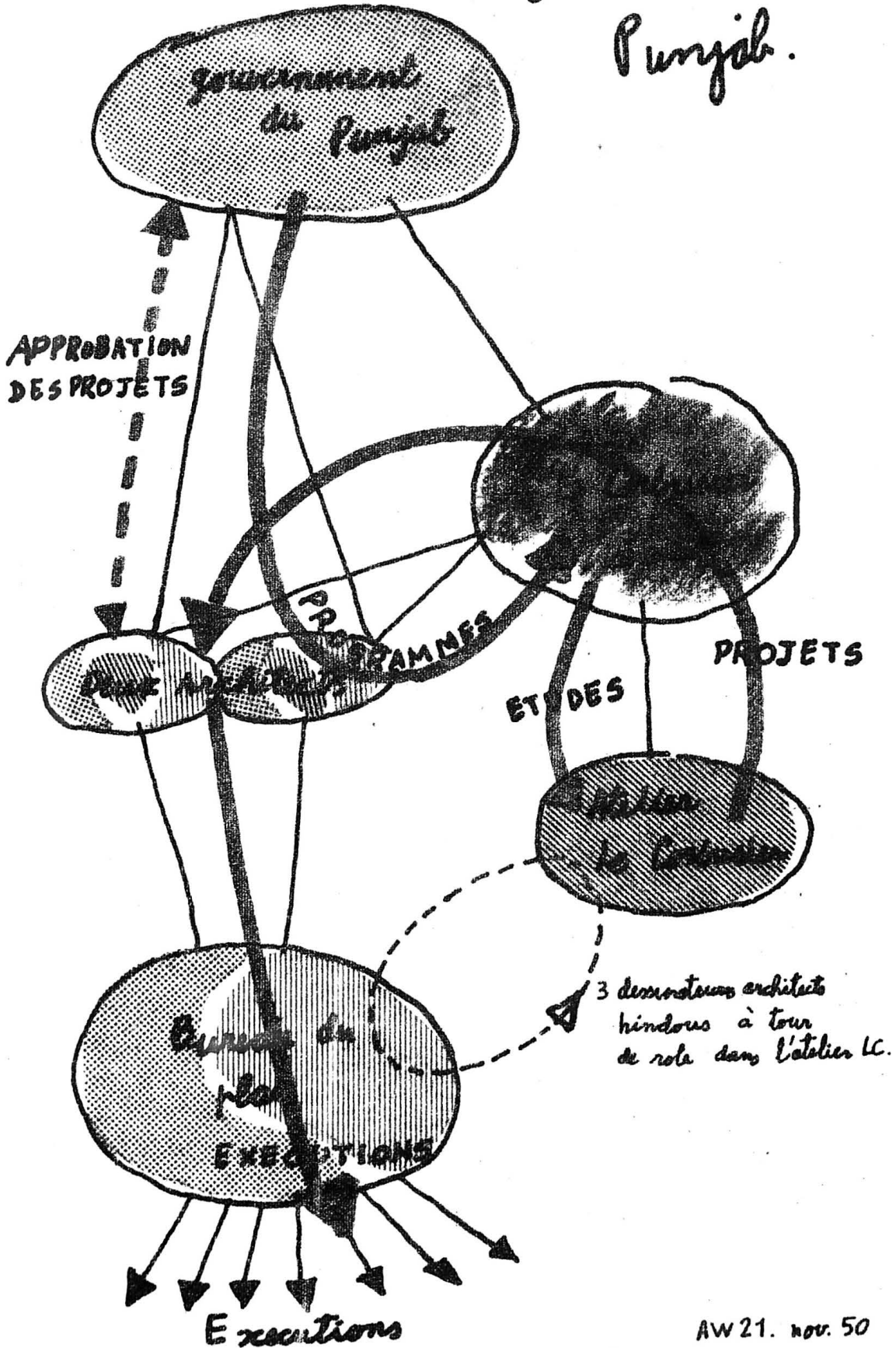
"We will rectify the pilot plan after our trip to India and we will discuss it on the very premises of the plans office on the spot. It will be there that we will give birth to it.... We must begin from the beginning."(35)

2.14 Process of plan preparation

On 18th February 1951, Le Corbusier left for India and after examining the site of the new city met Fry and Jeanneret in Simla. His method of attacking the problem is best described by Fry:





"The arrival of Corbusier galvanised the situation. We moved down to the rest house in the lovely village of Chandigarh on the road to Kalka where the mountain railway starts for Simla and there were assembled with

Dossier
Punjab.



AW 21. nov. 50

Figure 2.3 Le Corbusier's view about his role in the Chandigarh team
Source: Fondation Le Corbusier, Paris

Administration  Ideas  Architectural studies  Execution 

Corbusier, Varma, Jeanneret, myself and intermittantly Thapar. Albert Mayer was making his way to us from the south. Without waiting for Mayer to appear Corbusier started on large sheets of paper to approach the plan by a method of rough and ready analysis familiar to me from the working of CIAM congresses. First the main communications with the site on the map of India - air, railway, road.

Then the site itself with its immediate background of low foot-hills rising to the spur mountains of the Himalayas with the peaks beyond; its gentle plain declining at a slope of 1:100; its dry river beds to each side with a smaller bed intermediate to the left; a diagonal crossing the plan low down and a loop of railway away on the right. It was a difficult situation. My French was unequal to the occasion, Jeanneret was super numary and Thapar only half aware of what was going forward. Corbusier held the crayon and was in his element.

'Voila la garé' he said 'et voici la rue commerciale' drawing the first road on the new plan of Chandigarh. 'Voici la tête', he went on, indicating with a smudge the higher ground to the left of Mayer's location the ill effects of which I had already pointed out to him 'et voila l'estomach, le cité centre'. (see figure 2.4)

There followed then the delineation of the massive sectors each half by three quarters of a mile and filling out the extent of the plan between the river valleys, with extension to the south.

The plan was well advanced by the time the anxious Albert Mayer joined the group. It must have been an unnerving journey and he was too upset to make the most of it.

I found him a high minded decent man, a little sentimental in his approach but good humoured; not in any way a match for the enigmatic but determined figure of the prophet.

We sat round after lunch in a deadly silence broken by Jeanneret's asking Mayer, "Parlez vous français, Monsieur?" to which Mayer replied, "Oui Musheer, je parle" a polite but ill fated rejoinder that cut him out of all discussion that followed.

And so we continued with minor and marginal suggestions from us and a steady flow of expositions from Corbusier until the plan as we now know it was completed and never again departed from."(36)

Thus, although the contracts signed with the second team involved an acceptance of Mayer's plan with their services being confined to the designing of major buildings and establishing a general 'architectural style' for the whole city, within a week of Corbusier's arrival, it had

been abandoned and replaced by the present master plan. On the surface, the two plans did not differ significantly, a quick comparison revealing several similarities - in their general layouts, the use of the concept of neighbourhood units, the functional segregation of zones and the general placement of the major components of the city. The new plan had a slightly reduced area, a marginally increased density and replaced the winding and curvilinear roads in Mayer's plan by a geometrical grid of fast traffic roads. The 'superblock' was replaced by the 'sector' with a different layout for local shopping centres.

However, there was a fundamental difference in the personalities & aims of the two planners. Whereas Mayer had tried to give elements "of splendour, of greatness, but not overwhelming greatness" for Corbusier a city was "the grip of man upon nature" a "man made creation" and a "mighty image which stirs our minds".(37) To him pursuit of the picturesque represented an abdication of the responsibility to impose discipline for which the architect is trained, and geometry, the foundation and "the material basis on which we build those symbols which represent to us perfection and the divine,"(38)

Corbusier's refusal to accept Mayer's plan created a difficult situation for the Punjab Government who had paid for and approved it already. Besides, Mayer was upset by the turn of events. The problem was eventually resolved by the second team agreeing to develop two 'sectors' in the new plan on the 'superblock' principle as detailed by Nowicki. As the work proceeded however, the architects found themselves more and more reluctant to use Nowicki's designs. In explaining the situation, Fry wrote to Mayer in August 1951,

"Le Corbusier, Jeanneret and I are all architects heavily involved in town planning. Any architects worth the name in charge of building on the scale of this city must have strong ideas on planning as being undisputably an extension of architecture. It is indeed difficult to say where one ends and the other begins. We were therefore forced by our beliefs and ideas to present as completely as possible our conceptions in modifying what you have prepared."

concluding that

"what has taken place is inevitably the result of a change over from town planners to architects without a period of joint consultation."(39)

Once the dispute with Mayer had been resolved, some conflicts arose between the members of the second team with Fry and Jeanneret protesting to Corbusier against the way he had assumed complete direction and responsibility for the whole enterprise, including the detailed layouts for sectors and designing of all major buildings. They complained that they intended to work in a spirit of collaboration advocated in CIAM congresses and were not simply prepared to obey his orders. This was soon resolved and it was agreed that the overall plan of the city, the general control of architectural character of all sectors, including landscaping and the general layout of the city centre would be the joint responsibility of all the architects. Le Corbusier was given complete personal responsibility for the whole complex of administrative buildings to which he then gave his wholehearted attention. The layout of individual sectors and buildings in them, including the 13 categories of government houses were made the responsibility of the three senior architects; Fry, Jeanneret and later, Jane Drew.

Once the division of responsibility had been clarified, work proceeded vigourously, each member trying to give of his best to the enterprise. After his second visit to India Corbusier expressed some of his thoughts to the three senior architects in a letter dated 12th December 1951:

"I have meditated a great deal at Simla as well as at Chandigarh and on my way home. I think that none of us, including myself, realises what will really happen when work really begins....

The intellectual conditions are good for (you will agree with me) the urbanistic problem of Chandigarh has been solved on doctrinal bases so obvious and unquestionable that the drawings are clear; harmonious and real. Doctrine triumphs and leads all along. You musn't forget it. You musn't lose sight of it for a single moment, as it is precisely Doctrine that is often forgotten on account of "small sins" (as Maxwell Fry calls them), those small sins that we all love, including myself, but, look out!"

Carrying on he wrote:

"I would like to share with you my impression as I went through India on my way home. India had, and always has a peasant culture that exists since a thousand years! India possesses Hindu temples (generally in carved stone) and Muslim temples in red stone whose architecture is very geometrical. India also possesses Maharaja's palaces and gardens. But India hasn't yet created an architecture for

modern civilisation (offices, factories, buildings). India jumps suddenly into the second era of mechanism. Instead of sinking into the gropings and errors of the first era we will be able to fulfil our mission : give India the architecture of modern times (modern techniques, modern mind and adaptation to the surrounding conditions that are extreme over there.)

Nowhere in the whole world could a more captivating and positive task be offered to thinkers, aestheticians, and constructors. It is our task and it is worth while!

I will give you my friendly impressions: the first phase of our approach to the problem (March-December 1951) launched us in the study of a thousand little sensitive problems; charming, friendly for the population, delicate and original, but we haven't yet reached the axis of the question, that is to say a fundamental organic architecture, unquestionable, which is neither English, nor French nor American, but Indian of the second half of the twentieth century. So I think we must endeavor to find a fundamental principle.

But I add immediately that I advise and insist that all our efforts and propositions should be accompanied by experimentations."

To conclude, he wrote:

"To end this letter I must tell you that I hope to be able to give you very soon, as well as Messrs. Thapar and Varma, some basic principles concerning habitation which will be as clear as the basic principles of urbanisation which have allowed us to elaborate so quickly and efficiently the plan of Chandigarh."(40)

To summarise, soon after his association with the Chandigarh project, Le Corbusier assumed complete responsibility for the basic concept and layout of the master plan by virtue of the sheer force of his personality and the immense confidence he had in his urban doctrine. The change from the first team to the second was essentially one from Town Planners to architects who had assumed planning responsibilities as well. Whereas Mayer, as a planner, had been concerned about such factors as the socio-economic base of the planned city, its potential for growing to the projected population, the special Indian problems such as the existence of a multitude of different types of traffic, etc., with Corbusier's arrival, it became a matter of the application of 'obvious and unquestionable' basic principles which relegated other matters into the background. Once these were incorporated in the plan, emphasis shifted to a search for similar basic principles for modern Indian architecture. From the team of foreigners he found acceptance and

support for the basic concept of his plan and they accepted the role of concentrating on the 'architectural design' problems of sub-components of the city within its overall framework.

From the Indian side, Le Corbusier received perhaps the best response of his lifetime. His grandness of vision, clarity of purpose and devotion to his work harmonised well with the high aspirations of the new leaders in charge of Independent India. So long as he respected the stringent financial constraints of the project budget, he was given complete freedom to develop his ideas. The young Indians recruited for the project took to the work with freshness and vigour, and were enthusiastic about the opportunity of learning directly from working with the Master. Fry, referring to the Indian staff, paid tribute to their "youth and enthusiasm which in most enterprises can be a substitute for experience. These young people came to us from the Indian schools of architecture, but mainly from Delhi, and being largely unqualified they made our office a finishing school, as any good office should be."(41)

2.15 The Master Plan (figure 2.5 & 2.6)

The basis of Le Corbusier's Master Plan is a gridiron of V3 (fast-moving traffic) roads intersecting at half a mile across and three quarters of a mile up the plan, enclosing areas known as 'sectors'. The plan area stretches between two river beds defining its natural boundaries on both sides. It is crowned at the top by the monumental complex of administrative buildings with no construction being envisaged beyond the road separating the capital complex from the rest of the town, all future extension being projected southwards. The city centre is located 'centrally' in the first phase area with an industrial zone to the right and the university on the left. The smaller river bed intermediate to the left forms a continuous stretch of park from top to bottom referred to as the 'leisure valley'. Each sector is divided horizontally by the V4 (bazaar street) and vertically by a band of open space, both continuing from sector to sector across the plan.

The essence of the plan rests upon preserving intact the true functions of the system of seven types of roads called 'the 7Vs' by Le Corbusier (from the french word 'voie') and their expected operation within the 'sectors'. The basis of these two interdependent components is

best explained in Le Corbusier's own words:

2.16 The Concept of the Sector (figure 2.4)

"The plan is based on the main features of the "7 V Rule" determining an essential function: the creation of the "Sector". The "Sector" is the container of family life (the 24 solar hours cycle which must be fulfilled in perfect harmony)."

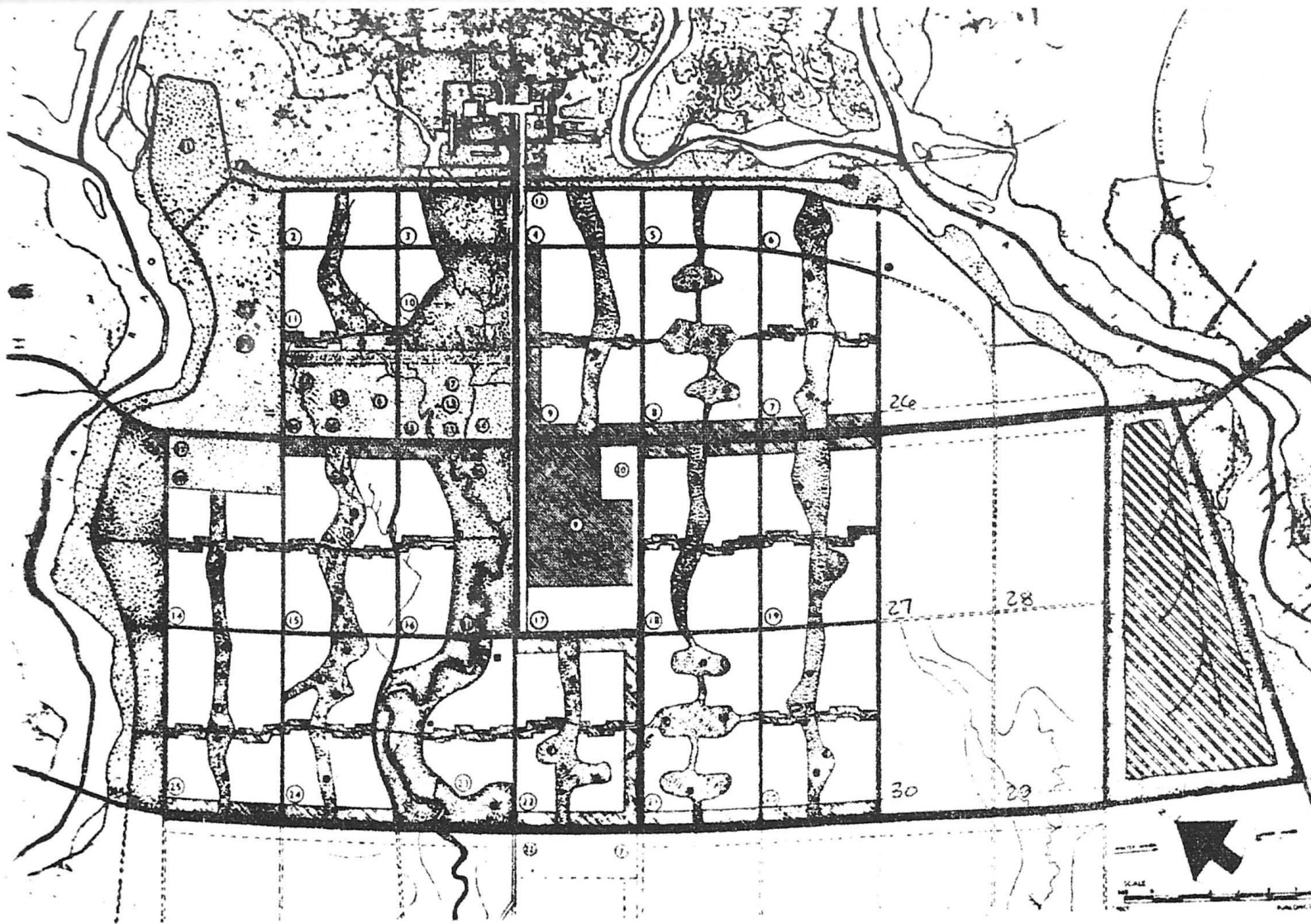
Its dimensions are an outcome of studies made between 1929 and 1949 of the Spanish 'Cuadra' of 100 to 110 metres.

"A useful reclassification of them (Cuadras) led me to adopt a ratio of harmonious dimensions and productive combinations: seven to eight 'cuadras' on one side, ten to twelve 'cuadras' on the other, that is to say 800m x 1200m. And this was the "Sector" issued from an ancestral and valid geometry established in the past on the stride of a man, an ox or a horse, but henceforth adapted to mechanical speeds.The entrance of cars into the sectors of 800m x 1200m, which are exclusively reserved to family life, can take place on four points only; in the middle of the 1200m: in the middle of the 800m. All stoppage of circulation shall be prohibited at the four circuses, at the angles of the Sectors. The bus stops are provided each time at 200m from the circus so as to serve the four pedestrian entrances into a sector. Thus, the transit traffic takes place out of the sectors: the sectors being surrounded by four wall bound car roads without openings (the V3s). And this (a novelty in town-planning and decisive) was applied at Chandigarh: no house (or building) door opens on the thoroughfare of rapid traffic.

The sector is crossed through its middle by its shopping street (the V4), reassembling on a line the functions which are necessary to daily life (24 hours): food supply, artisans, police, fire-brigade, circulating library, cinema, restaurants, stores, or co-operatives, etc... These services are set up in a line of 800 metres on one side (facing the north) to avoid dispersion and frequent road crossings as well as the sun's heat. The cars can take this road at a reduced speed and park there. This shop-street continues in the neighbouring sectors on the right and the left: in this way is realised a continuity of the needs and resources of daily life and a connection through the whole town from East to West."(42)

Further,

"each sector has a green space oriented in the direction of the mountains constituting a vertical band connecting a series of sectors. In these bands will be located the diverse schools and playgrounds."(43)



25A

Figure 2.5 Chandigarh Master Plan: Land Use in the first phase

- 1 Arterial Roads (V2)
- 2 Sub Arterial Roads (V3)
- 3 Local Roads (V5 - V6)
- 4 Open Spaces & Parks
- 5 Business & Commercial
- 6 Industrial Area

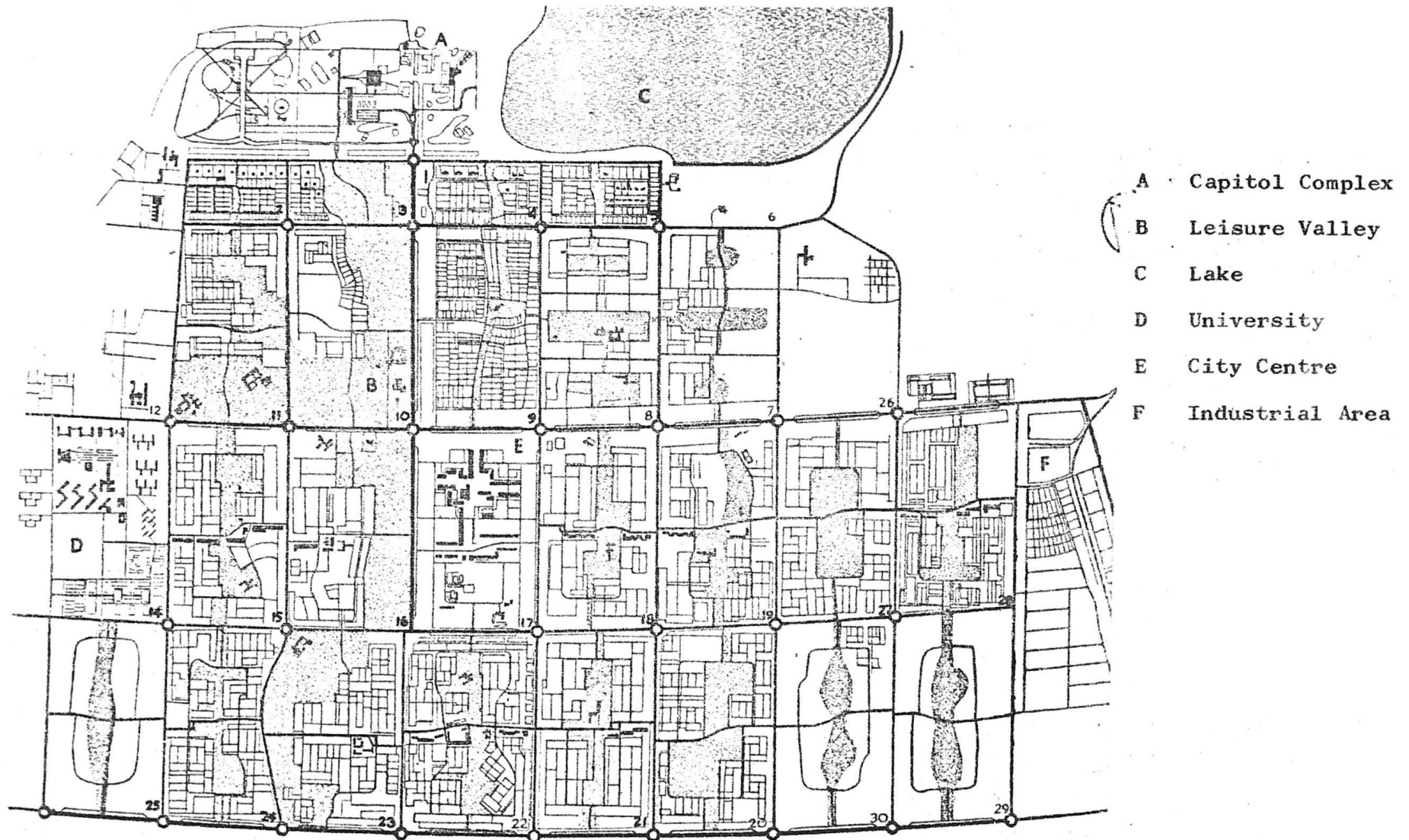


Figure 2.6 Chandigarh Master Plan : Detailed layout of sectors in the first phase and location of major activities

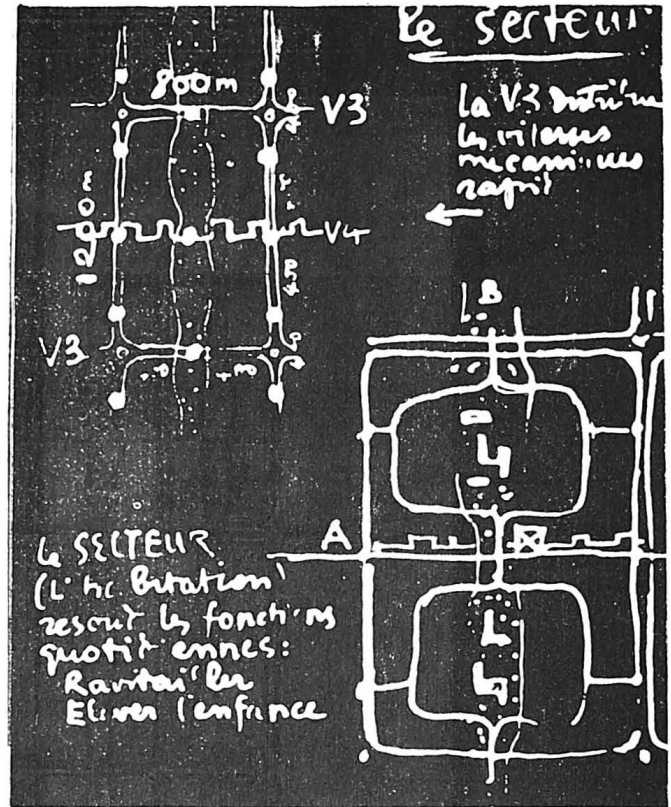
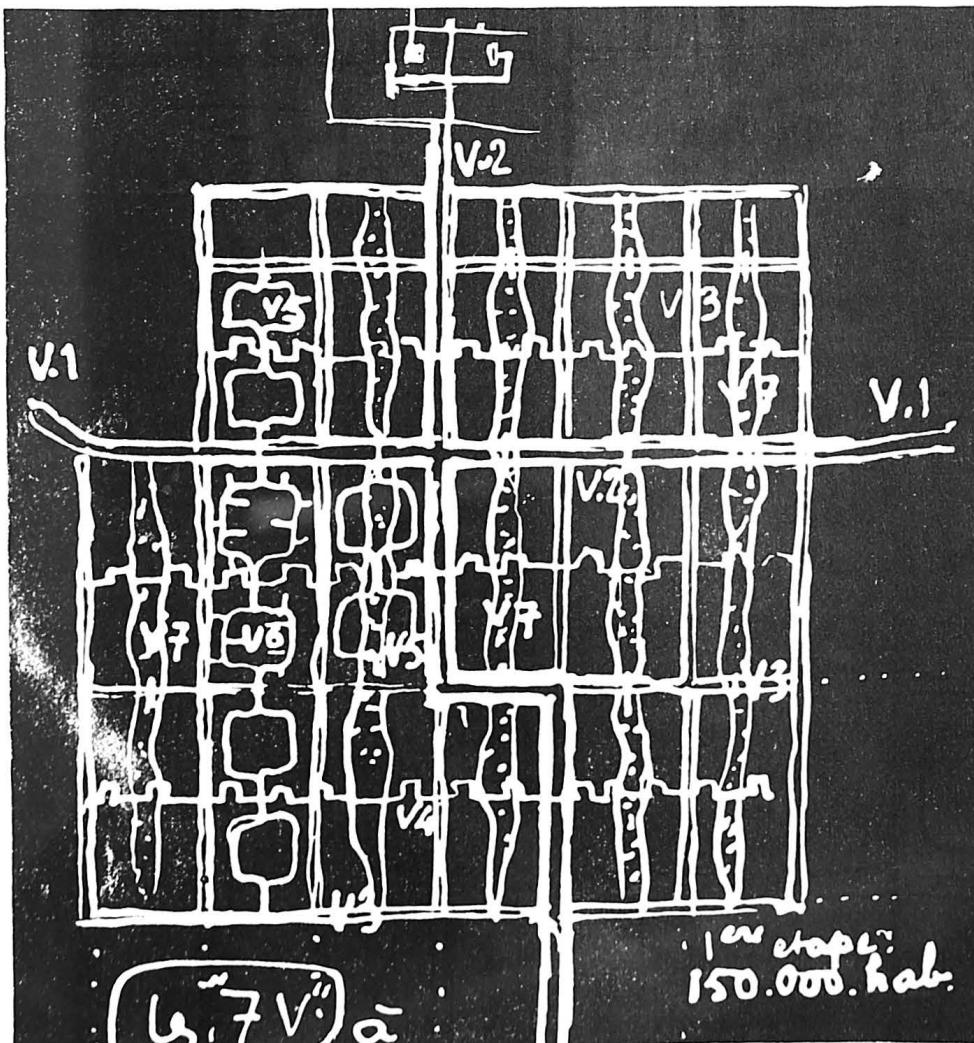


Figure 2.4: Le Corbusier's sketches for Chandigarh: the master plan, the 'Sector' and the '7V Rule'.



2.17 The concept of the 7 Vs (les sept voies) (figure 2.4)

Le Corbusier explained the working of this system as follows:

"The '7 V Rule' was studied in 1950 at UNESCO's request (to try to constitute an eventual acceptable proposition of urbanism for general world application). One discovered that with 7 types of roads the man of the mechanical civilisation could:

- cross continents: the V1
- arrive in town: the V1
- go to special public services: the V2
- cross at full speed, without interruption, the territory of the town: the V3
- dispose of immediate accesses to daily needs: the V4
- reach the door of his dwelling: the V5 and V6
- send youth to the green areas of each sector where schools and sport grounds are located: the V7

But the '7 V Rule' was to be the object of an assault: the onrush of bicycles in different countries. The 'V8' was subsequently created, the 'V8' independent of the others. Effectively, the 'two-wheels' have customs which are antagonistic to those of the 'four wheels'. At Chandigarh, the 'V8' were created a little later on. The latter was then honestly formulated: "The rule of the 7 Vs... which are 8!"(44)

Qualifying the technical statement of principle, he said that the V1s are immediately succeeded by the V2s at the beginning of the city. Some V2s can be chosen by the municipality to provide streets which combine utility with grandeur.

In the Chandigarh master plan, two V2s form the two major avenues of the city, one connecting the university to the station and the other connecting the capital complex to the city centre. The third, V2 south, demarcates the boundary of the first phase. Wide belts of land along all three are reserved for specialised markets and commercial establishments to provide services on a city scale in addition to those provided for in the City Centre.

The V3s, meant for fast traffic, define sector boundaries. Sector shopping centres are located on the V4s in the form of linear commercial development on one side of the streets only.

The V5s and V6s are smaller roads providing access to dwellings. They were never meant to receive transit traffic of bicycles, cars or buses.

The V7s, meant exclusively for pedestrians, are located in the vertical green belts. They cross the V2 station and the V2 south and two other horizontal V3s (in the first phase area). Le Corbusier envisaged the V7s crossing the V2s and V3s with foot bridges, which could be built when the situation permitted but insisted that they be drawn on the plan immediately.

The V8s, meant for two wheeled vehicles - bicycles, scooters and motorcycles, go along the green belts,

"With the intention of realising the function of bicycles in a modern city (because) two wheeled vehicles have never to use the same way as four wheeled and three wheeled vehicles."(45)

Once the elaborate network of the '7Vs' had been established, Le Corbusier envisaged an efficient public transport system serving the city. The Chief of the Autobus Transport Service in Paris was consulted to work out an autobus system for Chandigarh. Three different types of buses were planned; larger buses connecting it to its hinterland; medium sized buses for longer runs within the city, and mini-buses for a kind of shuttle service over shorter runs. As he said:

"The greatest clarity of the solution is the reciprocal independence of the pedestrian and the automobile. The private automobile, the promoter of the encumbrance of cities and responsible for their blocking, shall only enter the city in exceptional cases. Mechanical speeds are assured by a new type of autobus circulating at full speed exclusively in the V3s and partially in the V4s. In Chandigarh the V3s cover a network of nearly 40 kilometers punctuated by bus stops every 400 meters. No door of a house or a building shall open on these V3s; no pedestrian shall be found there."(46)

2.18 Chandigarh: A Radio-Concentric City

Land use within the 'sectors' formed by the grid-iron of V3s was planned in accordance with the 'Charter of Athens' (ref. 2.10), detailed provision for different uses being governed by the classification of Chandigarh as a 'Radio-concentric city of Exchanges' out of the 'Three Human Establishments' (ref. 2.11). As emphasised by Corbusier,

"Chandigarh is an Administrative city and in consequence a Radio-concentric city. It must never be an industrial city."(47)

In a document titled 'For the Establishment of an immediate Statute of the Land' addressed to a High Level Committee, Le Corbusier described his vision of life in the city and the process by which its

detailed physical fabric had evolved:

"City of Chandigarh"

I "Definition of use of Chandigarh".

- i) Chandigarh is a city offering all amenities to the poorest of the poor of its citizens to enable them to lead a dignified life.
- ii) Chandigarh is a Government city with a precise function and consequently, a precise quality of inhabitants.

On this presumption, the city is not to be a big city (metropolis) - it must not lose its definition. Some people say that life must come in the city from other sources of activity, especially industry - but an industrial city is not the same as an administrative city. One must not mix the two. It seems that the complement of the original definition should be the invitation of forces which can reinforce the functions of the city and not open a conflict or rivalry. We must take care that any temptations do not kill the goal which was foreseen at the time the city was founded. Therefore, naturally, old doors must be opened to unknown initiatives. It appears that the future of Chandigarh will be open to all cultural factors in different manifestations:

Teaching (schools, university, new science of teaching, audiovisual training etc. - in one word all kinds of knowledge).

Means to express and disperse thought.
(editions: books, magazines and eventually, their printing etc.)

Modes of expression and dispersion of the arts.
(in time and space - history and geography).

All kinds of reproduction of art-witnesses.
(editions: visual means - photographs, diagrams etc. to different scales.)

Diverse kinds of exhibitions, shows, theatres, festivals, creations of the highest modernity etc.

For the culture of the body, an organism can be created having at its disposition possibilities of meeting for competitions and tournaments.

All this will afford the creation of a "Chandigarh label" which will be the guarantee of quality and will be worth emulation.

II The Four Functions

The CIAM "Charter of Athens".

The force of this charter lies in giving the first place to the dwelling: the environment of living - the family under the rule of "24 Solar Hours".

The second place is given to "Working" which is the daily act of human obligation.

The third is the culture of body and spirit on the one hand and an intellectual leisure on the other.

When all these goals have received their definite containers, it is possible to give to each of them its respective rightful place and at this moment can occur the problem of realising the contacts: that is circulation!

III With this line of conduct the urbanism of Chandigarh emerged."(48)

2.19 Location of the Four Functions (Figures 2.5 and 2.6)

As part of the planning process, Le Corbusier maintained that each of the four functions "ask for precise locations on the ground of the city."(48) Accordingly, the master-plan provided for them as follows:

- i) Living: A majority of the 30 sectors of the first phase were reserved for residential purposes.
- ii) Working: The Capital Complex of buildings, constituting the largest work centre of the city, was located in Sector 1 at the top of the plan. The 'City Centre', designed to house the Town Hall, the business and commercial centre, and district administration headquarters, was located in Sector 17. Wide belts of land along the V2s (Ref. 2.16) provided for other work areas. An area approximately equivalent to two sectors formed a small industrial zone to the south east. Other work places included educational and cultural centres for the kind of activities listed in 2.18. Out of these the University was located in Sector 14, the colleges in Sector 11 and 26, and schools, in the green belts in different sectors. (The principle being that the former are located in the green, on the edges of the city and the latter in internal belts of green.)
- iii) Culture of body and spirit and intellectual leisure: Facilities for these were to be located within the 'Leisure Valley', the reclaimed river bed running through Sectors 2, 10, 16 and 23. Catering for local needs was to be located in the vertical green bands running through all the sectors.
- iv) Circulation: The system of '7Vs' was to enable contact between the locations of other functions. (Ref. 2.17)

2.20 'Containers' of different functions

The location of each of the functions on the plan having been determined, Corbusier explained that:

"Each function is to be contained in one container, i.e. one building"

The first problem is to give the specific size to this building according to each function. Modern life has to locate all its activities in containers of conformity of size - "unité de grandeur conform".

Each of these tools ("containers of conformity of size") have to find their right place on the land. Their location must be fixed on the paper (plan) with their necessary surroundings. Contact will be provided in direct or indirect ways, which have to be foreseen and fixed from the beginning.

Some of these containers constitute a concentration, the others dissemination. At Chandigarh, family containers were given a place in the sectors; and the work containers in the Capital Complex, the University, the City Centre and in a limited Industrial area."(48)

2.21 The technical problem

Once each envisaged function, its location and size of its 'container' had been determined, only the technical and aesthetic problem of physical design remained to be solved. This had to be done within climatic, technical and budgetary constraints. Chandigarh architecture emerged out of an attempt at functional design of buildings within these three constraints.

Subsections 2.16 to 2.21 have attempted to establish the conceptual and methodological basis of detailing the Master Plan. The following sub-sections turn to examining the way actual provision was made for various activities and functions and some of the implications inherent in the process.

2.22 Basic Economic Activities and Employment of the Projected Population

The Capital Project estimate assumed basic economic activities and the distribution of the first phase population dependent on each category, as follows:

1. Punjab Government employees	50,000
2. Municipal employees	15,000
3. Domestic servants	20,000

4. Big concerns like Railways, Power house, Transport and Banks	15,000
5. Professions such as medicine, law, building and teaching	15,000
6. Industry	15,000
7. Trade and commerce	20,000
TOTAL	<u>150,000</u>

According to the above distribution, a majority of the persons employed in categories 1,2,3,4 and 6, representing over 75 per cent of the total population, would have been dependent on fixed salaries as employees, a high proportion with very low incomes. Relatively few other details were mentioned about employment and incomes, particularly the relationship of the latter to the plan proposals and its implications in the foreseeable future. The only aspect for which incomes of at least government employees had to be taken into account, was in relation to the government's housing programme (ref. 2.25)

2.23 Distribution of population and residential densities

At the time of its inception, Chandigarh was not conceived as a social experiment by the government. While deciding on the pattern of the distribution of population in the city, the existing social and economic stratification was taken into account. As stated in the project report:

"It is impossible to mix all grades of society in one sector. By the nature of things, high Government officials will live near the Capitol, professional classes will tend to move towards the University; the hotel keepers, the chief tradesmen and business men will gravitate towards the city centre; certain classes of workmen will live near the administrative centre and others near the industrial areas. There is in any town an unconscious grouping through interest and social congruity, and this we have found has fallen into its place by the division of the city into its Governmental, educational, commercial and industrial functions.

In the detailed planning of sectors, we have in every case mixed at least three categories of income and have never excluded the tradesmen element so that nowhere is there to be found an entirely exclusive society."(49)

Since the largest function of the city was that of an administrative centre, the basic pattern of population distribution was laid by the provision of government housing in different sectors. In accordance with the criteria mentioned above, the highest paid government officials, with the largest houses were housed in low density sectors in the north near

the capital complex. The bulk of employees, belonging to the lowest income groups, were provided housing in the sectors at the southern end of the first phase area. The planned population for each sector varied from 5,000 to 20,000, resulting in a hierarchic disposition from the rich to the poor downwards from the Capitol. The gross density of population for the whole city came to 16.8 persons per acre, varying from 7 persons per acre for low density sectors to almost 100 persons per acre in the high density ones.

2.24 Houses and Housing

Chandigarh aspired to set an example in environmental improvement over conditions prevailing in existing Indian cities. Although it did not represent an attempt at questioning the disparities of the existing social order, the government wanted to extend consideration even to its poorer and low paid employees as far as providing a desirable environment for living was concerned. With this aim in mind, a dwelling unit consisting of two rooms, a 'verandah'/kitchen, a courtyard and water borne sanitation and washing facilities, was adopted as the minimum standard of accommodation per household.

Through its adoption, it was hoped that conditions of overcrowding prevalent in most urban areas could be eliminated.

In addition, mandatory minimum standards of construction, building materials, minimum areas for habitable rooms etc., were specified in the building by-laws for the whole city. By this means, a 'desirable' standard for all structures to be built in the city was sought to be ensured, leading to the elimination of slums.

Responsibility for house construction was to be broadly divided between the Government and private sectors, each being responsible for one third and two thirds of the total respectively.

2.25 Government Housing Programme

At the outset, the project estimate made an allocation of Rs.26.8 million (£2.06 million), for the construction of residential buildings for government employees. This included the building of an officers' hostel, 100 flats for members of the legislative assembly and a detailed programme of 13 different types of houses for particular pay groups of Government employees. (Table 2.1). The estimate specified minute details for each type of house, area of the site to be used, the minimum covered area in square feet, the number of rooms to be provided, the permitted cost per

square feet and specifications of building materials conforming to Public Works Department standard specifications. The architects were presented with this programme for producing suitable house designs.

In the initial stage, 3,208 government houses were planned to be built, at that time representing 90 per cent of permanent government servants employed in the headquarter offices of the government. It was expected that such employees as could not be allotted government houses would be able to make private arrangements.(50)

As the accommodation and size of each house was determined by the pay scales of prospective tenants and not family sizes, the government housing programme implied the translation of the hierarchy existing within the bureaucracy inherited from the British, into physical form. The experience of designing within the constraints of the project estimate is best described in Maxwell Fry's own words:

"By far the most onerous task before the architects was the design of 13 categories of government houses, graded from the lowest costing only £244 to the highest costing £4875 and excluding the house for the Chief Minister.

The accommodation asked for seldom matched the estimate, and most noticeably in the lowest grade, where a long suffering class of office messengers, drivers and the like pleaded for two rooms rather than one, and in which the critical item proved to revolve about the problem of whether or not an individual W.C. could be provided...."(51)

According to Government rules, these houses were to be let to the respective pay groups of employees at a fixed rent of 10 per cent of their salaries. At the same time, for a building to be classified as productive, it was necessary for it to fetch a rent equal to at least 6 per cent of its capital cost. Since the cost of construction had risen considerably without any corresponding increase in salaries of Government officials, it was considered impossible to restrict the cost of residential buildings to the capitalised value of 10 per cent of the pay of the occupant and, at the same time provide him with "reasonable accommodation consistent with his status."(52) A certain degree of loss of rent on Government housing was thus considered inevitable.

The standard rent of all residential buildings to be constructed by the Government in its initial programme worked out to Rs.1,609,000 whereas the recoverable amount came to only Rs.633,000, leaving a balance of Rs.976,000 representing a yearly loss to the Government.

The above figures, however, did not represent either the true costs of Government houses or the total amount of yearly losses. Firstly, the cost per house excludes the cost of land acquisition. This was included in the total development costs to be recovered from the rest of the public because, according to the project report, Government house construction was going to be one of the main attractions of the Capital from the point of view of private builders. Secondly, the maintenance and establishment costs are not included in the figures. Thirdly, although according to a government rule, economic rent is calculated at 6 per cent of capital costs, the rule in its present revised form was made applicable in 1927 when it probably represented the economic rent.(53) Owing to the relatively higher increase in land and construction costs compared to the increase in general price level since then, it was unrealistic and unrepresentative of the true economic rent at prices and interest rates prevalent in 1951.

Even accepting the unrealistic figures quoted above, the standard rent of 10 per cent of salary was, excepting in the case of one or two house types, below the economic rent, implying an element of housing subsidy for almost all government employees. In a calculation of economic rent at 8.5 per cent of capital cost, Ved Prakash has worked out the subsidy for different categories of government employees at Chandigarh (Table 2.2) As evident from the table, in terms of total amounts, higher income employees received the largest subsidy.

2.26 Private Housing

The unit of land made available to individuals for building houses in the private sector, was the 'plot', planned and demarcated by the Capital Project Organisation and fragmentation of 'plots' was forbidden. All private residential buildings were permitted a height of up to two and a half storeys and one or a maximum of two dwelling units per plot. In the case of those desiring to build two units, one could be provided on the ground floor and the other on the first. Partial construction was permitted on the second floor solely for enabling use of the roof as a terrace. To prevent its use as a living unit, provision of services on the second floor was not permitted.

All these measures were designed to prevent 'misuse' of residential plots leading to fragmentation and overcrowding.

Regulation of private construction was sought through an extensive system of controls. These

were described by Maxwell Fry as follows:

"....because we were unwilling and unable to control the design of individual buildings erected by the public, we devised a system of sector planning sheets on which were shown graphically the building lines, permissible heights, building areas of plots, public open spaces, scheduled trees, and controlled building walls, with standard designs for gates. Some frontages on important streets we controlled as to height, profile materials and set-backs in order to protect to some extent the effect such streets would have when finally built. But further we did not wish to go, nor could go, without the aid of a large staff of inspectors in each of whom should burn an equal zeal for architecture...."(54)

Commencement of construction was forbidden until house plans had been approved by the Capital Project and occupation of the premises was to be delayed till a 'completion certificate' could be obtained. The latter was to be granted only after the premises had been inspected and found to be of the desirable standard of construction and services specified in the by-laws.

A total number of 20,251 private plots varying in size from 125 to over 5,000 square yards were created to be offered for sale to the public.

Plots were to be sold at a fixed price by allotment through a system of lottery, preference being given to displaced persons and to persons applying in groups. Payment was to be made in four equal instalments, the first of these being equal to 25 per cent payable at the time of allotment, the remaining three being equated annual instalments with interest charges. Displaced persons issued with Government bonds could exchange them for plots, others having to pay cash.

Land was to be sold at cost price of development (for details Ref. 2.33). Price per square yard was calculated to be Rs12*for the first 125 square yard, Rs8 for the next 125 square yards, Rs6 for the next 250 square yards and Rs4 after the first 500 square yards. This sliding scale was adopted on the basis that smaller plots involve a higher incidence of development costs per acre than the larger ones. Thus, the price of the smallest plot amounted to Rs1,500 requiring a down payment of Rs375. Construction costs, of course, were to be over and above this.

With the largest number of the Government's own employees belonging to salary grades of Rs50 to Rs100 per month and below Rs50 per month, even the smallest plot could not be considered within the economic reach of equivalent persons in private employment.

*£1 was equal to Rs13

To promote private construction, loans on easy terms were made available by the government to plot-holders. However, for a person to obtain a loan, not only did he have to have a plot already, but his income had to be sufficiently high and regular to ensure repayment. A very large number of persons, such as building labourers, sweepers, etc., clearly could not qualify for them.

The only feasible alternative for acquiring planned residential accommodation for a low income person who was not a government employee, was on a rental basis, provided accommodation was available within his paying capacity. Owing to the higher construction costs as a result of higher building and amenities standards adopted for the city, it was inevitable that rents in the private market would be higher and closer to true economic rents, if not even higher, due to market forces.

Thus, for persons in private or self-employment with low incomes even equivalent to the government's own lowest salary scales, it was implicitly unfeasible to be able to gain access to planned residential accommodation without assistance in some form.

To a certain extent this was realised by the foreign architects while working on the cheapest house categories in the government programme. On her own initiative Jane Drew designed an additional house type costing only £154 and persuaded Thapar, the Chief Administrator, to make additional allocation for it in the budget. As a result, 800 of these 'cheap houses' were built in the first few years but their construction was discontinued later. These houses represented the only effort at providing subsidised housing to low income persons in the private sector.

2.27 Commercial and Services Provision: City scale

Provision for commercial and services facilities in the Master-Plan may be broadly divided into two groups - the first for providing services at a city scale and the second, for catering for daily needs at a local level.

City scale provision was visualised as being located in the City Centre and along the 3 V2s forming the major avenues of the city (Ref. figure 2.5)

a) City Centre: The city centre is located at the junction of the V2 Capital and the V2 University/Station, occupying an area of one typical sector (242 acres). As proposed by Le Corbusier, trading and commercial

facilities within the City Centre were to be divided into two categories with their visualised functioning as follows:

- i) "Commercial Centre proper: This covers an area of 130.09 acres and has buildings 4 storeyed high grouped around a central "Chowk" - essentially a traditional Indian feature. The chief among these will be the Town Hall, Post and Telegraph Offices, the Chamber of Commerce, and a few banks. Of these the Post and Telegraph Office building will be 140' high and all of the rest 4 storeyed rising to a height of 56'. The shop office buildings will have exclusive shops or restaurants etc. on the ground and in some cases on the first floor with offices only on the upper three floors. M. Le Corbusier maintains that no residential accommodation should be provided in this area as residences are always closely followed by supplementary amenities such as green spaces, educational institutions etc., which take larger spaces. Besides, the commercial centre which would be a very busy area, can hardly afford surroundings fit for living.
- ii) Smaller shops along V4: These cover an area of 55.80 acres. Normally, the V4 (shopping street) is the hub of every day activity within a sector, but in the case of the City Centre, which is exceptional in comparison to any other sector, the focal point is the 'chowk' with the V4 taking a subsidiary place, yet well related to the "chowk" itself. Development along this will be 3 storeyed structures These will cater for the needs of petty shopkeepers who are keen to be in close proximity to the commercial centre proper..."

The scheme proposes entire segregation of pedestrian and vehicular traffic in the commercial centre.

"There are four main pedestrian entrances; from north east, south east, south west and north west respectively 150', 170', 250' and 150' wide leading into the chowk. The chowk itself is 360' x 436' and is sufficiently large to take big congregations on festive occasions when the pedestrian ways will act as procession ways."(55)

Two possibilities of development were considered. The first was that the Capital Project Organisation should construct all the buildings and sell them to various buyers and the second, that individual plots or blocks of land should be sold to private developers who would have to construct the buildings strictly according to precise specifications.

The land was divided into blocks comprising of varying numbers of a standard unit or a bay of 17'3" x 104'11" (area 200 sq. yards). The main elements of vertical support occur at every 17'3" in both directions.

On all floors the developer of each site had compulsorily to leave a verandah 12' wide both on the front and the rear of the building...

Heights of floors were regulated at a standard dimension

with mezzanines etc..... Each developer having to abide by the standard elevations proposed by Le Corbusier.

All buildings had to be built in reinforced concrete to standard specifications of materials for external finishes to ensure uniformity.

In 1954, the cost of the structure of one typical unit worked out to approximately Rs.85,000 to 90,000 (£6,400 to £7,000).

Le Corbusier suggested that if no private developers were forthcoming immediately, the government should construct the Town Hall, Cinema, accelerate the construction of the P & T building and create the 'chowk'. It was hoped that once the 'chowk' was established, it would act as a spur for other developers to purchase land and start construction. Although, this way development could take a little longer than expected, his advice was to "sit and wait".

b) Commercial development along the principle V2s: As mentioned in 2.17, describing his '7 V Rule', Le Corbusier felt that some V2s "can be chosen by the municipality to provide streets which combine utility with grandeur."

In Chandigarh, in the commercial belts of land reserved along the V2s, specialised markets were visualised. It was planned to develop 4 or 5 markets for wholesale business along the north east of the V2 station-university. These were to be for building materials, agricultural goods, machinery, motor cars, printing, etc. Since it was felt that there may not be a sufficient number of private individuals demanding sites in each of the markets, it was agreed to locate all trades in one nucleus to start with and to decant them into their respective markets later. Designs for the first market to be developed in Sector 7 were prepared in the Chandigarh office. These specified a standard height of 45 feet for all constructions and an 'architectural control' including building materials, sizes of openings etc., in conformity with which private developers had to build. Land was again to be sold with a standard 'bay' as a unit. Owing to the desire to give a sense of 'grandeur' along these roads, the smallest unit was on a similar scale to that in the City Centre and the height of all constructions along the V2s was to be greater than for residential construction in the city.

Although the exact nature of requirements of the markets to be developed in other sectors along the V2 station could not be anticipated, building form, size and architectural designs for these were prepared by Le Corbusier's office in the early years.

Along the V2 Capitol, big buildings such as offices, banks, hotels, and other important institutions which could not yet be anticipated, were

to be provided. The built form for housing these, the standard height, etc., however, were again designed and prepared in the initial stages.

2.28 Commercial and services provision: Local level

According to the '7 V Rule', V4s in residential sectors provide access to services necessary for daily life. In Chandigarh, it was decided to provide these in a linear form of commercial development along the south western side of the streets only. The linear form was chosen because of its similarity to the traditional Indian 'bazaar' streets and development along one side only was meant to prevent frequent crossing of the street by pedestrians to avoid traffic hazards. The architects' considerations while designing the 'bazaar' streets of residential sectors were described by Jane Drew:

"A Sector is a small world but it presents many of the same problems as a big town. Scale has to be established and to this end the 'hub' of the sector, the market, had to dominate a little over the housing areas. The architects, who had a better sense of the importance of physical environment than administrators, laid down that the main part of this centre should be three storeyed and also be strictly architecturally controlled. Thus shop-owners could build their own shops, but to the architect's design. A variety of shops were provided, so that both small shop-owners and larger ones could be accommodated."(56)

The variety of shops provided varied between three storeyed shop-cum-flats with shops on the ground floor and flats above, and smaller single storeyed shops called 'booths'. A little later, a third category of 'semi-industrial' shops was created. The range of areas for commercial sites varies between 100 to 1,000 square feet. To ensure the availability of all commodities and services considered essential for daily life, it was made mandatory for the buyers of most sites not only to conform to all physical design and construction regulations, but also to use the premises only for a particular trade or service that had been specified for each site.

The criteria used for determining the number of sites of each size and the trades or services specified for some of them, had to be fairly arbitrary as the extent of demand for different sizes could not be assessed at that time. However, in the process of detailed demarcation of sites in each sector, decisions made on the basis of intuitive judgments became final.

All sites demarcated for commercial and services provision, both at city and local levels, were to be sold to the highest bidders in public

auction. As in the case of private residential provision, a site could not be put to use until a superstructure had been built on it conforming to various regulations and approved by the Capital Project Office.

In the beginning, the Capital Project built a number of shops and commercial buildings both in sector shopping centres and the City Centre which were rented out to private traders and businessmen. Once development activity had gained a certain momentum, such provision was left largely to private initiative.

The detailed demarcation of the locations and preparation of mandatory built forms for all commercial and services facilities in the city, combined with the policy of selling land to the highest bidder in public auction, was based on a number of implicit assumptions:

- i) That all specialised services at the city scale could be housed within the envisaged built forms and their sizes, and located either in the City Centre or along the V2s.
- ii) That the economic overheads of land acquired through public auction and buildings constructed to high cost specifications would be feasible for all services needed at a city scale.
- iii) That anybody desiring to be engaged in trading or services would have to have access either to ready capital to pay for both land and construction costs of at least the smallest 'booth' or be able to pay the market rent for it.
- iv) That all sections of the population would be both willing and able to pay for the high overhead costs inherent in all forms of planned provision for all goods and services required by them.

2.29 The Capitol Complex

The monumental complex of buildings crowning the plan is designed to house the three major institutions of parliamentary democracy - the Legislative Assembly, The High Court of Justice and a secretariat - and the Governor's Residence. During the first phase of development, 18,000 workers, representing one third of the projected population of 150,000 with their dependents, were expected to be government employees. A majority of them were to work in the Capitol Complex. Its location outside the rest of the city reflects Le Corbusier's preoccupation with aesthetic and symbolic considerations contrary to the rational relationship between work and living areas advocated by his urban doctrine.

He designed the Capitol Complex on a grand and monumental scale

following the general principle of traffic segregation adopted for the rest of the city. In addition to the four buildings mentioned above, he proposed the inclusion of a fifth element, the monument of 'The Open Hand'. To him this represented an important symbol of the affluence and harmony which he felt the second era of the 'machinist civilisation' was going to bring. Explaining its significance to Pandit Nehru he wrote:

"Abundance seems to be the sign of the epoch. The open hand to receive, the open hand to give, could be chosen as a symbolic materialisation of all these victories!

India could estimate precisely the conjuncture of erecting in the Capitol of Chandigarh, actually under construction, in the midst of palaces sheltering her institutions and her authority, the symbolic and evocative sign of "The Open Hand".

Open for receiving the created richness.....

Open for the distribution to her people and to others.

"The Open Hand" will affirm that the second era of the machinist civilisation - the era of harmony - has started.

Chandigarh today, offers providentially to bring this to witness."(57)

2.30 The Cultural Centre and the Leisure Valley

Some of Le Corbusier's ideas about Chandigarh's functioning as an important cultural centre, and the use of the Leisure Valley are described below:

"The Cultural Centre and the Leisure Valley have never to be academic. They are two ways of modern research or of manifestation of the permanent creation through the ages (folklore or outstanding creations).....

The equipment of the Leisure Valley is devoted to the youth (boys and girls). The plays have no need of spectators, but, at the right time they could offer useful and necessary response or approbation. These spectators will be generally standing and not sitting. They will not necessarily be invited to attend; they could also simply be the walkers through the Leisure Valley. The tool (the building) does not need a ceiling: stars are enough. Some walls which are well disposed will give many possibilities of:

Plays
Music
Dance
Theatre
Addresses
Variety Shows etc.

The Cultural Centre devoted to mature initiative can be the centre of unlimited research and effort devoted to the harmony of the machinist civilisation in the actual beginning of its second era: an era of harmony...

The Museum designed by M. Le Corbusier for the Cultural Centre is a special tool (building) for all kinds of exhibitions - small or big temporary demonstrations, employment of mediums (graphic or of volume) with automatic phonographic explanations etc. Chandigarh Museum can be one of the focii of the intellectual significance of modern India.....

The other important tools (buildings) of the Cultural Centre are the 'Miracle Box' and the 'Centre of Itinerant Exhibition'. The 'Miracle Box' will be on an intellectually high level.....(and) can provide the opportunity of festivals (Chandigarh Festivals) which could be important events in the city and in the country.

The centre of Itinerant Exhibition is devoted to the "Synthesis of the Major Arts": Urbanism, Architecture, Painting and Sculpture. This movement born in Paris at the Liberation, is already in evidence...."(58)

2.31 The Industrial Area

Although Le Corbusier was generally opposed to having industry in Chandigarh, a total reservation of 580 acres was made in the plan for an industrial area. It was located on the south eastern edge of the city permitting expansion of the area with the growth of the city. A green belt of between 300' to 500' was provided to insulate adjoining residential areas. A railway siding connecting it to the main railway station has been planned and its location permits connection with motorable roads to the whole region without crossing the city.

The first phase provided for the immediate development of 336 acres. 234 plots ranging in area from 1000 square yards to 3 acres were to be created. Light industries like fruit preservation and canning, light engineering, hosiery, sports equipment, chemicals, oil, flour and saw mills, building materials etc., were proposed to be located in the area.

It was expected that "about 2500 families consisting of 15,000 persons will be provided with gainful employment in this Industrial area." (59)

Plots were to be sold in open auction. It was estimated that sale would fetch an average of Rs.2.25 per square yard for plots up to 5,000 square yards and Rs.2 per square yard for plots in excess of 5,000 square yards.

2.32 The University

An area a little larger than a typical sector was sold to Punjab University in Sector 14. The university, being a semi-autonomous body, was allowed to develop the sector in accordance with its requirements providing teaching, administration, services and residential accommodation within the same sector.

2.33 Finance

During the first phase, estimated expenditure on the Capital Project was calculated to be Rs.167.5 million (£12.9 million). Of this, more than half, i.e. Rs.86 million (£6.6 million) was to be expenditure related to the development of the town and provision of civic amenities. The balance of Rs.81.5 million (£6.3 million) represented the cost of government buildings and the water supply system. The gross expenditure, including recoupable items, amounted to Rs.174.4 million (£13.4 million).

The sources of finance were to be the following:

i) Rehabilitation loans from the Government of India during 1950-53	Rs. 30 million
ii) Assistance from the Government of India during 1953-56	Rs. 30 million
iii) Contribution by the Government of Punjab	Rs. 25 million
iv) Estimated receipts from the sale of plots	<u>Rs. 86 million</u>
TOTAL	Rs.170 million

In estimating receipts from the sale of plots, the guiding principle used was to try and recover as nearly as possible all development costs. Taking into account the estimated recovery of rent from government buildings, during the first phase, the net expenditure amounted to Rs.81.2 million (£6.2 million).

'Development costs' included a whole range of items - land acquisition, survey, roads and bridges, storm water drainage, sewerage, additional cost of electricity, landscaping, dams across sukhna cho, railway facilities, publicity for the sale of plots, proportionate establishment charges, research, maintenance costs for the first five years and a large item of civic works. This last included as many as 35 educational and eight medical institutions in addition to six community

centres, six swimming pools, a stadium, a 'serai' (cheap lodging house), a museum and art school, a public library, Municipal offices, and a number of administrative offices. The 35 educational institutions included a large college each for men and women, four high schools and a residential school, 11 junior secondary schools, 15 nursery schools, and a polytechnic and college of physical education.

The water and main electricity supply schemes were not included in the list of 'development costs' as these were to be run on a self paying basis.

All plots were to be paid for in four yearly instalments. The first of these was to be equal to 25 per cent of the total and payable at the time of allotment. The other three were to be equated annual instalments including interest charges.

As summarised by Fry,

"the financing of nearly half of the total expenditure was advanced by the payment of the first of four annual instalments of 25 per cent of the plot values, in return for which, purchasers could expect such amenities as had never before been offered to Indian citizens.

Conversely, it became incumbent upon the architects to plan the city so as to realise the full value of these sales, and for the engineers and architects to keep within the already pruned estimates upon which these values depended, Chandigarh being on what might be called the "cash and carry" plan, with loans from the central and state Government, but only a comparatively small element of direct subsidy."(60)

However, the financing procedure had a certain number of inherent anomalies which are summarised below:

i) The sequence in the preparation of the project estimate went as follows: the persons responsible selected a whole range of services and amenities which they felt would be desirable in the new city. As the project report stated, "every effort has been made to provide all the civic amenities which a modern capital should have."(61) Estimates for each item were prepared and included in the 'development costs'. These were then charged to all members of the public in the private sector desiring to build their own houses. At no point was particular consideration given to the paying ability of different sections of the population. There were either of two implications inherent in this procedure. Either it could be assumed that all sections of the population would be able to afford the land and construction costs of all planned facilities directly, or indirectly through rent, or that all those who did not have sufficiently

high incomes to enable them to do so would not have economic access to any or most of them unless they were provided by the government on a subsidised basis.

ii) In estimating costs of government housing, as already described (Ref. 2.25), it was felt necessary to incorporate an element of subsidy for almost all income groups to provide them with accommodation 'consistent with their status.' This subsidy was partly provided out of government funds and partly out of receipts from the sale of plots to private house builders. No consideration was given to how this high level of subsidy could be sustained with the growth of the city.

iii) In working out the fixed price per square yard for private housing plots, a sliding scale was adopted for different sizes (Ref. 2.26) on the basis that smaller plots 'involve a higher incidence of development costs per acre than larger ones'. Assuming that smaller plots were going to be bought by persons with lower incomes, this implied that they would have to make the same contribution towards subsidising all categories of government housing as those with higher incomes. In other words, persons belonging to lower income groups would be forced to subsidise government housing disproportionately to their income.

iv) In evenly recovering the costs for the high level of services and civic amenities from all sections of private builders, it was assumed that each category would be making equal use of them. Since lower income groups, at that time, as indeed now, were not in a position to benefit from such sophisticated amenities as Museums, Art Schools and higher educational institutions, the costing procedure implicitly involved a subsidisation by the poor of amenities predominantly used by the rich.

v) Lastly, no coherent long term financial policy was formulated which took into account how the arbitrarily chosen level of services and amenities was to be sustained in the future. The project estimate made an allocation of both government and private funds for the first five years for maintenance. It was simply assumed that a municipal authority would take charge later.

2.34 Land: Development, disposal and control

It was decided that all land within the plan area should be acquired, developed and sold by the government. Private investment was to be restricted to the construction of individual buildings and provision of infrastructure within the boundaries of individual plots sold to

individuals or institutions.

Control over land development within market economies has since long been considered crucial to urban planning. As early as 1930, in the Radiant City, Le Corbusier had described the nature of land reforms which would be essential for its implementation (Ref. 2.9). The Charter of Athens and subsequent CIAM congresses had also emphasised its central importance (2.10). Chandigarh was one of the first cities in which complete development control by the public authority was attempted in India. As all the four foreign architects were members of CIAM, they influenced this decision considerably.

The decision of complete government control over land development and disposal had two major objectives:

- i) The first was essentially concerned with controlling and regulating the growth of the city in accordance with the master plan. Within the plan area, in order to prevent speculative buying of land, and to promote co-ordinated development, a condition was attached to the sale of all private plots that construction must be completed within three years of the date of purchase. In the case of violation of this condition, the government was given statutory powers to resume such plots and sell them to genuine builders. At the same time, complete control over land development imposed the heavy responsibility on the government of anticipating the nature and scale of growth and making developed land available to meet such demand. This was recognised in the project report which stated that "No power can stop a city growing, but the form of it's growth may be controlled."
- (62)

In order to prevent haphazard growth on the periphery, outside city boundaries, control over land within a radius of 10 miles of the plan area was also sought (Fig.2.7). The objectives of doing this, as stated in the project report, were the following:

"Approaching the problem from outside one may imagine the city as lying within a region of traditional agriculture which, as it approaches the city boundaries, will be increasingly affected by the pressure of 500,000 people. It should be the aim of planning to do two things:

- a) to prevent the creation of bad semi-urban conditions on the boundaries of the new city, drawing away the strength of the city by unfair competition immediately beyond the area of local taxation; these conditions are already springing up in Mani Majra (a village in the vicinity of Chandigarh).
- b) to protect the rural community from degeneration by

contact with urban life, and to lead it towards a harmonious partnership, in which, without loss of rural status it may improve its living conditions supplying the necessities of the city in the form of milk, eggs, chickens, vegetables, etc.

To bring this about it will be necessary first to include an area around the city in a regional town planning scheme that will safeguard land use for rural and agricultural purposes and prevent exploitation. Such a scheme should include also the low hills to the north and west of the city.

This would be a negative safeguard. In addition a development scheme should be initiated that will:

- a) Organise the supply of fresh milk, butter, etc. both at the rural and the city end.
- b) Provide light roads without which nothing will work.
- c) Educate the villagers so that they will make early use of the opportunities offered and close the fatal time gap."(63)

Le Corbusier expressed his confidence of these objectives being achieved as a result of his planning in a conference:

"To build on open ground, of easy topography, filled with natural beauty, Chandigarh, thanks to its urban and architectural layout, will be sheltered from base speculation and its disastrous corollaries: the suburbs. No suburb is possible at Chandigarh."(64)

ii) The second was concerned with the increase in land values as a result of development. Public authority intervention in the urban land market has its genesis in rectifying firstly, a situation in which land prices get beyond the reach of large sections of the population, and secondly, of preventing unearned incomes due to increased land values going into the pockets of individual property owners without any benefit accruing to the community. This aspect, too, had been a central concern at CIAM congresses.

The senior architects attempted to persuade the government to adopt a policy of selling land on a leasehold basis, but, it was decided to sell freehold. As described by Maxwell Fry:

"We urged that they (Capital project Authorities) should recoup on the increased value which would be likely to flow from planning and that land should be sold leasehold, but so great was the need for the necessary cash to carry out the project estimate that the decision was made to sell land freehold and to part with the benefits. That was very sad but there was nothing we could do about it."(65)

In addition to financial constraints, the psychological

Implications of offering land on a leasehold basis to potential settlers, a large proportion of whom were insecure and uprooted refugees also had to be considered.

As a result of the adoption of this policy the potential role of the Capital Project Organisation as a public authority in rectifying gross distortions caused by market forces does not appear to have received detailed investigation. On the contrary, Le Corbusier's supreme confidence and optimism in his planning doctrine projected urban planning as a profit making venture. Even in his book on the Radiant City, he had emphasised his conviction that city planning is not a way of spending or wasting money, but a way of making money and bringing a profit. In a document explaining his views to Chandigarh authorities, he wrote:

"When the following operation has been started in a city:

buying of the necessary ground)
obtaining the money ←

framing of the first by-laws permitting the beginning of construction

selling of the first plots

arriving of the first inhabitants, etc. etc.,

a phenomenon is born: it is the appreciation in the value of a piece of land. A game, a play, has begun. One can sell cheaply or at a high price; it depends on the kind of tactics and the strategy employed in the operation.

One phrase must be affirmed:

"Good urbanism makes money:
Bad urbanism loses money!"

All the same, he cautioned:

"The problem is also to be vigilant; one must sell a true merchandise; nothing must be allowed to provoke circumstances which will bring loss to every single inhabitant.

One has the Statute of the land. It is like a seed. What can be grown from the seed? That is in the hands of the administrators."(80)

In summary, in the early years, in spite of a wide range of development and building controls being framed, no coherent land policy, taking into consideration the need for co-ordinating the availability of land with the growth of the city and ensuring its balanced accessibility to different sections of the population, was formulated.

2.35 Development and Administrative Authority

For the purpose of promoting co-ordinated development of the new town, Punjab Government set up a semi-autonomous Capital Project Organisation. Under the Chandigarh Development and Regulation Act, 1952, the Chief Administrator of the organisation was vested with powers to frame by-laws and issue instructions regarding building developments, land use, sale of developed plots, preservation of trees, regulation of outdoor advertisements, peripheral control and other related matters.

The structure of the organisation was along similar lines to that of 'Development Corporations' for new towns in Britain. Although eventually the city was to be administered by an elected Municipal authority, in the initial stages, the functions of both local administration and development were to be performed by the CPO.

Under the overall charge of the Chief Administrator, P.N. Thapar, there were essentially two sections. The first, consisting of administrative staff, was responsible for finance, management of government estates including sale of sites and enforcement, and other civic duties. The second, and more influential section, was the technical one consisting of the Engineering and Architecture/Town Planning departments. P.L. Varma was the Chief Engineer and for the first three years, the architecture and town planning department was under the local direction of the three senior architects - Maxwell Fry, Jane Drew and Pierre Jeanneret, with overall direction from the 'Architectural Adviser', Le Corbusier. Owing to the central role played by architects in determining a philosophic and idealistic basis of life in the new city in its formative stages, the architecture and town planning departments acquired a dominant status in determining the criteria on which most policies of the administration were based.

All the same, it was for the first time in India, that the functions of both planning and implementation were combined in a single organisation vested with wide ranging statutory powers for control.

2.36 Legal instruments for implementation and control

As one of the major problems discussed in CIAM congresses had been the need for planning control, a lot of thought and effort was put into devising legal instruments for such control in Chandigarh. Some of these are described below:

- i) The Capital of Punjab (Development and Regulation) Act, 1952
The jurisdiction of this act was to extend to such areas

comprising the site of the Capital as could be specified by the State Government from time to time. It vested the state government with powers regarding the transfer of land and buildings, the erection of buildings, preservation of trees, control of advertisements, etc. Clause No. 4 of the Act, describing the powers to issue directions in respect of buildings reads as follows:

"(1) For the purpose of proper planning or development of Chandigarh, the State Government or the Chief Administrator may issue such directions, as may be considered necessary, in respect of any site or building either generally for the whole of Chandigarh or for any particular locality thereof, regarding any one or more of the following matters, namely:

- a) architectural features of the elevation or frontage of any building;
- b) erection of detached or semi-detached building or both and the area of the land appurtenant to such building;
- c) the number of residential buildings which may be erected on any site in any locality;
- d) prohibition regarding erection of shops, workshops, warehouses, factories or buildings of a specified architectural character or buildings designed for particular purposes in any locality;
- e) maintenance of height and position of walls, fences, hedges or any other structural or architectural construction.
- f) restrictions regarding the use of site for purposes other than erection of buildings.

(2) Every transferee shall comply with the directions issued under sub-section (1) and shall, as expeditiously as possible, erect any building or take such other steps as may be necessary to comply with such directions."

Owing to the government architects' dissatisfaction with the architectural quality of private buildings, a large number of controls were framed and made applicable with the help of the above clause. Some of these are described below:

- a) Full Architectural Control: This applies to all commercial and residential buildings along the shopping streets of different sectors. Standard designs for houses were prepared in which the interior could be altered by the owners as long as the exterior was not visually affected. For shops, complete designs were prepared from the very beginning.
- b) System of Construction and architectural treatment of Exterior Controls: This applies to all buildings in the City Centre and all commercial buildings on the V2s. (Ref. 2.27)

c) Architectural Control: In this system the design has to be prepared in consultation with the Chief Architect by a qualified architect employed by the developer. This applies to residential buildings along certain important areas like the road at the foot of the hills (Uttar Marg), along the leisure valley and certain other V3s.

d) Schematic Design Control: In cases where special types of buildings occur in 'Architectural Control' areas, a schematic design is prepared on the basis of which the developer must prepare the final design in consultation with the Chief Architect.

e) Frame Control: This was made applicable to private houses on plots of 250 square yards and below to be built in terrace formation. Frame control comprises of fixing the extent and height of party walls and a top course connecting these, thus constituting a frame. The building portion which can be of any design stays behind this frame. Only certain standard sizes of doors and windows may be used.

f) Gates and Boundary Walls: All gates and boundary walls must conform to standard designs for providing a certain unity to the street picture.

ii) The Punjab Capital (Development and Regulation) Building Rules, 1952

These lay down the building norms and rules applicable to the whole of Chandigarh. Its various sections cover the procedure for submission of building applications, planning and architectural controls, materials and structural control, drainage control and administrative control.

iii) The Chandigarh (Sale of Sites) Rules, 1952

These lay down the method of sale of sites, the fixing of sale prices, the method of application for sale by allotment, the method of sale by auction, the delivery of possession, execution of deeds of conveyance, the fixing of use of sites, rules governing payment by instalments, the procedure in case of default, the time within which building is to be erected, the payment of registration and stamp duties, prohibition with regard to fragmentation of sites, prohibition of obnoxious industries, etc.

Under these rules, the land use for each site may be laid down by the Administration under a broad classification into four categories: residential, commercial, industrial and religious/educational/cultural. If any site is used for a purpose other than that for which it has been sold or leased, it can either be resumed by the Estate Officer or the

owner or tenant prosecuted in a court of law.

iv) The Punjab New Capital (Periphery) Control Act, 1952 (Fig. 2.7)

This Act, applicable to an area extending ten miles around Chandigarh was intended to check haphazard and unplanned development in its vicinity and to retain its rural character (Ref. 2.34).

Section 5 of the Act lays down that no person shall erect or re-erect any building or make or extend any excavation, or lay out any means of access to a road in the controlled area save in accordance with the plans or restrictions and with the previous permission of the Deputy Commissioner in writing. Within the controlled area of ten miles, buildings subservient to agriculture only may be constructed. Under Section 3 the State Government could demarcate the limits of the controlled area by making a gazette notification. The Deputy Commissioner is required to display at his office and at such places as he considers necessary, plans showing the area to be declared as 'controlled area'. Under section 12(I) the Deputy Commissioner was authorised either to prosecute persons violating the Act, or to get the unauthorised constructions demolished by staff under his control.

v) 'The Statute of the Land'

The overall use of all these powers was to be governed by what Le Corbusier called 'The Statute of the Land' which summarised the conceptual basis from which the planning of the city had evolved, its goals and functioning as visualised at the time of its creation, and how these had to be maintained in the future (Ref. 2.18 to 2.21). Besides describing the process by which selection of functions and land uses in the city had been, and had to be continued to be determined, the way locations and forms for 'containers' of envisaged functions had been and had to be anticipated and fixed, it defined how the city had to be used and the kind of life which had to be lived in it for all time to come. So complete was his confidence in his urban doctrine that he felt that so long as it was meticulously implemented and enforced by the authorities, Chandigarh would indeed be a 'city offering all amenities to the poorest of the poor of its inhabitants to lead a dignified life'. While making a plea for the translation of his views of what should constitute the statute of the land into legal form, he outlined the role of the authorities in the matter:

"The duty of an authority is to be honest: it is to control things which belong to a regime of rules (existing and understandable) which have to be created by the will of a 'collectivity'..."

and that:

"The Statute of the Land" is the description of what has been proposed and has to be proposed in the future and a commitment of the authority that such realities will never be destroyed by inattentive resolutions or decisions."(48)

2.37 Phases of Development and start of construction

30 sectors were planned to be developed in the first phase to cater for a population of 150,000. 8,919 acres of land, covering the first phase area of the master plan, were acquired by the government to start construction. Land for 17 additional sectors was to be acquired and developed during the second phase to cater for a total population of 500,000.

Le Corbusier emphasised that there should be three and not two phases of development. His view was that before development of additional sectors was undertaken, the real second phase was to consist of increasing the density of the first phase area by developing all pockets of land left undeveloped in it. This was to prevent inefficient and uneconomical use of infrastructure already developed. The physical development of additional sectors was thus to constitute a third phase.

At the outset, construction was started in a number of sectors simultaneously. With the distribution of population planned in accordance with the government's housing programme, as all income groups of employees had to be provided for to enable government headquarters to move to Chandigarh, high income/low density, middle income/middle density, low income/high density sectors had to be at least partially developed at the same time. As low income employees represented the largest proportion of total government employees, most of sector 22 and part of sector 23 became the locations of maximum housing construction. Other locations of initial development are shown in figure 2.8.

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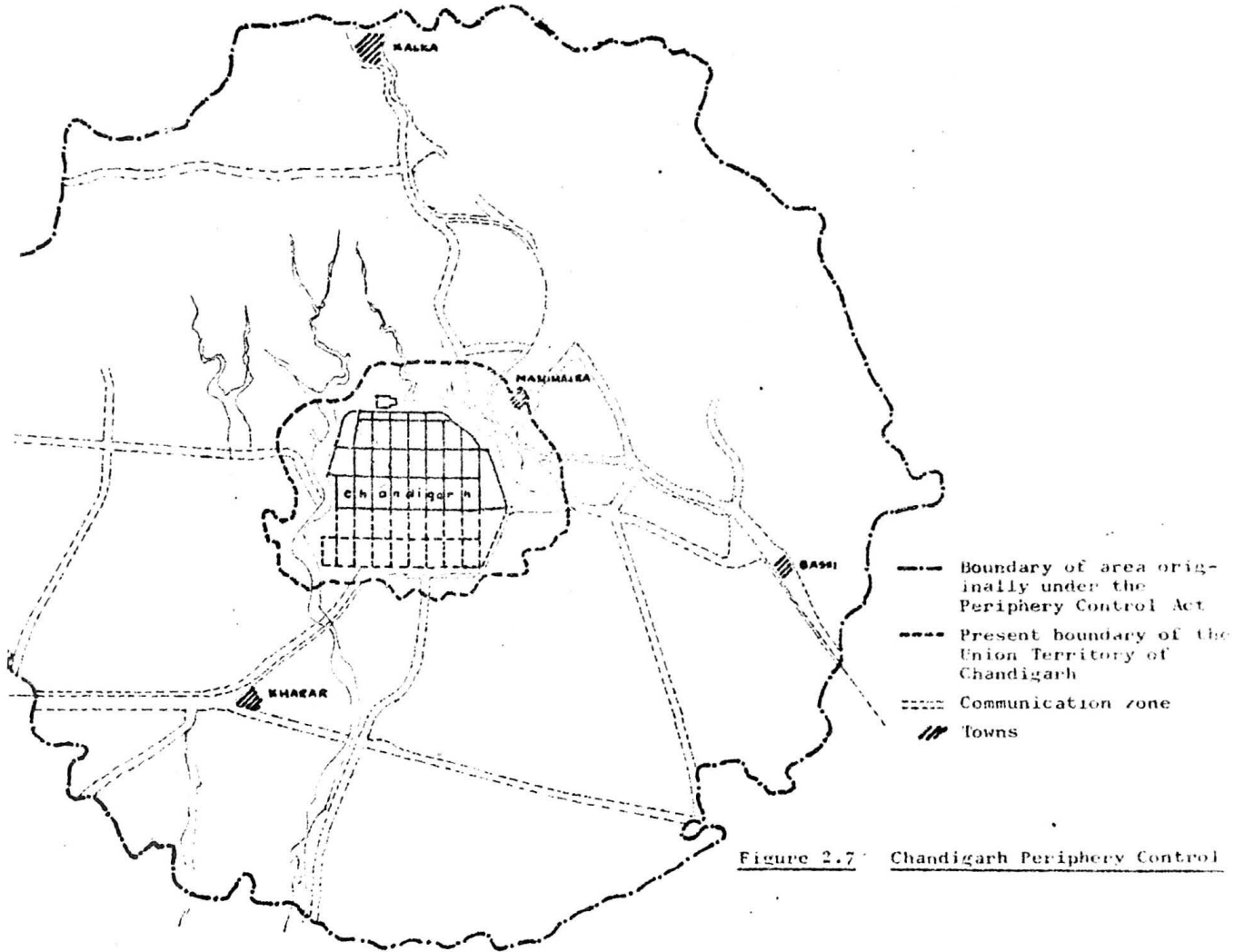


Figure 2.7 Chandigarh Periphery Control

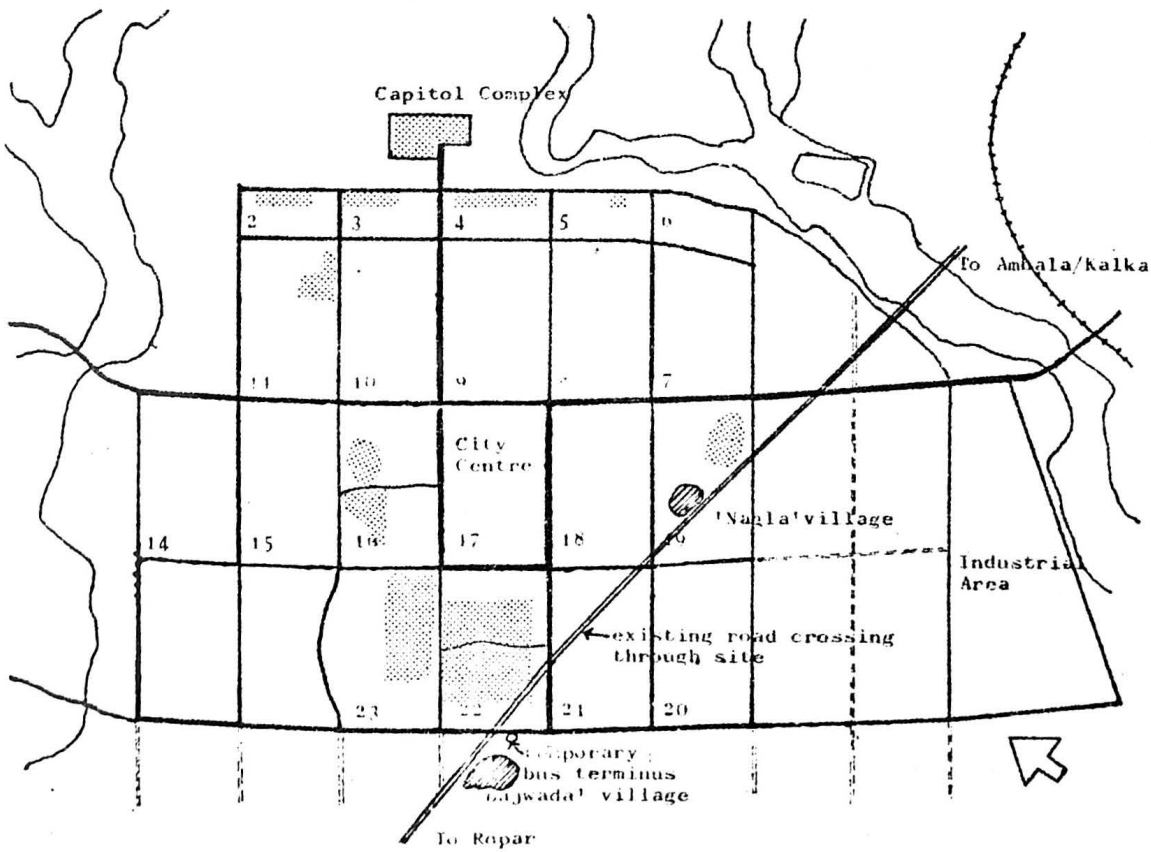


Figure 2.8 location of initial areas of development

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2.II

TABLE 2.1

Initial Programme for Government Houses as published in the Capital

<u>Project Estimate</u>					
Type of House	Category of entitled official	Area of site in sq.yards	Cost/house in Rupees*	No of houses to be built	Total cost in Rupees
I	Residence for Chief Minister	-	250,000	1	250,000
II	Residence for Chief Justice, Ministers, Speaker & Chairman State Council	-	75,000	10	750,000
III	Residence for officials drawing above Rs.2,500/- month, high court judges and financial commissioners	5,000	60,000	9	540,000
IV	Residence for officials drawing between Rs.2001/- and Rs. 2,500/- per month	4,000	45,000	8	360,000
V	Residence for officials drawing between Rs.1501/- and Rs. 2,000/- per month	3,000	40,000	20	800,000
VI	Residence for officials drawing between Rs.1001/- and Rs. 1500/- per month	2,000	35,000	25	875,000
VII	Residence for officials drawing between Rs.751/- and Rs.1000/- per month	1,000	27,000	20	540,000
VIII	Residence for officials drawing between Rs.501/- and Rs.750/- per month	500	20,000	50	1,000,000
IX	Salary grade Rs.251/- and Rs.500/- per month	250	16,000	168	2,688,000
X	Salary grade Rs.176/- and Rs.250/- per month	187.5	9,600	296	2,841,000
XI	Salary grade Rs.101/- and Rs.175/- per month	187.5	7,500	450	3,375,000
XII	Salary grade Rs.50/- and Rs.100/- per month	125	6,000	1050	6,300,000
XIII	Salary grade below Rs.50/- per month	125	3,250	1101	3,578,250
TOTAL				3208	26,808,850

*At that time the rate of exchange was Rs.13 to £1

TABLE 2.2

Economic Rent, Rent Charged and Subsidy for Different Categories of Housing for Government Employees at Chandigarh - Economic Rent 8.5 Per Cent of Capital Cost

Monthly Income Rs.	Monthly Economic Rent - Rs	Monthly Rent Charged Rs.	Monthly Subsidy Rs.	4 as % of 2	3 as % of 2	2 as % of 1
1	2	3	4	5	6	7
50-100	50.00	7.50	42.50	85	15	67
101-175	83.00	13.80	69.20	83	17	60
176-250	102.00	21.30	80.70	79	21	48
251-500	150.00	37.50	112.50	75	25	40
501-750	205.00	62.50	142.50	70	30	33
751-1,000	277.00	87.50	189.00	68	32	32
1,001-1,500	398.00	125.00	273.00	69	31	32
1,501-2,000	517.00	175.00	342.00	66	34	30
2,001-2,500	560.00	225.00	335.00	60	40	25
Special - over 2,500	1,078.00	250.00	828.00	77	23	43
Average Per Dwelling Unit	71.00	17.00	54.00	76	24	42

*Source: Ved Prakash, New Towns in India, Duke University, Program in comparative Studies on Southern Asia, 1969.

CHAPTER 3

3. DEVELOPMENT OF CHANDIGARH: 1951-75

Within 25 years Chandigarh has developed into a rapidly growing city. Between 1961 and 1971, its population increased from 89,000 to 219,000, placing it amongst 142 Class 1 cities (population exceeding 100,000) in India. During this decade, the rate of growth of its population was 144 per cent, one of the highest for urban areas in the country.

3.1 Political and Administrative Changes and the regional context

The high rate of growth of the city has largely been a consequence of a number of political and administrative changes which have taken place since its creation.

The first of these was the merging of the state of PEPSU with Punjab in 1956. This led to a sudden shift of additional government offices and staff from Patiala, the old capital of PEPSU, to Chandigarh in the same and following year.

The second major event was the reorganisation of the erstwhile state of Punjab into the present states of Punjab and Haryana in November 1966. The dispute over which of the new states was to get Chandigarh was temporarily resolved by the creation of the Union Territory of Chandigarh, administered directly by the Central Government with Chandigarh City serving as the Administrative centre of all three governments. This led to a gross accentuation of the administrative functions of the city with many offices of both Punjab and Haryana governments being shifted to it from Simla, Patiala and Jullunder. In addition, several central government offices were also moved there.

The third major political event, whose impact is yet to be assessed, was the decision of the Central Government in 1970 to award the city to Punjab in 1975. Haryana was allowed to continue using Chandigarh as its administrative centre during this period to give it time to make its own arrangements for a separate Capital. At the beginning of 1975, the implementation of this decision was delayed indefinitely on technical grounds, although it still holds.

The temporary conversion of Chandigarh into a Union Territory has been significant in the following respects:

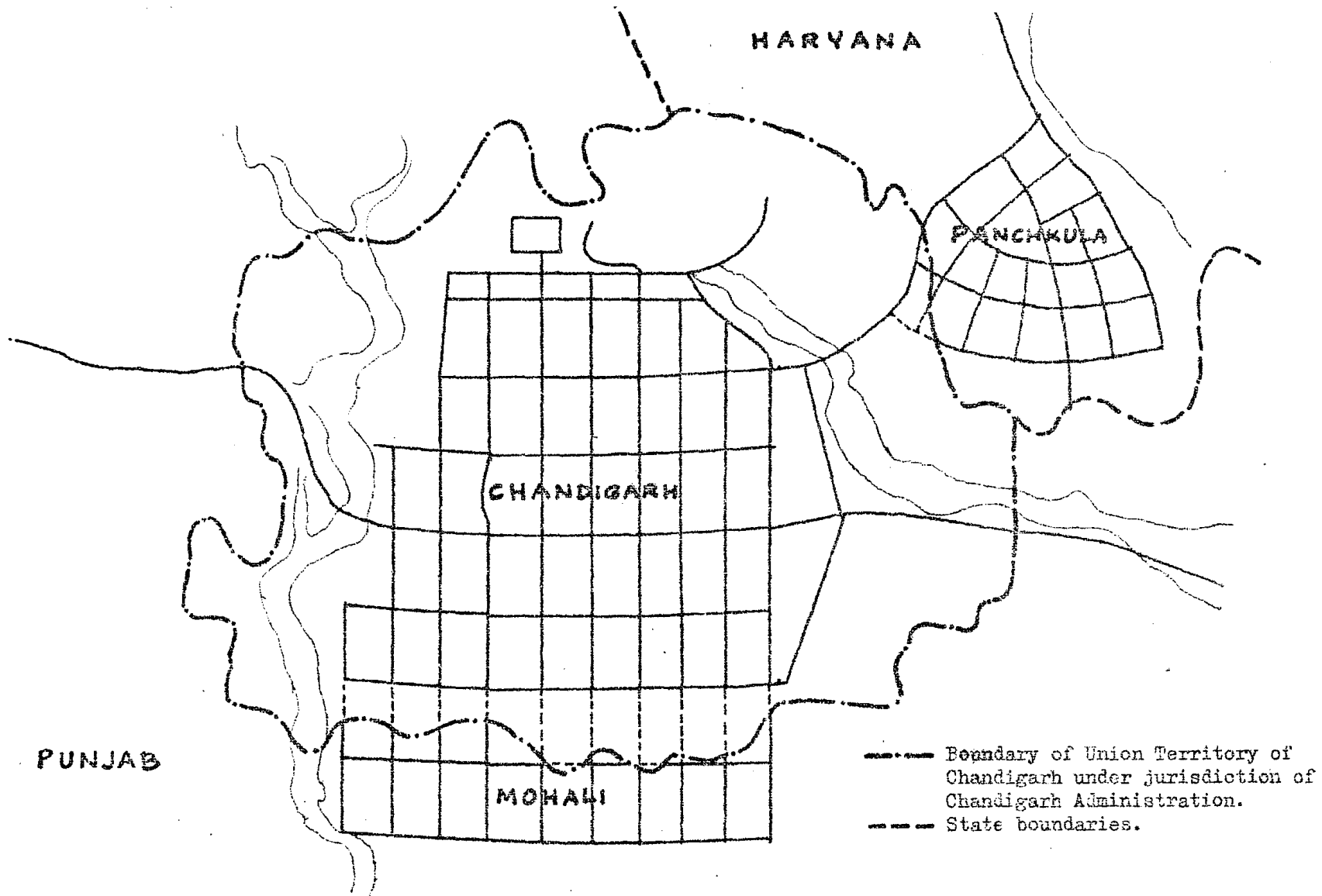
- i) The responsibility for the development, financing and administration of the city got transferred from the state government of Punjab to the Central Government.

ii) The demarcation of the Union Territory boundary under the jurisdiction of Chandigarh Administration includes the master plan area for both phases and a small belt of rural land surrounding it. This area is considerably smaller than the area within a radius of ten miles covered by the Periphery Control Act of 1952 (Ref. figure 2.7). The governments of both Punjab and Haryana, competing with each other to exploit the potential of development generated by the high investment in infrastructure and services, and the proximity to administrative offices in Chandigarh, have started the development of two separate townships just outside the U.T. boundary. Development of the industrial town at Mohali by Punjab is already well under way. Panchkula, a market town planned by Haryana, is still to make a headway on the ground (Ref. figure 3.1). The concept of maintaining a clear rural/urban definition with Chandigarh as a 'Radio-Concentric City of exchanges' has thus already become ineffective. Punjab government likes to describe Mohali as the third phase of Chandigarh, and its master plan envisages the linking of Mohali sectors with those of Chandigarh when the latter is handed back to Punjab. Owing to Mohali being developed as an industrial estate, even the clear functional definition of Chandigarh as a purely administrative and cultural centre is potentially destroyed.

iii) In addition, a number of other developments have taken place in the vicinity. These include the establishment of a Military Cantonment and a Hindustan Machine Tools factory within the 10 miles periphery. The resident staff of either rely heavily on Chandigarh for various amenities and services.

3.2 Basic Economic Activities and Employment Structure

Between 1961 and 1971, the percentage of workers to total population in the city decreased from 37.5% to 33.5%. The latter is still above the all India average of 29.5% for urban areas. The distribution of workers amongst different economic activities during 1961 and 1971 is shown in Table 3.1. Owing to the enlargement of Chandigarh's administrative functions, the proportion of government employees during the decade increased from 50 to 61.5 per cent. In other sectors of activity like trade and commerce, transportation and industries, although the increase in absolute terms was three to four times, the percentage of workers in each of these categories remained much below the average for a normal urban centre in India. Thus, a majority of Chandigarh's working population is in salaried employment with fixed incomes, the economic structure of the



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Figure 3.1 The planned industrial township 'Mohali' in Punjab and market town 'Panchkula' in Haryana located well within the original Periphery Control Zone

city being dependent on their limited purchasing power. The incomewise distribution of households for the whole of urban India and the adjustments made for Chandigarh by Chandigarh Administration are shown in Table 3.2. The latter appears highly optimistic given the basic economic activities of the working population.

3.3 Distribution of population and the two phases of development

Although development of the overall framework of the first phase area was completed by the mid 60s, large parts of some sectors, particularly those on the south east, and packets of land in most of the others remained to be developed. Contrary to Le Corbusier's emphasis on completion and densification of the first phase area before starting work on the second phase, development of the latter was started around 1966. A large number of residential plots in Sectors 35 and 36 in the second phase were sold to staff of the armed forces at concessional rates. At present, development of most of the second phase sectors is in hand.

The distribution of planned populations for different sectors and their populations recorded during the 1971 census are shown in Figure 3.2. The emerging pattern shows present populations below planned targets in northern low density sectors and already exceeding them in some of the southern high density ones, further accentuating the social and economic hierarchy originally planned for. Some of the factors which have led to this development are dealt with in the following sections.

3.4 Construction of government and private houses and the general housing situation

The aspirations of the government and architects/planners with regard to the minimum standards of housing accommodation for each household in the new city have been described in 2.24. During the first decade of Chandigarh's existence, in spite of a rapid growth of population from almost nil to 89,000, the objectives remained reasonably achieved. A majority of government employees were able to obtain government accommodation and rents of private housing remained low.

Two policy decisions of the government aimed at promoting development of the new town made this situation possible. The first was to induce the construction of houses by private individuals through incentives and sanctions. Residential plots were sold by allotment at fixed prices, government bonds being accepted in lieu of cash payments in the case of displaced persons. Loans on easy terms were provided for house construction

to plot holders. In 1959, the then Chief Minister of Punjab granted an exemption to the city from the imposition of property taxes and the Rent Restriction Act for a period of 25 years.

The second was the construction of a large number of houses by the government for its own employees. During the first few years, it constructed over 8,000 dwelling units, sufficient to accommodate most employees at that time. However, in 1956, when there was a sudden influx of additional government personnel owing to the merger with PEPSU, the resulting housing shortage was sought to be solved by allocating two families to a housing unit in the lowest income categories. Thus, the aim of providing a self-contained dwelling unit per household was put aside by the government itself within 6 years of the city's inception.

As pointed out by Dr. D'Souza,

"Of the two measures adopted, it is mainly the construction of houses by the Government on a large scale that was responsible for easing the housing situation. Despite several incentives, private owners were too slow in constructing on their plots. As late as 1964, while the Government had constructed on 90 per cent of its plots, the private owners had constructed to the tune of 31 per cent only. It would appear in retrospect that most of the private owners had purchased plots mainly as an investment proposition. Some of the displaced persons used the purchase of plots as a device for encashing Government bonds. A large number of owners were Government employees who lived in Government houses and hence did not feel the urgency of constructing their own houses for living purposes. On the other hand, the relatively low rents did not make the construction of a house an attractive economic proposition. In the face of lapses on a large scale on the part of private owners to fulfil the stipulation of constructing a plot within three years, the Administration had to relax the time limit again and again. As a matter of fact, despite innumerable lapses, no plot has yet been finally resumed by the Administration."(1)

As pointed out earlier (Ref. 2.25) from the very beginning, the Government's housing programme involved a substantial element of subsidy for virtually all categories of houses. This made its continuation on a large scale dependent on both the willingness, and ability, of the state government to continue allocating large sums of money for investment which was not directly productive. In any case, the project estimate dealt with fixed allocations for specific building projects and did not include any long term housing policy.

From the beginning of the 60's, owing to lack of allocation of funds for the purpose, the Government house construction came to a virtual

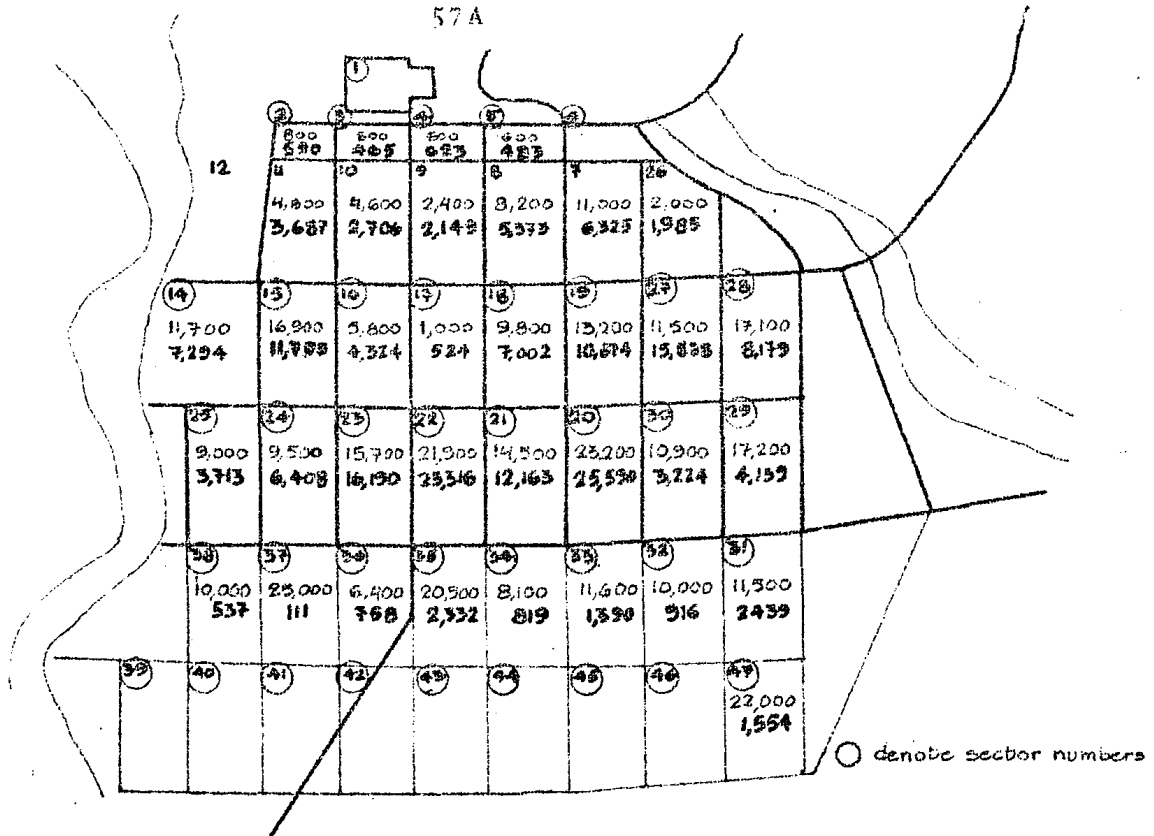


Figure 3.2 Distribution of target and actual populations (1971 census) in different sectors (larger figures denote actual populations).

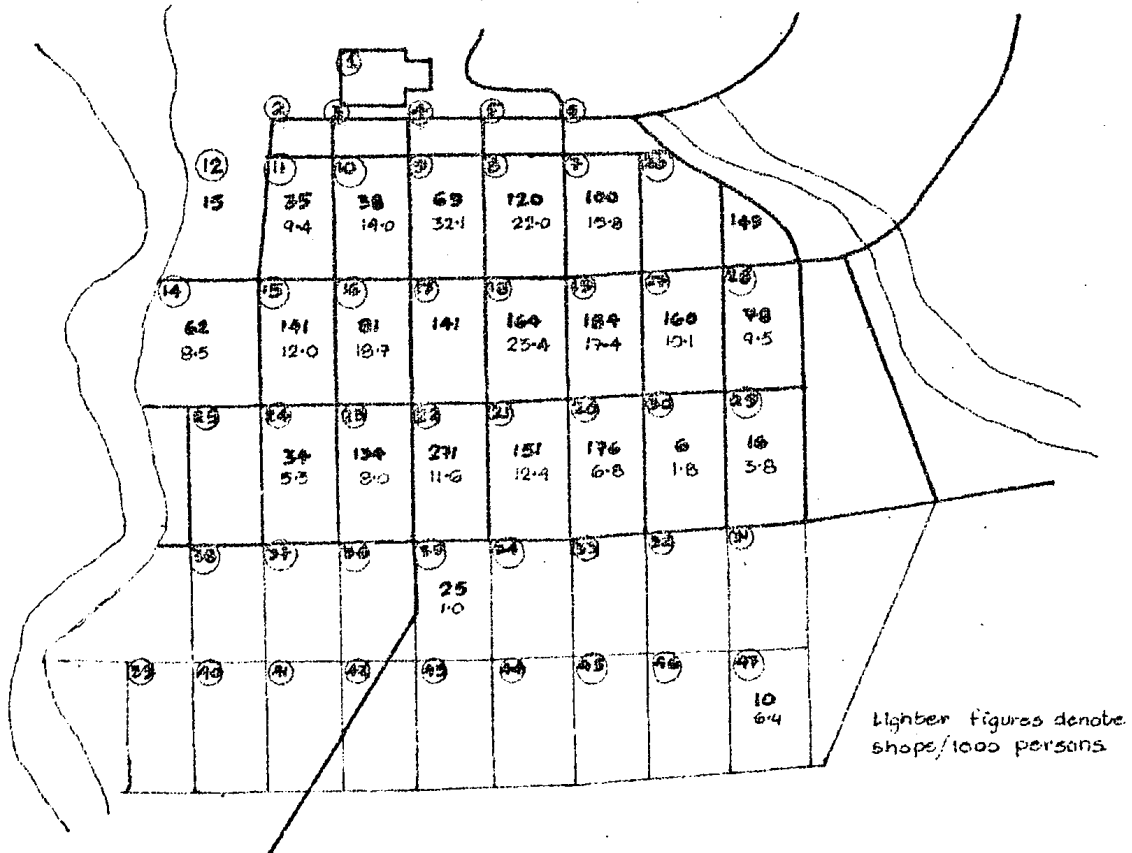
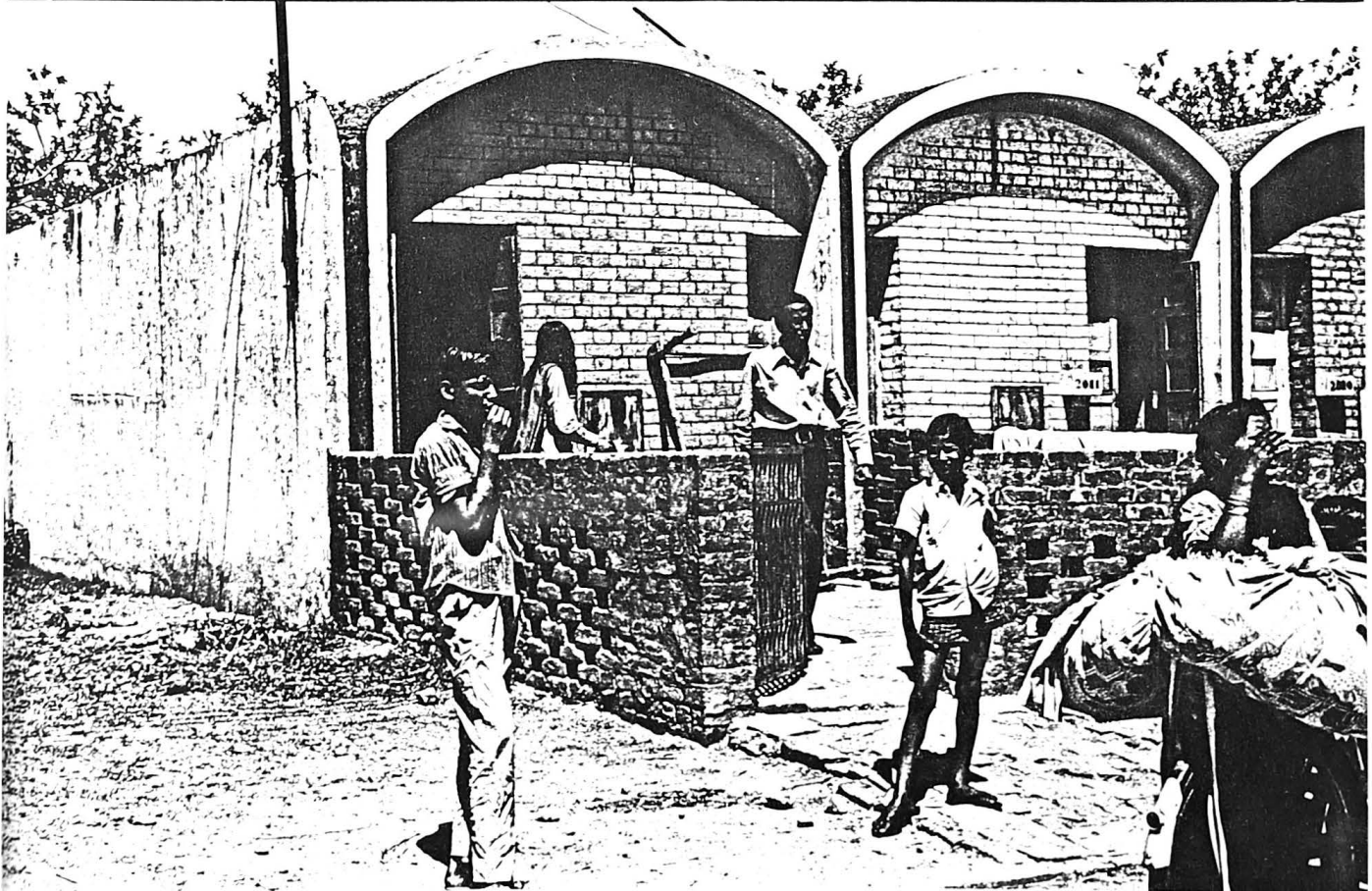


Figure 3.3 Distribution of number of planned shops and planned shops per 1000 persons in different sectors in 1971 (Source: G. Krishan & S.K. Agarwal, Commercial Pattern of a planned city: Chandigarh, National Geographical Journal of India, Vol. XIX, Part 2, June 1973)



1. (Above) Private housing on 250 square yards plots built in accordance with 'Architectural Control' on the shopping street in Sector 15.
2. (Below) Cheapest Government house type built only in the early years.

halt. Since 1961, more and more Government employees have had to rent private accommodation. The problem of housing Government employees began to be felt acutely about 1964. Table 3.3 shows the position regarding the allotment of different types of Government houses and employees on the waiting list in 1964. The 8,301 available housing units were allotted to 11,938 Government employees. In addition, as many as 3,041 were on the waiting list for Government accommodation. This was at a time when barely 4,000 private houses had been built. The result was a substantial rise in rents on the private market.

"To mollify the rumblings of dissatisfaction on the part of its employees living in private houses, the Government started paying a house rent allowance at the rate of 7½% of the salary. This measure only resulted in a sudden spurt in rents without bringing any real relief to the tenants."(2).

The multiplication of Chandigarh's administrative functions following the reorganisation of state boundaries further aggravated the housing shortage owing to a large influx of additional government staff. The position regarding government housing in 1972 is shown in Table 3.4. Although the total number of houses had been increased by approximately 3,500 over a period of eight years, most of the additional units were allotted to those who had been sharing houses previously. Therefore, the total number of employees living in Government houses increased from 11,938 to only 13,821. The enormity of the problem becomes apparent when it is realised that whereas in 1964 there were about 3,000 Government employees on the waiting list, at present there are 18,000 - a sixfold increase. Some of the lowest income employees on the waiting list have been waiting for their turn since 1957. As against a supply of 11,880 housing units, 20,000 additional units are needed to accommodate Government employees in Government houses at present. Against this background, Chandigarh Administration has proposed the construction of only 604 Government houses during the Fifth Five Year Plan (1974-79). The distribution of Government employees on the waiting list for different types of houses and the proportion of this demand which the Administration will be able to meet are shown in Table 3.5.

The rise in rents caused by the housing shortage made private house construction highly profitable. The Government's inaction in the face of a phenomenal rate of growth of population, was to some extent compensated for by the operation of market forces. Whereas up to 1964, in spite of several inducements by the government, only 4,000 private houses had been built, by 1974 another 7,000 had been added. Although on each plot

permission was available for the construction of two dwelling units, people belonging to higher income groups having larger plots predominately built houses designed to accommodate one household only. Chandigarh Administration estimates that only 50% of private plots have been built designed to accommodate two family units each. Accordingly, private housing accommodation built so far is estimated to be sufficient for 16,500 households. However, approximately 30,600 households have had to find accommodation within these houses. The natural consequence of this has been multiple occupation, the latter being mostly confined to the smallest houses. Although comprehensive data on the current degree of multiple occupation in houses of different sizes was not available, a number of random surveys indicated its being acute in private houses built on plots of 250 square yards and below, with each accommodating from 2 to as many as 8 or 9 households. As plots of these sizes were provided in sectors for low income and high density development, the populations in sectors with a large number of such plots have already shot well beyond the planned targets resulting in the uneven distribution of population within the first phase sectors (Ref. 3.3 & Fig. 3.2).

The increased house construction by the private sector after 1964 was largely on residential plots sold by allotment at fixed prices up to 1960. From 1961 onwards, parallel with a virtual halt in Government house construction, Chandigarh Administration adopted the policy of selling even residential plots by open auction to the highest bidders. In addition as shown in Table 3.6, between 1961 and 1975, while the population increased by approximately 170,000 only 1,112 plots were put up for sale. Out of the 4,059 plots sold by allotment at fixed prices, more than three fourths were sold to persons belonging to the defence forces not permanently resident in Chandigarh. After six years or so of their allotment, only 10 per cent had been built upon. Consequently, persons who had purchased plots before 1961 have been able to make small fortunes by renting out their houses at the increased rents. Those who had to resort to buying through public auction, have often had to rent out at least parts of their houses at the highest possible rents just to enable them to repay loans or to recover some of their capital investment.

As pointed out by Dr. D'Souza,

"An interesting feature of the rising rents in Chandigarh is that very often, the rents are related not so much to the housing space as to the paying capacity of the tenants. Since most of the tenants are entitled to house rent allowance which is given as a percentage of salary, with

every rise in salary, the capacity to pay house rent also increases. On the other hand, since the accommodation available is very limited, the tenants are unable to secure improved accommodation. Consequently, they pass on the higher amounts to their landlords without the benefit of better accommodation. For the same reason, whenever the rate of house rent allowance is increased, the house rents in general suddenly move upwards, as happened in 1965 when house rent allowance of 7½% was introduced and recently, when it was raised to 12½%.

Another feature of the housing in Chandigarh is that a large number of private houses are owned by persons who themselves live in houses provided by their employers, such as the Government. If they were to live in their own houses, the Government houses could provide more satisfactory accommodation to others who are tenants in private houses. That would have, of course, deprived the former of their substantial profits from rents. So far all attempts made by the Government to compel its employees to shift to their own houses have proved futile."(3)

In summary, the present reality in terms of the high objectives aimed at with regard to the living conditions of the population at the time of Chandigarh's inception, is totally different. A rough idea about the prevalence of overcrowding and the general housing situation in the city can be had from the 1971 census data. As many as 38 per cent of the households were occupying only one room each with an average of 3.4 persons per room while another 35 per cent were occupying two rooms each with an average of 2.3 persons per room. Thus, as many as 73 per cent of the total households were living in accommodation either below, or just equal to, the bare minimum of two rooms per household aimed at. The above data does not provide information about the availability of services such as kitchens and washing facilities to each unit. In addition, a substantial proportion of the total households, approximately 13 to 15 per cent, were living in totally 'non-plan' houses, not built in conformity with the minimum building standards adopted in the building by-laws, and without water borne sanitation and washing facilities, aimed at for every house in the city. The development of this aspect of the housing situation is dealt with in greater detail separately (Ref. 3.12).

3.5 Development of commercial and services provision

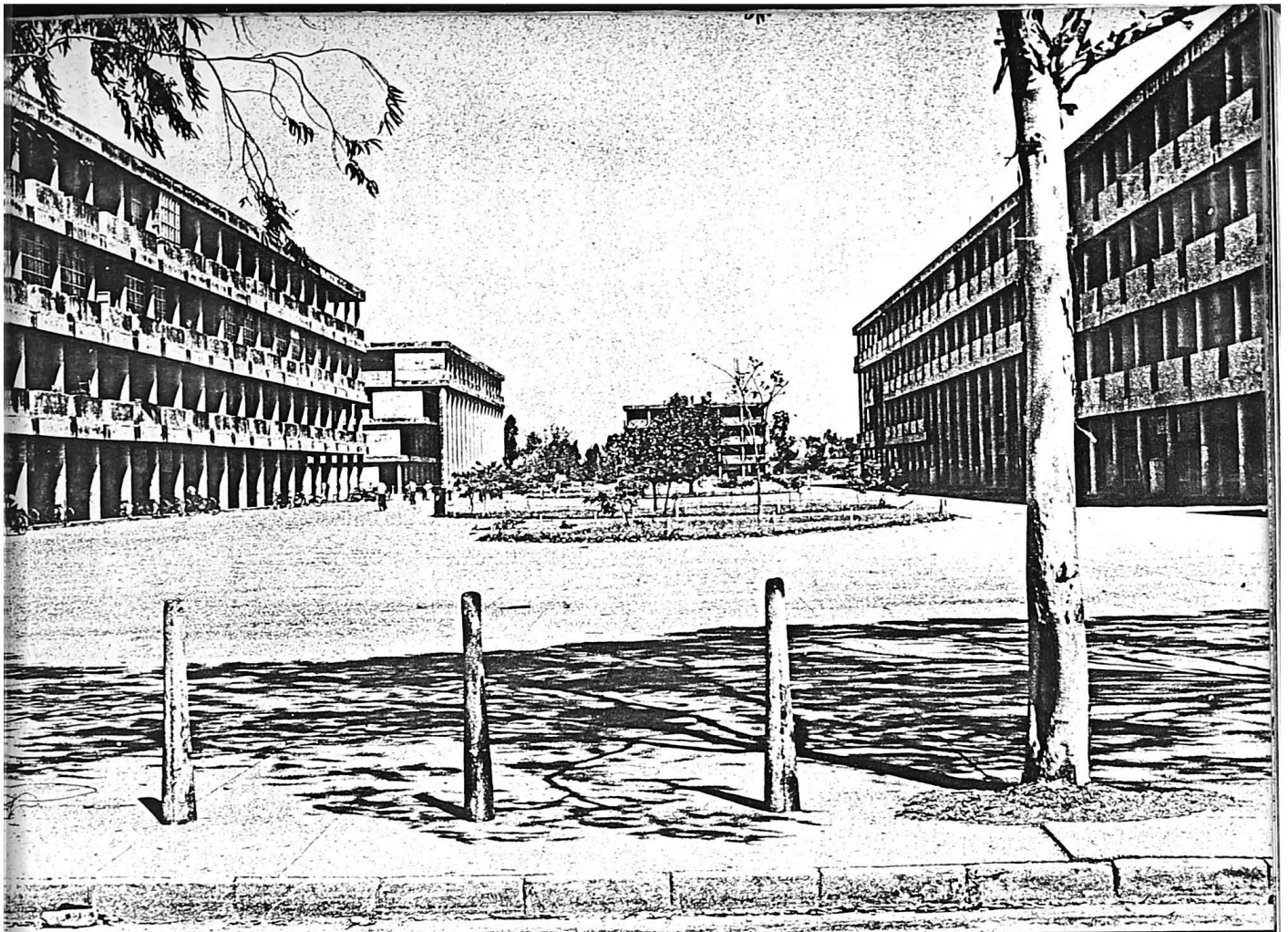
The basis of planned provision for trading and services facilities at two levels of scale - city and local levels; is described in 2.27 and 2.28. In the initial stages, owing to the absence of a substantial permanently resident population, the development of city scale facilities was delayed. The first residential sector in which large scale development

was undertaken was Sector 22. Shop-cum-flats and booths on the 'V4' of this sector also developed at a fast rate. Owing to the head start obtained by this shopping centre, for the first ten to twelve years, it functioned as the commercial centre for the whole city. As other sectors developed, the development of shopping centres in these sectors also picked up pace. The general pattern was that of commercial development following residential development. To induce investment in building, a large number of sites were sold in early years and loans were made available even for some commercial premises. In the City Centre, the Capital Project authorities built a number of shops on the V4 and rented them out to shopkeepers at fixed rents calculated to recover development and construction costs. Development of the commercial centre with the 'chowk' was similarly initiated by government construction.

Up to 1961, commercial sites and built up premises were sold freehold in open auction. Since then they have been sold on a leasehold basis, the normal lease being for 99 years. In addition to the premium, a system of charging annual ground rents has also been introduced. As in the case of residential sites, the number of commercial sites released for sale per year was also reduced after 1961. With the high rate of growth of population, demand for commercial premises has also been growing. Consequently, both land values and rents have shot up. Whereas in 1954, the cost of construction of a typical bay unit in the commercial centre was calculated to be Rs.85 to 90,000, in 1973 the auctioned premium for just the land for one such bay came to Rs.571,000. The auctioned price for a typical 'booth', the smallest planned shop unit in a residential sector, is in the region of Rs.30,000.

At the City scale, development of the commercial centre and the V4 in Sector 17 is in a fairly advanced stage. Specialised markets visualised along the V2s, however, lag far behind. The commercial reservation along the north east of the V2 station/University has so far been developed only in sector 7. For the remaining areas, Chandigarh Administration is 'sitting and waiting' for both demand and land values to rise before releasing the land for development.

The number of planned shops operating in each residential sector for catering to local needs and the distribution of planned shops per 1000 persons in different sectors in 1971 are shown in figure 3.3. As evident from the figure, the distribution of shops per 1000 persons in different sectors is fairly uneven. The general pattern indicates a greater number of shops relative to population in the northern high income/low density sectors compared to the southern low income/high density



3. (Above) City Centre in Sector 17 built in accordance with frame control.
4. (Below) City scale commercial provision along the V2 in Sector 7.



5. (Above) Local shopping development in Sector 21 specialising in auto repairs and spare parts instead of catering to daily needs of sector residents.
6. (Below) Residential buildings along a V4 being put to other than residential use.

ones.

In addition to the disparity in the number of local shops in different sectors, in a number of sectors shops dealing in specialised commodities or services have emerged. The most conspicuous examples are sectors 21 and 18 specialising in auto spare parts/repairs and building materials respectively. Some of the developing sectors on the south eastern side adjoining the industrial area are displaying similar tendencies. As sector shopping centres were planned to cater to the diversity of daily needs of resident populations, stringent attempts have been made by Chandigarh Administration to prevent such specialised markets from developing, but with little success. Further, although commercial land use was planned only along the south western sides of sector 'bazaar' streets, a considerable number of residential units on the opposite sides are also being put to other than residential use. A wide range of small scale professional, educational and business enterprises are functioning from there. In 1974, out of a total of 2,251 trading and services establishments operating from the V4s of residential sectors, as many as 357 (13.7%) were functioning on the non-commercial sides. In spite of determined efforts of Chandigarh Administration to enforce planned land uses, such developments have proved difficult to control.

Above all, a substantial proportion of trading and services units functioning in the city, have developed totally outside the planned framework for commercial and services provision. This aspect of the commercial and services sector is dealt with in detail separately (Ref. 3.12).

3.6 The Industrial area and Industries

In the initial years, promoting development of even the comparatively small reservation of land for industries proved highly difficult. Chandigarh's location offered few advantages to industrialists either from the point of view of availability of raw materials, a potentially attractive market, or being linked with any other major industrial complex. The restrictions imposed by the architects/planners on the types of permitted buildings and fuels was an added disincentive. Only determined and persistent efforts at individually persuading a number of industrialists with the help of inducements of easy credit facilities,

cheap land, allotment of scarce raw materials and of import licenses resulted in a number of industries getting established in the city. As a result, industrial development in the city has not evolved along any rational pattern. As pointed out by a study carried out by the small

Industries service Institute,

"The existing processing and manufacturing industrial activity constitutes not only a weak sector of the economic structure of the city but has also a loose base in as much as the industrial activity does not reveal any well thought out pattern. The manufacturing firms are neither resource based nor market oriented, as also not linked with any major industrial complex. These range from a nut and bolt manufacturing unit to a re-rolling mill, from an oil-crushing to an automatic antibiotic manufacturing plant and from machine tools manufacturing to precision plants making electrical metres and hosiery needles. These hardly indicate any inter-industry linkage which brings about clustering of industries with inter-industry requirements."(4)

According to the 1971 census, 6 large industrial units employed 33.4 per cent of the total industrial workers in the city, the remaining consisting of small scale units. Owing to the high level of automation of the large scale firms, they have had a limited impact on expanding employment opportunities or producing a multiplier effect on the local economy.

All the same, contrary to original plans, an additional industrial area is being developed during the second phase. The guidelines along which Chandigarh Administration is developing this remain that

"As a planned city, the industrial pattern has to fit in the overall planning and architectural control, and cannot impair the aesthetics of the city".(5)

Accordingly, conforming to the uni-functional land use planning adopted for the master plan, even petty manufacturing and service activities which have been emerging in residential or commercial areas of the city have been classified as 'industrial' activities and attempts made to compel them to move to the industrial area far removed from the densely populated sectors. These include a number of small scale enterprises started by individuals in residential areas such as radio assembling, printing presses, bakeries and confectionaries etc. Not all these attempts have proved successful.

In addition, attempts are being made to promote small scale high technology enterprises to absorb some of the technically trained unemployed persons in the city.

3.7 Educational and Cultural

In addition to Punjab University, which is fully established with the adjoining sector 25 reserved for its future expansion, a large number

of other advanced and technical educational institutions have been established in the city. These include the Punjab Engineering College, and one of the largest Post graduate Medical training and research Institutes in the country.

In the 'Leisure Valley', in addition to the construction of two museums and development of a 'Rose Garden' in Sector 16, few of the cultural activities envisaged by Le Corbusier have yet been instituted.

The primary and secondary schools built in the green bands running through different sectors have not necessarily resulted in the children resident in these sectors attending them. A substantial proportion of parents have been sending their children to the schools of their choice, whether they are in the sector of their residence or in the opposite corner of the city. In addition, a large number of private schools of different sizes are functioning from residential buildings. This has been a consequence of inadequate planned accommodation for schools.

All the same, Chandigarh has become a major educational centre. According to the 1971 census, the Union Territory of Chandigarh had the highest literacy rate in the whole country.

3.8 Development of the 'V's' and transportation

In the general background of an acute shortage of living and working accommodation, the physical network of seven types of roads (Ref. 2.17) is in an advanced stage of development. In the initial stages the main emphasis was given to the development of V2s to V6s meant largely for vehicular traffic. In recent years, development of a number of V7s (for pedestrians only) through the 'Leisure Valley' and the vertical green bands of some of the first phase sectors, has also been taken in hand. In the commercial centre, an overbridge for segregating pedestrians and vehicular traffic has already been built and one of the level crossings between two residential sectors is under construction. Although the commercial belts along most of the V2s remain to be developed, an extensive network of side lanes along them has already been built.

In spite of the massive investment in development of the physical network of roads, the majority of the city's residents do not have access to cheap and efficient transport envisaged for the city. Even after 25 years, development of the road network is dominated by the abstract statement of principle initially outlined by Le Corbusier. No attempt has been made at inter-relating the intensity of actual use of the roads by existing forms of traffic to the amount invested in them. Owing to the

scarce resources available to Chandigarh Transport Undertaking and the low paying capacity of the majority of the population, it has not been possible to organise a cheap and efficient public transport service. The low density of population and the accompanying long distances of travel increase the costs of running such a system. As a result, the most common form of transport is the private bicycle. Hired private transport consists of cycle 'rickshaws' and three wheeled scooters. A large proportion of even goods transport within the city is handled either by horse drawn carts or cycle 'rickshaws'. Under the circumstances, attempts at enforcing use of the road network aimed at segregating fast vehicular traffic from pedestrians assume the existence of a hypothetical situation bearing little resemblance to external reality. A whole range of forms of transport and types of vehicles actually in existence are not taken into consideration. At the most, this has been instrumental in the pouring of vast amounts of public funds for the convenience of a small minority of privileged car owners, making manually and animal driven vehicles travel longer distances, and therefore further increasing travelling costs and time.

3.9 Finance

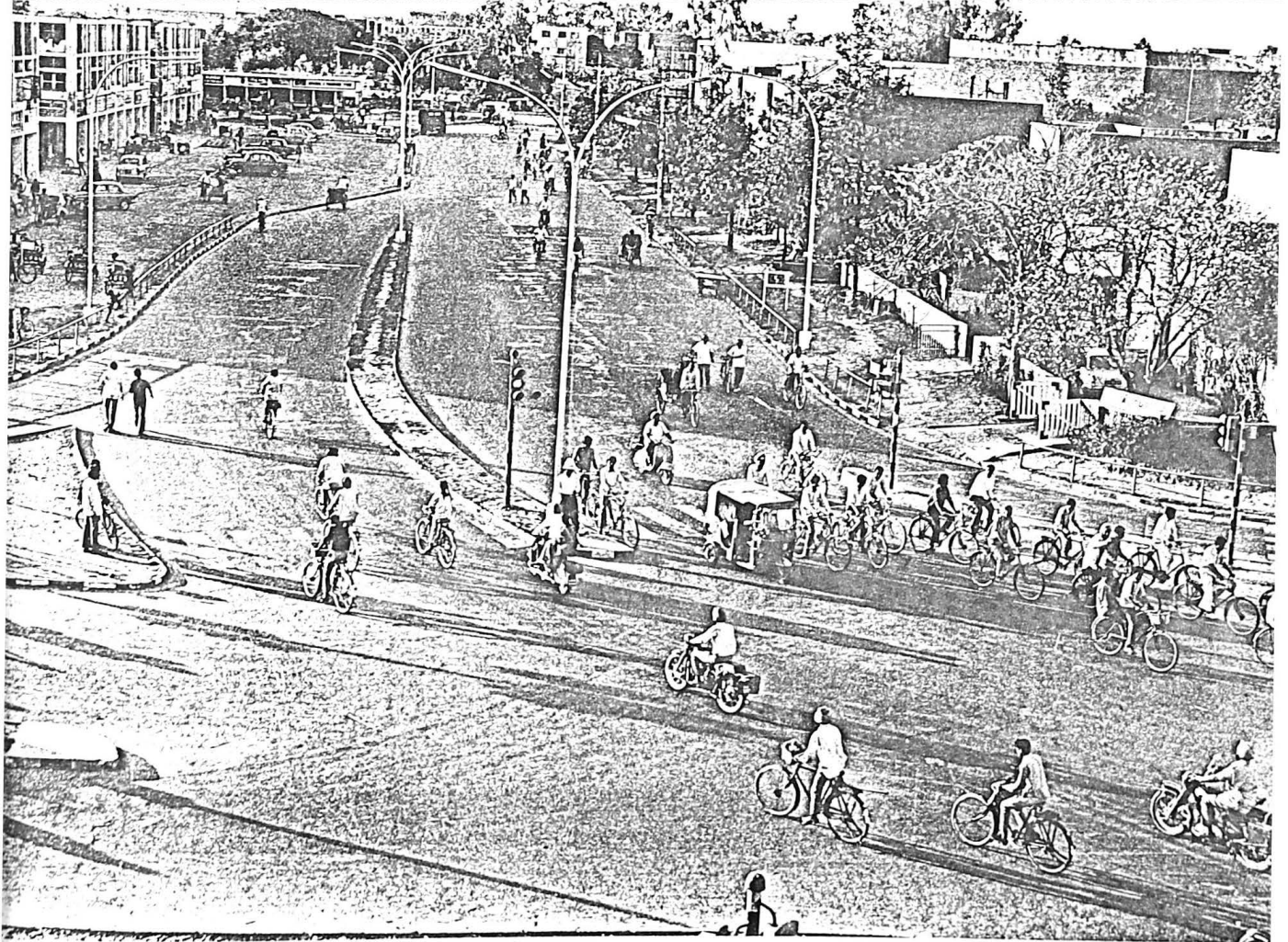
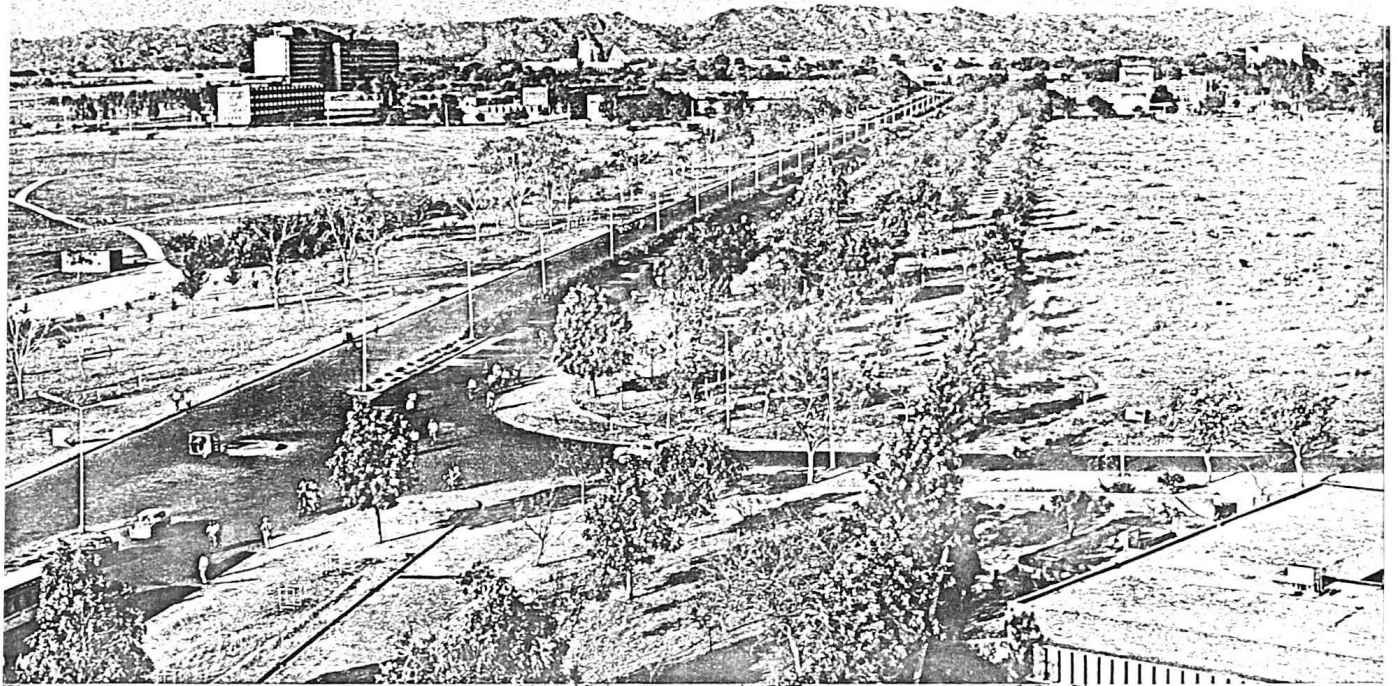
As described in 2.33, the sources of financing the initial phase of development were partly direct grants and loans from the central government, and partly a contribution by Punjab Government, with 'development costs' being recovered through the sale of plots to the public. The project estimate dealt with specific building and development projects with no long term clarification about sources of finance for maintenance and development in the future. The rehabilitation loans initially given by the central government were later probably changed to a grant because there is no indication of their having been paid back.

Out of the original project estimate of a gross expenditure of Rs.174.4 million, the outlay during the first Five Year Plan period (1951-56) was to be Rs.128 million with a balance of Rs.46.4 million being left over for utilisation after 1955-56.

During the second Five Year Plan (1956-61), the Planning Commission approved an additional outlay for the Project. Taking into account expenditure on two additional housing schemes and the additional allocation approved by the Planning Commission for this period, the Project Estimate was revised to Rs.241 million.

Further allocation was approved by the Planning Commission during the Third Five Year Plan (1961-66). As this time no specific expenditure

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7. (Above) The V2 Capitol (with Le Corbusier's Capitol Complex in the background) and,
8. (Below) The V4 in Sector 18, both during the evening 'rush hour' traffic in Chandigarh.

was approved for the construction of government housing, the government house construction programme ground to a virtual halt (Ref. 3.4). In the meantime, in 1959, "In order to encourage the construction of private houses" the then Chief Minister of Punjab had given an assurance of a tax holiday to the residents of the city for a period of 25 years. The Capital Project Organisation started experiencing the first financial strains of continuing with the pattern of development followed till then.

As maintenance and operating costs increased, and the availability of Government funds showed signs of decreasing, it was decided to try raising additional resources by changing the land sale policy in the city. The practice of selling residential plots by allotment at fixed prices calculated on the basis of development costs was given up in favour of selling them in open auction to the highest bidders. Simultaneously, the sale of commercial plots was changed from freehold to 99 year leasehold basis and a ground rent of 2½ per cent per annum for the first 33 years, 3½% for the next 33 years and 5% for the last 33 years on the auctioned premium, was introduced.

With the reorganisation of state boundaries and the creation of the Union Territory of Chandigarh, the Administration and development of the city became a direct responsibility of the Central Government. During the Three Annual Plans from 1966-69, the Planning Commission approved still further allocation of Plan resources for the Capital Project. All the same, pressure remained against Chandigarh being a continuous burden on the public exchequer.

The budget for the Capital Project approved by the Planning Commission during the Fourth Five Year Plan (1969-74) amounted to a gross expenditure of Rs.110 million. Out of this, the anticipated receipts from the sale of plots were estimated to be Rs.70 million, and the deficit of Rs.40 million was to be fully financed by the Central Government. Instead, towards the end of the Fourth Plan period, the anticipated expenditure reported by Chandigarh Administration amounted to Rs.126.8 million gross out of which as much as Rs.85.5 million had been recovered through the sale of plots. The estimated recovery through plots was exceeded by Rs.15.5 million as a result of the land sale policy adopted by the Administration (Ref.3.10).

Thus, till now the high standard of construction of public buildings and the development of an extensive range of amenities including vast areas of public open spaces, the elaborate network of the 7Vs, construction of level crossings and paving large spaces in the City Centre,

etc., has been possible due to a continuous allocation of Central and state Government funds for 25 years and the adoption of a system of auctioning restricted number of developed residential and commercial plots during the past 15 years. The distortions created by the phenomenal artificial rise in land values as a consequence of the latter are only just beginning to be realised by the Administration.

With the growth of the city, the expenditure on the maintenance of existing amenities such as roads, street lighting, storm water drainage, parks, etc., has been increasing as well. It had risen from Rs.3.0 million to Rs.5.0 million during 1971-72 and Rs.6.0 million during 1972-73. Up till now, even this expenditure has been met through the public exchequer. Owing to the increasing reluctance of the Central Government to continue subsidising the city, no allocation for maintenance has been approved during the Fifth Plan period. As a result, Chandigarh Administration is contemplating the introduction of local taxes for the first time.

According to current projections, the 'Capital Project' is expected to be 'completed' by 1987. On its 'completion' it is expected to cost Rs.950.0 million out of which receipts from the sale of plots are estimated to amount to approximately Rs.550.0 million (57.9%) the balance having to be financed largely through allocations by the Central Government.

In summary, there has been increasing pressure from the Centre to reduce the liability of 'Chandigarh Capital Project' on central plan resources. Yet the only major alternative source of raising funds for continuing the development of the city along the principles and standards of the master plan, appears to be through the sale of developed plots at high prices. Owing to the high costs of maintaining the standard of amenities and services being provided, funds raised through local taxation are expected to be sufficient only for meeting such expenditure and therefore not available for development purposes. The basic approach has continued to be that of estimating the costs of chosen standards of physical development first and then attempting to extract them through the public, rather than making an assessment of the ability of different sections of the population to pay for various amenities and services in accordance with their priorities, and providing them accordingly.

3.10 Land Policy

As mentioned in the section on Finance above, the original policy of selling residential plots at fixed prices by allotment was given up in 1961 in favour of selling them in open auction owing to the need for

raising additional resources for implementing development in accordance with the master plan. The basis of selling commercial plots, which had been auctioned from the beginning, was changed from freehold to leasehold with the introduction of an annual ground rent at $2\frac{1}{2}$ per cent of premium to be progressively increased to $3\frac{3}{4}$ % and 5% after each period of 33 years.

Up to the beginning of the 60s, when auctioning of residential plots was first introduced, land values in Chandigarh had remained low. In fact, the resale price of plots sold even by allotment was below the price fixed by the government.

All the same, when the Estate Office advertised the first auction of residential plots in 1961 or 62, it was very heavily attended and plots fetched high prices. This was due to a number of reasons. The most important of these was that there were still a large number of refugees who had been issued with government bonds in lieu of compensation for property lost in Pakistan. Many of them, who knew that cash payment by the government was unlikely for several years, and who were in need of money, used the device of purchasing plots in the auction as a means of cashing their bonds. Later, they resold their plots at prices far below the auctioned ones but were satisfied as far as their objective of getting cash in hand was concerned. A number of purchasers were Indian expatriates returning from East Africa who wanted to invest in property and had ready money.

The high auction prices created an upward trend in the prices of private resale but not a very significant one. For two or three years it was still possible to buy a plot adjoining an auctioned one for almost half the auctioned price.(6)

However, encouraged by the high prices fetched through auctioning, the Capital Project Authorities gave up the system of allotment altogether. Not only that, but the highest price fetched by a plot in one auction was fixed as the minimum reserve price for a like plot in the subsequent one. In addition, care was taken to release only a limited number of plots for sale in any one year. Between 1961 and 1971 while the population of the city increased by 130,000, only 3,805 residential plots were released for sale (Ref. Table 3.6). Even out of these, as many as 3,126 plots were sold by allotment at concessional rates predominantly to members of the armed forces not resident in Chandigarh, and to a small number of 'selected' high government officials and professionals. Thus, over a period of ten years, in a rapidly growing city, only 679 residential plots were made available to the general public. As these were sold to the highest

bidders, it was inevitable that only the wealthiest persons would have bought these too.

The effect of this policy on land values was staggering. By 1973/74, prices of some of the smaller residential plots of between 125 square yards to 500 square yards had rocketed up by 1,000 to 1400 per cent! (Ref. Table 3.7) It is interesting that in 1959, two years prior to the change in the land sale policy by Chandigarh Administration, the Government of India had appointed a committee headed by the then Chief Commissioner of Delhi, to study the problem of, and to suggest measures for, the control of land values and stabilising land prices in the urban areas of Delhi. In their report submitted in June 1959, the Pandit Committee had observed that:

"The only practicable measure to control land values in a growing city is to relieve the pressure of demand as much as possible."

Rocketing land prices in Chandigarh, however, do not appear to have particularly bothered officers of Chandigarh Administration. On the contrary, there was a general feeling of satisfaction and interpretation of the phenomenon as an indication of the 'success' of Chandigarh's 'planning'. This was possibly an influence of Le Corbusier's optimistic views about 'good' urbanism being a 'way of making money'. (Ref. 2.34)

In recent years, however, owing to widespread public dissatisfaction and the Central Government's explicit commitment to the removal of poverty and reduction of inequality, there has been increasing mention about the formulation of an Urban Land Policy at the National level. Amongst its main objectives is control over an 'excessive' rise in urban land values to promote optimum use of urban land and ensuring its availability to poorer sections of the population. As a result, even Chandigarh Administration is having to review its land sale policy, and is proposing reverting to selling a certain proportion of the plots through allotment at fixed prices. This change is to be confined to residential plots only. All commercial plots, irrespective of size and nature of enterprise, are to remain labelled as 'profitable' and sold through public auction.

In summary, as mentioned in 2.34, the first objective of complete control by a Public Authority over land development and disposal in the new city was to control and regulate its growth in accordance with the master plan with the incumbent responsibility of making developed land available by anticipating demand for it, and to protect the interests of the community as a whole against speculation and exploitation by private

enterprise. In this respect, Chandigarh Administration, with monopolised control over the development of land in the city has been doing completely the reverse. It has been speculating with developed land, sitting on it awaiting pent up demand to push prices still higher, and during the period of the highest rate of growth of the city, has been releasing marginal amounts of land for various purposes.

The second aspect was concerned with preventing unearned incomes accruing from increased land values as a result of development going into the hands of a few individuals and recouping them for investment in services and amenities beneficial to the whole community. Since 1971, leasehold tenures have been introduced even in the case of residential plots. As has been demonstrated, Chandigarh Administration has been relying heavily on obtaining funds through increasing land values. In fact, it has been largely responsible for pushing them up by several hundred per cent within a few years. But in the process, whereas the objective of the exercise was to ensure the accruing of the benefit to the whole community, it has ended up defending a minority of wealthy sections of the population, who could afford to pay for the inflated land values, against the majority, who are left at their mercy as tenants. Large sections of the population have been excluded from participating altogether. At the same time, it has been investing the money thus obtained, in developing services and infrastructure which again largely serve the needs of the privileged minority without much benefit accruing to the underprivileged sections of the community. This aspect will be considered in detail later.

3.11 Chandigarh Administration and Local Government

Although the creation of a Capital Project Organisation was seen as a temporary measure to promote co-ordinated development of the new city during its initial years, to be soon replaced by an elected municipal Government, the creation of the latter has been progressively delayed. Both development and local government functions continue to be performed by what is now called Chandigarh Administration.

Owing to the hierarchic disposition of the Indian Administrative Service, Chandigarh Administration has a highly centralised decision making structure. Most policy issues are settled by a number of senior administrative and technical officers under the overall charge of the Chief Administrator. Owing to its being a non-elected body, none of the officers are directly answerable to the public, and do not have to depend on the popularity of their policies to remain in office. Chandigarh being remote from New Delhi, and not under either the Punjab or Haryana Governments,

local political interference, a frequent complaint of administrative officers, has been limited.

A minimal semblance of local participation in the decision making process is achieved through having monthly meetings of consultations with a body called the Local Advisory Committee consisting of a number of selected individuals nominated by the Chief Administrator and considered representative of different sections of the population.

All the same, major policy decisions are taken by senior officers, who, owing to their high social and executive status within a highly stratified society, have little exposure to, or direct experience of, the life and problems of many of the underprivileged sections of the population. Their decisions, however well meaning, in the end amount to their interpretation of the problems and priorities of other sections of the population arrived at behind the walls of physical comfort and social and economic security. Such a situation is prone to the emergence of stereotyped views and ideas about life in the outside world.

Owing to historical reasons and the association of Le Corbusier with the planning and architecture of the city, the Architecture and Town Planning departments have retained a dominant position in influencing policy decisions. In addition to determining the pattern and priorities of physical development, their views are strongly reflected in the enforcement policies of the Estate Office responsible for looking after the maintenance and use of land and buildings in the city. The E.O. has a small body of staff and a couple of government vehicles at its disposal for carrying out 'enforcement' operations. The 'enforcement staff' has become a symbol of fear and persecution for large numbers of persons who have become labelled as 'offenders' according to the laws of the planned city.

3.12 Major Categories of 'Non-Plan' Developments

Over the years, contrary to the assumptions inherent in the conceptual basis of the master plan and the process of its detailed preparation, a number of 'non-plan' developments have taken place. These may be divided into two broad categories as follows:

- i) Land use contrary to that visualised, but within the framework of the built environment proposed by the master plan: such developments are related to the use of buildings, otherwise conforming to building regulations mandatory in the city, for functions other than those permitted in specific locations in accordance with the uni-functional segregation of land uses advocated by the Charter of Athens. The fairly extensive scale

of such activities has been referred to under sections 3.5, 3.6 etc., and is largely related to the use of residential buildings all over the city, particularly on the residential sides of the sector 'bazaar' streets, for commercial, servicing, educational and cultural uses.

ii) Emergence of buildings and activities in locations and forms totally outside the framework of the built environment proposed by the master plan: as described in 2.19 to 2.21, the process of detailing the master plan assumed not only the need of fixing the locations of anticipated functions in the city, but also that each function must take place within pre-determined built forms. Thus no provision was made for activities other than sport and recreation, to be performed either in the open or in semi-permanent or light structures, as all buildings within the city had to be built in accordance with architectural and structural controls. Large scale 'non-plan' developments in this category may be divided into the following two major groups:

a) 'Non-plan' residential settlements : As mentioned in 3.4, according to the 1971 census approximately 13 to 15 per cent of the City's households were living in houses not conforming to the minimum building standards permitted in the city. These are located in a number of partly or completely unauthorised settlements which have developed totally outside the framework of the master plan. During the 1961-71 decade, while the population of the city as a whole grew by 146 per cent, that of such settlements grew by as much as 230 per cent.(7)

b) 'Non-plan' commercial markets and services : As mentioned in 3.5, a substantial proportion of the trading and services units functioning in the city have developed outside the planned framework for commercial and services provision. A field survey of residential sectors in 1974 revealed that whereas there were 2,251 such units functioning through 'planned' buildings, as many as 2,481 or 52.4 per cent of the total enterprises were operating from informal markets or other locations and forms not conforming to the master plan.

As the prevention of such 'uncontrolled' developments was one of the more fundamental objectives of the master plan, their increasing rates of growth, in spite of determined efforts at controlling them, have been a cause of considerable concern to the Administration. The large scale of these two groups of non-plan activities raises a number of policy issues regarding the objectives of planned urban development in the Indian context. Because of this, the history of their growth and development, evolution of the administration's policy towards them, and characteristics

of the population resident or working in them, have been investigated in detail in the following sections to attempt to underline their significance and role in the process of development.

3.13 History of the growth of 'non-plan' residential settlements and evolution of the administration's policy towards them

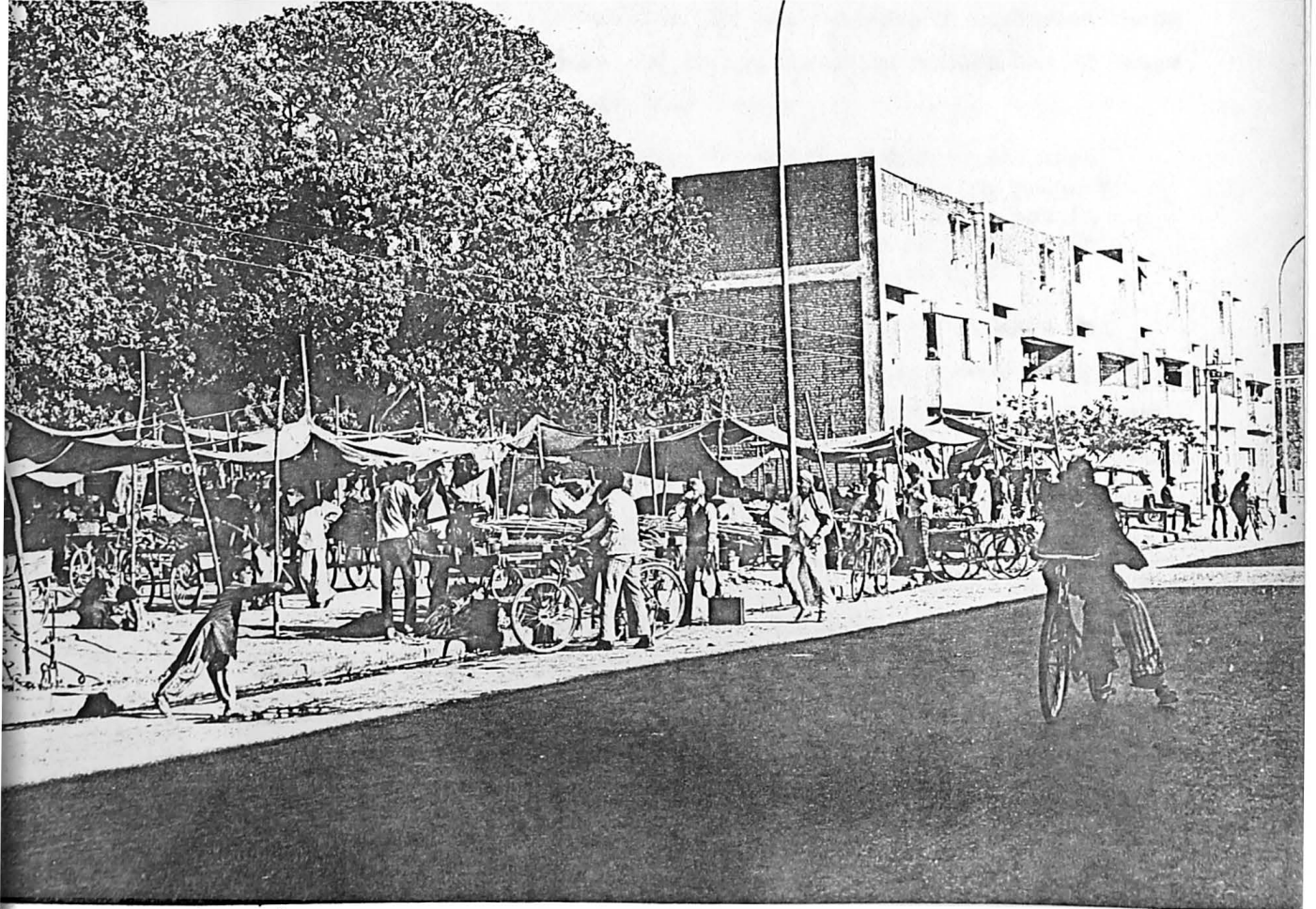
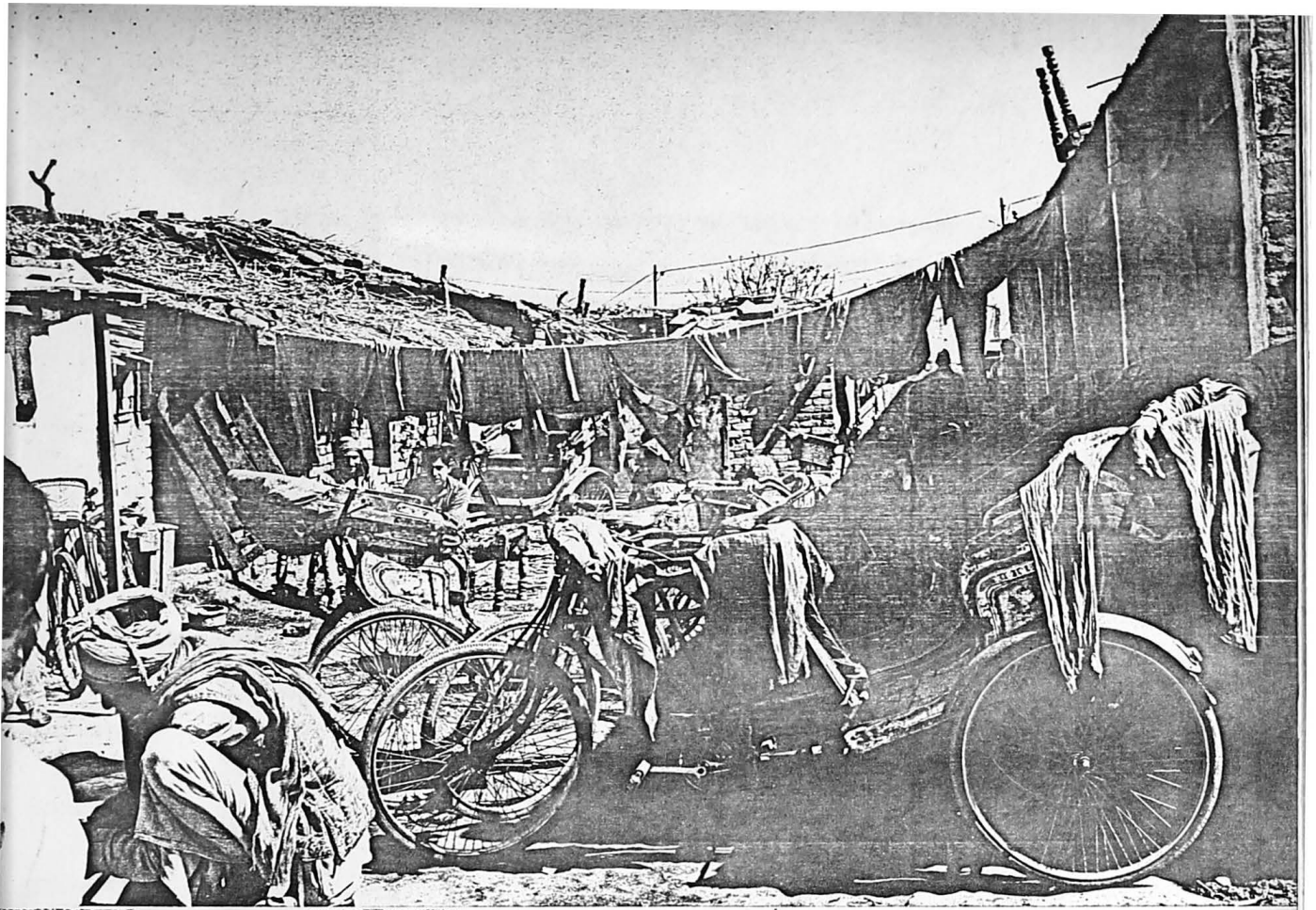
In 1953, at a conference in Paris, Le Corbusier described the experience of Chandigarh under construction:

"Things were done à l'Indienne, that is to say with an innumerable labour force and very few machines.... The picturesqueness of the Indian enterprise is extraordinary; women in 'saris' carry bricks on their heads; the men lay the bricks; the children play in the heaps of sand. In India one does not 'Taylorise' the design to economise on labour since the population is innumerable. Everyone sleeps on the spot under a rush mat carried on four stakes. The gangs of workmen arrive from afar with their families."(8)

Once the decision about constructing a new Capital had been finalised, the news spread far and wide by word of mouth and through Government advertisements in national newspapers and on the radio. Although the information was of potential interest to persons belonging to a wide range of social and economic sections of society, it was of immediate concern to those belonging to the lowest income groups. They came to the site in large numbers, not so much with long term plans for settling down as because of being attracted by the employment prospects for unskilled or skilled manual construction workers. Within the first one or two years, the site was the scene of intense activity; with thirty thousand workers - men wearing 'dhotis' and women clad in multi-coloured 'saris' - working seven days a week.

The general poverty of the mass of the population and the under-development of the Indian economy made this cheap and abundant labour force available. Financial and technological constraints of the situation meant that most of the city had to be built manually, with machinery limited to a few bulldozers and concrete mixers.

Although some of these construction workers had come of their own accord, a considerable proportion were brought by labour contractors who had received large contracts for Government building and development projects. Such labour contractors charge a commission consisting of a proportion of a labourer's daily wage in return for finding them work. On the other hand, they are bound by few obligations towards the labourers.



9. (Above) A 'non-plan' residential settlement
10. (Below) An informal market along a shopping street.

Thus, some of the earliest settlements to emerge on the site of the new Capital were large clusters of thatch huts adjoining construction sites of large building projects built by the labour force to provide shelter for themselves. One of the largest of such settlements grew up adjacent to the existing village of 'Bajwada' to the south of sector 22 (Ref. Figure 2.8). The shops and other facilities increasingly available there catered for their basic requirements.

In the early 1950s, daily wages for unskilled work were extremely low, between Rs.1.50 to Rs.2.00 (2/4d. to 3/-) per day, barely sufficient for subsistence. Reflecting on the cheapness of the smallest planned house designed by the architects, Maxwell Fry later wrote:

"The low cost of this, indeed of all housing, owes much to the cheapness of bricks at 30 shillings per thousand made without any machinery on the periphery of the site; and to a labour force of men, women and children, underpaid, unhoused and uncared for, turning the heart by their beauty and cheerfulness under conditions as bad as could be imagined."(9)

That even the cheapest house for non-Government employees being provided within the Master-Plan, was not going to be accessible to large numbers was also realised by him as he noted,

"When we began to move about, we realised that there were vast masses of people who were not included in the project estimate, and we tried to make provision for them, but in a certain sense we failed. There was no economy on which we could do it, even with the smallest houses."(10)

During the first 7 or 8 years, this pattern of planned and parallel non-planned settlements continued almost unnoticed, owing to the dispersed locations of initial development (Ref. Figure 2.8). When some of the big building projects started getting completed, and construction stretched over larger areas, the labour settlements began to be seen as coming in the way of planned development in accordance with the master plan. Besides, their continued existence and growth was regarded as setting an undesirable precedent for unauthorised encroachments on land in the new city. According to P.L. Varma, the then Chief Engineer of the Project and who had gained experience of dealing with urban problems while working for the Municipal Corporation in Lahore, these, and unauthorised developments on the periphery of the city, were considered to be serious problems requiring stringent action from the beginning.

Accordingly, in 1958, the Capital Project authorities decided to remove such settlements from the new city and notices were issued to their inhabitants to remove their huts from Chandigarh at their own cost.

In the meantime, as early as 1953, the first Union to be registered by the Labour Commissioner of Chandigarh had been the 'Capital Workers Union', predominantly representing the daily wage construction labourers. Formed by the initiative of local members of the Communist Party of India, the Union had been responsible for successfully taking up issues such as the non-payment of wages by contractors, increase in daily wages, and implementation of the Wages and Factories Act by Contractors.

Confronted by the eviction notices issued by the Estate Officer, the residents of the settlements appealed to the Administration through their Union demanding alternative sites or built accommodation, but to no avail. During this period, membership of the union increased considerably. In November 1959, the labourers went on strike demanding a viable alternative to the settlements where they could live. Taking no notice of all this, the Estate Officer issued orders for the forceful demolition of all huts in the city. Many of the residents prevented the implementation of these instructions by resorting to lying in front of the bulldozers, refusing to allow demolition until their demand for alternative accommodation had been met.

Eventually, the Administration had to give in and three sites, located respectively in Sector 26, the Industrial Area and just outside the boundary of the University in Sector 14, were demarcated as 'temporary' locations for what were termed as 'Labour Colonies' (Ref. Figure 3.4). In 1964, after the accidental destruction of another settlement in Sector 24 by fire, the inhabitants of this too were relocated in another 'Labour Colony' in the adjoining totally undeveloped sector 25.

Resettlement in the four authorised 'Labour Colonies' was done on a fairly systematic basis. In each location, a number of plots measuring $14'7\frac{1}{2}"$ by $19'6"$ were demarcated along parallel streets, some of them opening on to rectangular squares or open spaces. Each household was allotted a plot at a rent of Rs.1.50 per month. Although no agreements on terms or conditions of tenure were signed, the understanding was that the allottees could be asked to move or forcefully evicted even from these locations at short notice. At the same time, at least a verbal commitment was made by the Administration that within a period of five years or so, all allottees would be rehoused in the planned part of the city. Meanwhile, each household was permitted to build whatever kind of improvised structure it could afford or manage on its own.

The 1,445 plots demarcated in the beginning exceeded the total number of households at that time. For a number of years, demarcation of these 'labour colonies' channelised newcomers belonging mainly to the

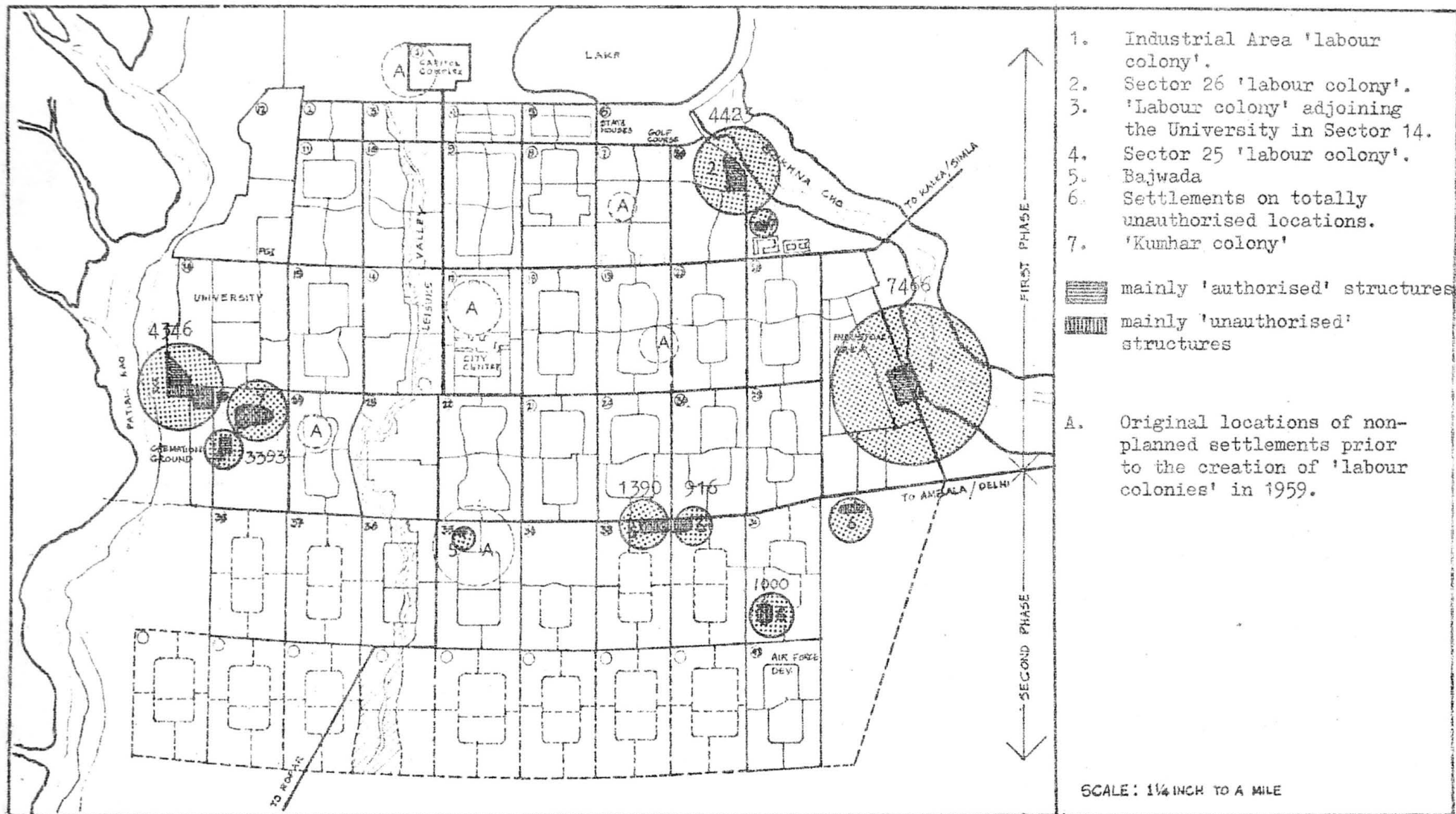


Figure 3.4 Location of 'non-planned' residential settlements in Chandigarh and their populations in 1971 (Census figures)

lowest income groups or other casual workers who could not afford any other form of available residential accommodation, to these specific locations. Any persons building huts in other parts of the city, when evicted, could apply for plots in one of the 'labour colonies'. In 1964, with the creation of the fourth 'labour colony' in Sector 25, 269 additional plots were created. By 1965, the total number of 'authorised' plots had reached 2,182. From 1965 onwards, further allotment was totally discontinued.

Initially, the Government provided a few communal water taps in each 'labour colony'. Slowly, following persistent demands by the residents, a few communal dry latrines were also provided in each. By 1964, the Industrial Area 'labour colony' had managed to get a primary school started in a building jointly constructed and paid for by the residents themselves. Till that time, none had yet been provided with any electricity. Approximately 20 sites were created in each for small shops. At present, all 'labour colonies' have at least one primary school each, the buildings in all cases having been provided by the residents themselves and the teaching staff by the Government. All also have a minimal amount of street lighting with the added facility to 'authorised' lessees to get private electrical connections to their houses on the payment of normal consumption charges.

Around 1963, the settlement which had emerged adjoining Bajwada village (Ref. Figure 3.4) was also removed. The residents were given verbal permission to move to one of the existing 'labour colonies'. The majority of them moved either to the one outside the University in Sector 14 or to the one in the Industrial Area. In their case no clearly demarcated plots on a monthly rental basis were allotted and they were not given the status of 'authorised' lessees of the Government. All the same, Bajwada evictees built their houses along fairly formal layouts, with straight parallel streets similar to the 'authorised' sections of these 'colonies'. Both sites, particularly the one adjoining Sector 14, were uneven, with large ditches and holes requiring a tremendous amount of work on levelling and filling to make the areas habitable. This was undertaken individually and collectively by the relocated population itself. As this group was not 'officially' authorised to settle in the 'authorised Labour Colonies', even minimal facilities such as communal water taps, latrines, or street lighting, were not provided for them.

The Administration's policy decision to stop further allotment of 'authorised' plots in the 'labour colonies' from 1965 onwards was made on the grounds that having 'authorised' lessees imposed a certain responsibility on the Government to resettle them in regularly planned houses

conforming to master plan standards. A verbal commitment to this effect had already been made at the time of their creation. Up to 1965, although no action had been taken in this direction, their growth and the increasing number of persons seeking 'authorised' plots in them, was viewed with increasing alarm. Owing to the rising costs of building construction and the stringent financial resources available, it was felt that their continued growth would make it impossible for the Administration to rehouse everyone in houses built to the minimum construction standards adopted for the city. So it was decided that attempts should be made to stop their growth altogether. To achieve this objective, in addition to stopping the allotment of additional plots, the enforcement staff was instructed to demolish any new 'unauthorised' structures built even in these settlements.

In spite of fairly frequent demolition raids, it proved impossible to curb their growth. On the contrary, in addition to the 'unauthorised' growth of existing 'labour colonies', a number of settlements emerged on totally unauthorised locations (Ref. Figure 3.4).

Towards the end of the 60s, the continued presence of these settlements, and the increasing deterioration of sanitary conditions in them owing to the pressures of the growing population on grossly inadequate services, began to prove a source of embarrassment to the Administration. A number of journalists wrote about the deplorable conditions in which a sizeable proportion of the population of the 'City Beautiful' (as Chandigarh is proudly called by its Administration) were living. A considerable number of research studies undertaken by students and staff of the University pointed out the same anomalies.

The 'problem' was discussed by the Local Advisory Committee as late as in May 1969.

"Certain members stated that a large number of unauthorised persons had been allowed by Chandigarh Administration to settle in the 'Labour Colonies'. A sub-committee was appointed to screen the persons living in them. The latter recommended that:

1. Authorised lessees should be allowed to stay in the 'labour colonies'.
2. All unauthorised occupants except those engaged in the following 14 occupations should be evicted from there:

<ul style="list-style-type: none"> i) Cobblers ii) Doctors/'Hakims' (on the recommendation of the M.O.H.) iii) Watermen iv) Tailors v) Sewerage labour vi) Milkmen vii) Blacksmiths 	<ul style="list-style-type: none"> viii) Plumbers ix) Electricians x) Barbers xi) Washermen xii) Painters xiii) 'Malis' xiv) 'Rickshaw' pullers"(11)
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Further, since 'labour colonies' were intended to be 'temporary', it was decided to select sites for the construction of four 'labour villages' or 'suburban sectors' and 'milk colonies' beyond the two 'choes' on either side of the plan area. It was also decided to provide basic amenities such as electricity, water supply and sewerage in these. It was proposed to create plots of 15 square yards each and to give them on lease to:

- i) Authorised lessees in the 'labour colonies'.
- ii) Unauthorised residents in them having an income of less than Rs.200 per month and engaged in the occupations mentioned above.

The above proposals, however, were not implemented in spite of the Architects' department having prepared layouts of the 'suburban' sectors and notifications under the Land Acquisition Act in respect of two selected sites having been issued. The proposals appeared to have been abandoned owing to some doubts having arisen about their being a viable solution to the 'problem'.

A survey carried out by the Estate Office in September 1971 for the purpose of 'screening' 'Labour Colony' dwellers on the basis of the foregoing criteria revealed the picture shown in Table 3.8A. In addition, 1,586 totally unauthorised huts were found to have been in existence in a number of sectors (Ref. Table 3.8B).

TABLE 3.8A Distribution of 'authorised' and 'unauthorised' structures in 'labour colonies' in 1971 and unauthorised occupants 'screened' into 'approved' and 'other than approved' categories by the Estate Office

Name of colony	Auth. Structures	Unauth. Structures	3 as % age of 2	Unauthorised occupants	
				Approved category	Other than approved cat.
1	2	3	4	5	6
1. Industrial area	585	1,277	218.3	234	1,043
2. Sector 26	738	241	32.7	233	8
3. Sector 14	541	676	125.0	622	54
4. Sector 25	196	227	116.0	220	7
TOTAL	2,060	2,421	117.5	1,309	1,112

TABLE 3.8B Number of unauthorised huts in different Sectors in 1971

Sector Number	Number of Structures
1. 35	125
2. 34	100
3. 32 & 33	400
4. 30	20
5. 25 (Kumhar colony)	541
TOTAL	1,586

According to the Estate Office, the huts shown in Table 3.8B were "primarily constructed by construction labour either employed by the engineering department or big private contractors." (12) The information collected during field work, which covered the settlements in Sectors 31, 32, 33 and 25 ('Kumhar Colony') revealed a different picture. Only 14.3% of the heads of households were construction workers. As many as 49.6% were low salaried Government employees working mainly as sweepers. The remaining were engaged in petty trading or services like cycle or scooter 'rickshaw' driving, tailoring, etc. (Ref. Table 6B.2 & 3)

In summary, the Administration's policy aimed at stopping the growth of non-planned settlements through refusal to give official 'recognition' and the use of brute force has proved far from successful. In spite of frequent demolition raids, the growth of such settlements has continued at an accelerating rate. As evident from Table 3.8 (A & B), in 1971, out of a total of 6,067 existing structures, only 34% were 'authorised', the remaining 66% being 'unauthorised'. As a result of the screening process recommended by the special sub-committee, 32.6% of the unauthorised dwellings were further classified into a new category of 'approved unauthorised' and their front walls marked by 'U' signs. The occupants of the remaining 2,698 structures were to be evicted. There was no mention about where they were to go.

The effect produced by the policy decision of discontinuing further allotment of 'authorised' plots since 1965 is evident from the change in the growth curves of 'authorised' and 'unauthorised' structures from that year onwards. (Ref. Figure 3.5). Whereas the total growth of such structures has continued steadily over the years, the discontinuation of further allotment of 'authorised' plots only resulted in a sudden upturn in the construction of totally 'unauthorised' structures.

In addition to the changing proportions of 'authorised' and

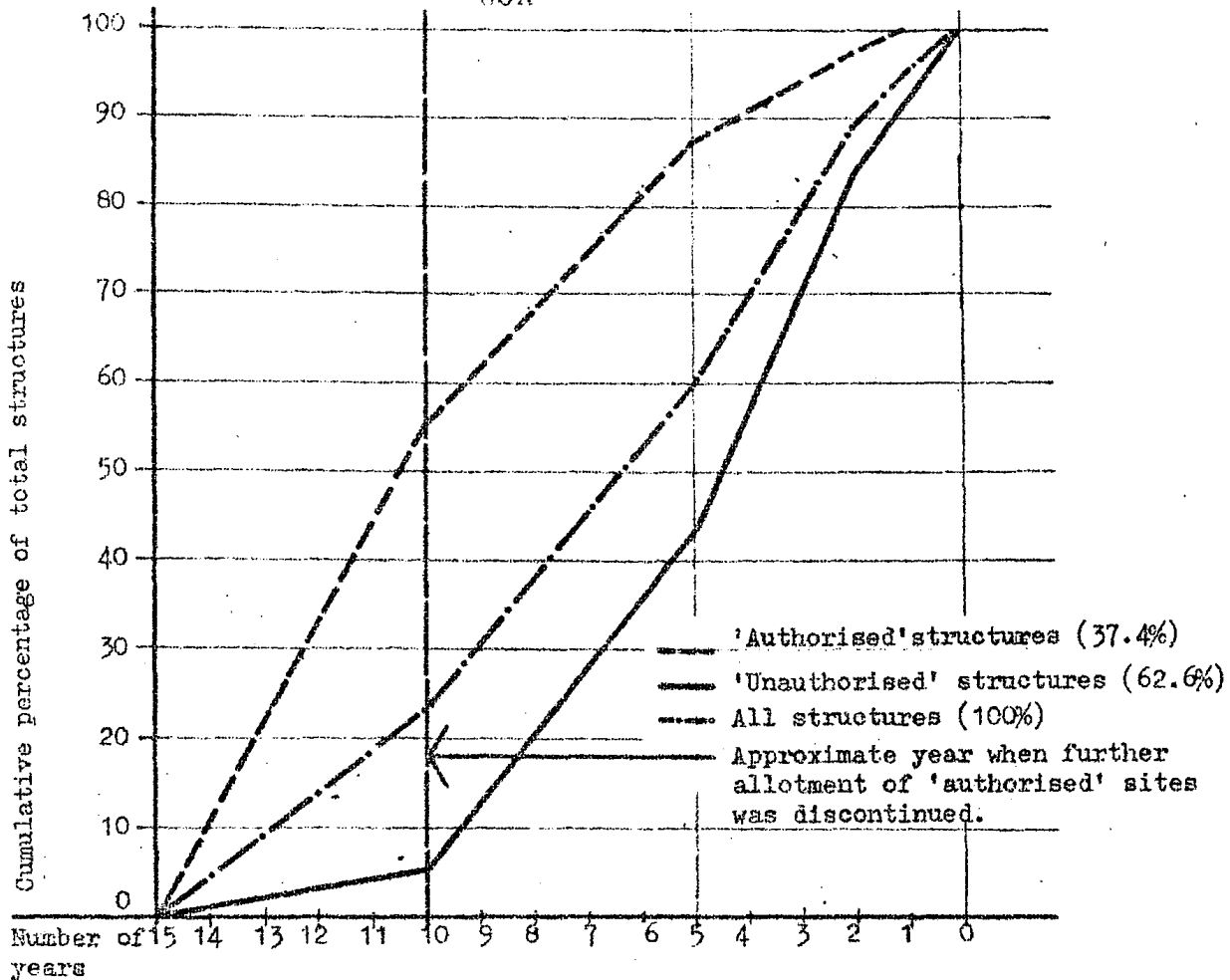


Figure 3.5 Distribution of 'authorised' and 'unauthorised' structures in residential settlements by number of years since construction was started

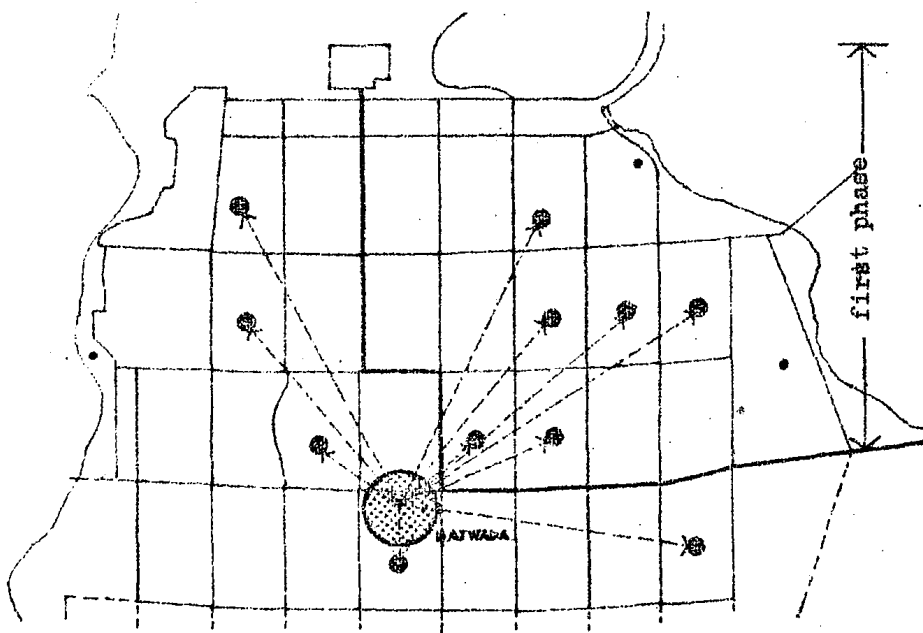


Figure 3.6 Relocation of Bajwada lessees under the 'Bajwada Liquidation scheme'.

● locations where 'eligible' lessees were allotted regular 'booths'/sites

'unauthorised' structures in such settlements, the relative rate of growth of their population and that of the city as a whole has also been different. As already pointed out, during the 1961-71 decade, while the population of the city as a whole grew by 146 per cent, that of non-plan settlements increased by 230 per cent.(7)

The current policy of Chandigarh Administration is to resettle 'authorised' residents of 'labour colonies' in new locations because

"their presence has an adverse effect on resource mobilisation and receipts to be realised by way of sale of these plots (on which the 'slums' have developed) in terms of our commitment for financing of the Capital Project."

The strategy for resettlement is based on the division of their population into two distinct categories:

- "a) the service population comprising tailors, dhobis, barbers, sweepers, malis, petty shopkeepers, rickshaw pullers, etc., and
- b) the construction labour population of a 'migratory nature' including carpenters, plumbers, masons, unskilled labour, etc."(13)

The scheme originally formulated by the Administration envisaged the construction of alternative housing in two years, i.e., in 1973-74 and 1974-75. According to this scheme, the families in category (a) were to be settled in developed sectors of the Project while the Construction Labour Category (b), which was considered 'essentially of a migratory character' was to be provided comparatively low cost houses in areas on the periphery of the master plan. With this objective in view, and keeping in mind the 'special planned character' of Chandigarh, a grant of Rs.50 million was requested from the Planning Commission for the purpose. However, owing to the 'tight resource position' of the Government of India, a sum of Rs.15 million only, was approved.

Therefore, the scheme had to be revised and now envisages the construction of 'pucca' one roomed tenements for category (a) within some of the developed sectors, and providing 'transit' sites in areas on the periphery for category (b) where they will again be allowed to build improvised structures.

During 1974, approximately 500 'one and a half room' tenements, fully serviced with water, sewerage and electricity in double storeyed blocks, were built. These are intended for resettling the residents of one section of the Industrial Area 'labour colony' as the land on which it is located has already been sold to industrialists. The terms on

which these are to be given to the residents were finalised only in April 1975, under a scheme called the 'Licensing of Tenements and Transit Sites in Chandigarh scheme'.

Under the scheme, one tenement is to be offered to each family unit of authorised lessees or 'recognised residents' (those included in the 'approved authorised' category in 1971 (Ref. Table.3.8A) at a rent of Rs.35 per month. Authorised lessees and 'recognised residents' who cannot afford to pay this rent and all other residents not recognised, are offered 'transit' sites of approximately 15 x 20 feet in locations outside the master plan where they will be allowed to build improvised structures themselves. The rent for the latter is to be Rs.18 per month. No sub-letting, assigning or otherwise parting with the possession of a tenement or 'transit' site is permitted and an elaborate system of identity cards, photographing of all family members, etc., has been worked out to facilitate enforcement of the rules. Both tenements and sites are to be used exclusively for residential purposes. The success of the scheme, thus, assumes a minimum rent paying willingness and capacity of Rs.18 per month by the poorest household in the city even for use of a 15 x 20 feet piece of land outside the master plan boundary.

To summarise, in effect, since the creation of 'labour colonies' in 1959, Chandigarh Administration has not taken any significant action in the direction of improving the housing situation of their poorest residents. Marginal benefits like the provision of a few communal services have been obtained by them through persistent agitations and demands. The 1971 census recorded the population of all 'non-plan' settlements to be approximately 30,000 consisting of between 6 to 7,000 households. In 1974, 500 'one and a half' roomed tenements were built but till the middle of 1975 they had yet to be made available to any of them. In any case, these are to be provided to existing residents. In the meantime, their total population would have increased considerably. The present policy of the Administration like all previous ones, offers a finite solution. The funds made available by the Planning Commission are fixed. Only a fixed number of tenements can be built with them and a significant impact on the general situation cannot be expected. An awareness of this fact, has led to the devising of the scheme of 'transit' sites on the periphery, outside the master plan area. That is likely to become the 'officially' accepted leeway given to newcomers and the underprivileged in the future. However, it has a number of implications which are totally contrary to the Government's stated goals for socio-economic development and the reduction of inequality and poverty.



11. (Above) One and a half room tenements in double storeyed blocks under construction for resettlement of some 'labour colony' residents.
12. (Below) A street and use of space in one of the 'labour colonies'.

Firstly, the Administration's policies are dominated by an insistence on high building and aesthetic standards. For 25 years, a substantial proportion of the population has been condemned to living in insecurity and insanitary conditions as a result. The present solution of offering very small tenements to them, offers a single limited alternative to the diversity of needs of persons with different occupations, family sizes, incomes and priorities. Even this has a significant element of economic selection in it. Only those who are in a position to pay a rent of Rs.35 per month can make use of it. No consideration has been given to how it might affect the incomes, occupations, household budgets and lives of the population.

Secondly, the implication is that those who cannot pay must live outside the city boundaries. Not only is this totally contrary to one of the objectives of the master plan, i.e. prevention of uneconomic and dispersed suburban development on the periphery, but it does not take into account the effect such a policy is likely to have on the lives and opportunities available to the lowest income groups. The inherent implication is the imposition of additional economic disadvantages on those who can least afford to bear them. The hierarchic distribution of population within the master plan on the basis of income groups has already created an unhealthy social environment. Pushing those at the bottom outside the city assumes a perpetuation, in fact accentuation of existing inequalities.

The decisions of the Administration have been based on a number of assumptions about the habits and needs of the residents of such settlements which have not been verified objectively. Some of the common views of senior officers include the following; that squatting on Government land requires strict vigilance and control because of the growth of 'vested interests' wanting to exploit rising land values, that a majority of settlement dwellers are not really poor, that many already own houses in the city, that many were exploiting Government land by sub-letting it, that their poverty was a romantic notion as most households had a large number of workers, that in fact they worked out of greed for money at the cost of neglecting their children, that they need to be made and taught to change their living habits such as be more prepared to pay for housing than buying transistors etc. Whatever the other views, virtually all share a feeling that somehow the growth of such settlements must be stopped, otherwise (although without lowering adopted building standards), the problems of the Administration would never end or that Chandigarh would end up becoming like another Calcutta. A disguised fear of such a prospect discourages a willingness to allow conditions to improve because of

the logic that if Chandigarh Administration offers better facilities, then more people will come.

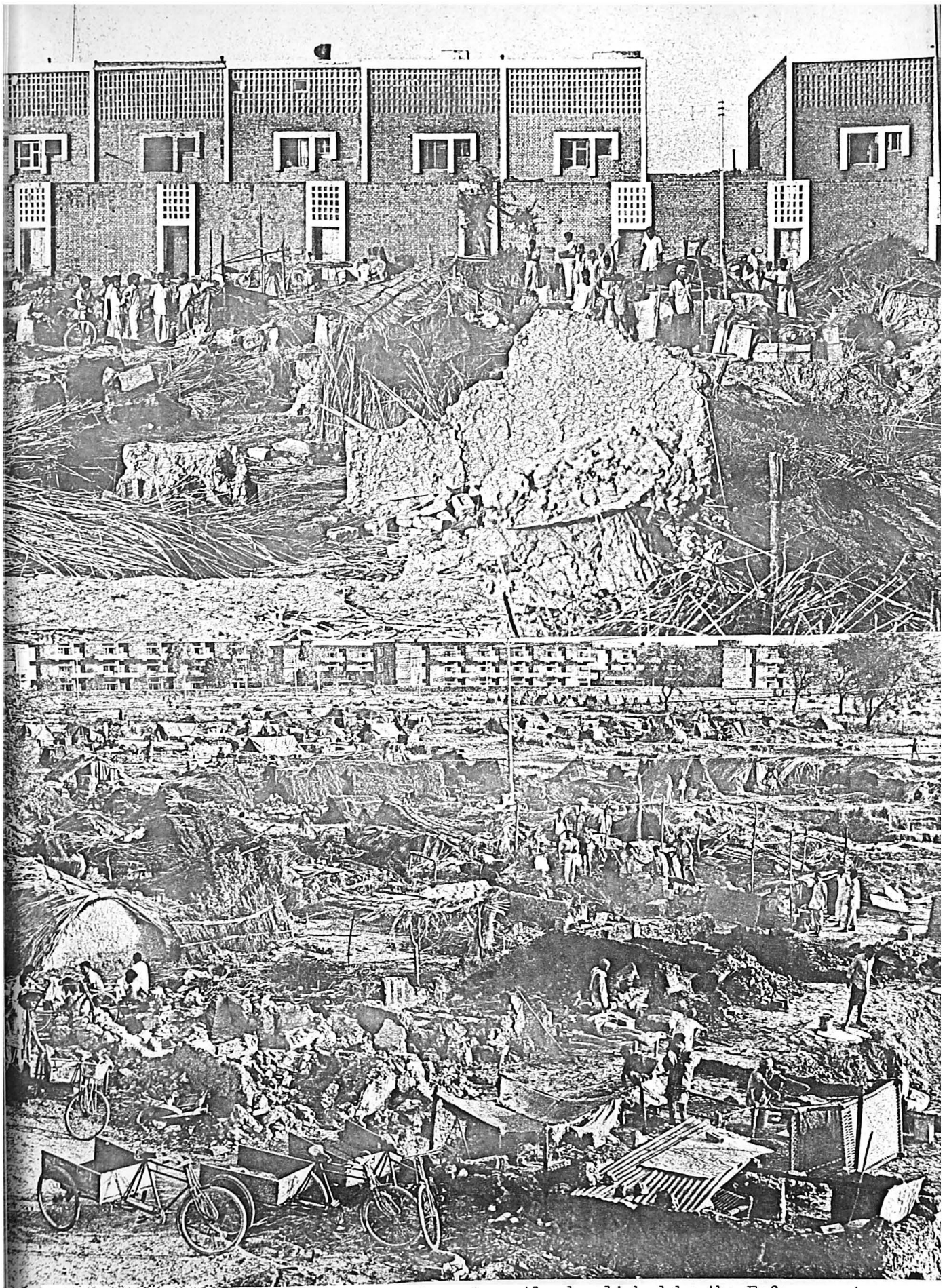
The field work in the settlements, amongst other aspects, attempted to verify the validity or otherwise of such arguments. The findings are presented in detail in Chapters 6 and 7.

In the meantime, on the grounds of such fears, the policy of demolishing new unauthorised structures has been continued. This creates a feeling of tremendous insecurity amongst residents of 'unauthorised' settlements leaving them prone to exploitation by all kinds of interests. In the totally unauthorised settlement in Sector 33, a number of unscrupulous persons collected Rs.5 per month from every house for a long time, pretending to be representatives of the Government. It was not till someone more familiar with Government rules exposed them that this came to a stop. A more extreme case was that of an opposition political party organising a whole settlement to be burnt in order to win over votes by later demanding compensation from the Government on behalf of the residents. In the process, four persons including two children received burn injuries and the meagre belongings of the majority were also destroyed.(14)

3.14 History of the growth of Informal Markets and services and evolution of the Administration's policy towards them

'Non-plan' commercial developments in Chandigarh started even before construction of the city had commenced. Since the site consisted mainly of agricultural land with only a few scattered villages, as word spread that a new city was going to be built, many people started migrating there. Amongst them were many refugees still on the look-out for better opportunities to make a fresh start in life. The certain demand for basic goods and services by the technical staff and construction labour who had to be resident at the site in the early years, offered bright prospects for starting small scale enterprises requiring little investment.

'Bajwada', the village south west of Sector 22 (Ref. Figure 2.8) just outside the area acquired for the first phase, and adjoining the temporary bus terminal for the site, began to attract the pioneers who pinned hopes of a bright future in the new city. As construction started and building contractors, thousands of labourers and technical staff of the Government moved to the site, Bajwada responded by catering to their needs. Besides the supply of essential commodities such as provisions, cloth, household goods and repairing services, one of the major characteristics developed by Bajwada from the beginning was the manufacturing of typical traditional items such as 'charpoys', and tin trunks, ginning cotton for



13. (Above) Unauthorised settlement partly demolished by the Enforcement Staff, the rest destroyed by fire. Rear of shop-cum-flats in the wholesale market in the background.
14. (Below) Although ruined by demolition and fire, life goes on in the settlement.

quilts, making furniture at short notice, etc. Owing to the availability of basic necessities, a large settlement of construction workers also arose in its vicinity.

Initially, the newcomers had either bought or rented land or buildings from local villagers. Afterwards, the land of the village was acquired by the Capital Project Authorities. The Estate Office demarcated temporary shop sites near the village and leased them out to the same petty shopkeepers and other small manufacturing and service units at nominal monthly rents in accordance with the areas of the sites. Eight or nine years later, when considerable development of the planned city had taken place, it was decided to clear up Bajwada. The number of Government lessees had differed from time to time, but when the official 'Bajwada Liquidation Scheme' was formulated, there were 242 'authorised' lessees. The actual number of operating units was considerably greater, although exact records had not been kept.

Under the scheme, it was decided to offer alternative sites to them on the shopping streets of residential sectors. These were to be sold at the concessional rate of 75 per cent of the price fetched by similar plots at the last auction. Payment had to be made in four equated annual instalments.

All occupants were informed of the Government's decision both by individual notice and by the beat of drum. The official instructions went further as follows:

"Those lessees (242 in number) to whom land and built shops are being offered at concessional rates should be asked to buy sites or built shops within two months and in the case of sites, complete construction within six months thereafter. Those who buy shops; those who do not buy either shops or sites, and those unauthorised squatters who have not been recognised by us and have never paid us any lease money should be asked to move out within two months positively, failing which they will be evicted by force and their structures would be demolished by the Government at their cost."(15)

The allottees of sites for shop-cum-flats were offered loans for building construction to the extent of Rs.10,000 under the State Government plot holders loan scheme.

Those who were not considered eligible for allotment included:

- i) Persons who had not been 'recognised' as 'authorised' occupants of sites in Bajwada.
- ii) Persons who were only residing there.
- iii) Lessees who had sub-leased the sites.

- iv) 'Squatters'
- v) Persons who had already purchased sites in the planned city in their own names or in the names of their families.
- vi) Persons dealing in timber, charcoal and cement.
- vii) 'Kabadis' and 'Bharpunjas', because no sites were available in the new city for these trades.

Out of 278 applicants, 181 were allotted sites or built shops in different sectors. 22 persons who could not afford to purchase sites in planned sectors were given temporary shop sites on lease in the 'Labour Colonies' as desired by them. The remaining were found ineligible for allotment.

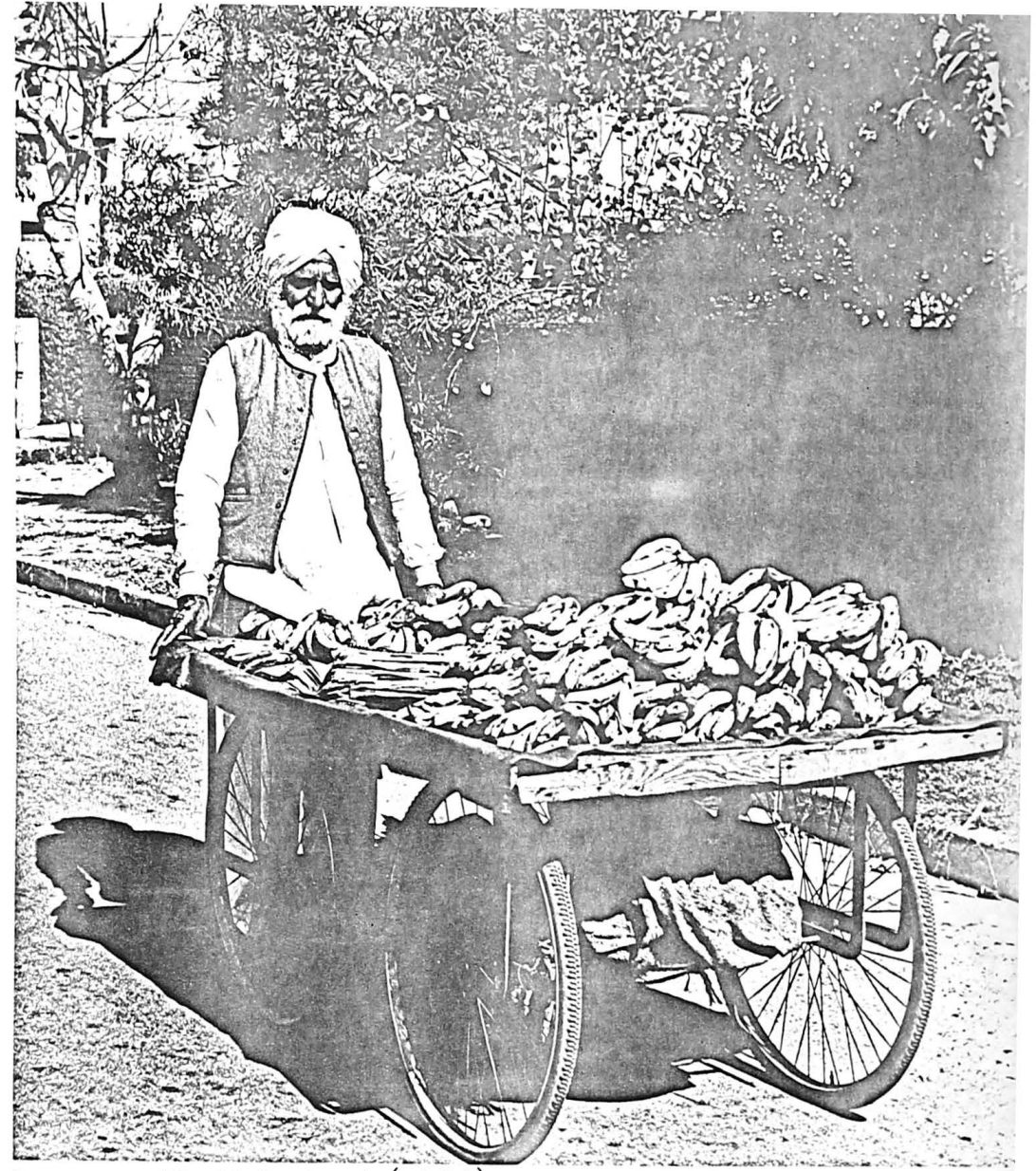
Eligible lessees were allotted sites/'booths' or shops in Sectors 7, 11, 15, 19, 20, 21, 23, 27, 28, 31 and 35. (Ref. Figure 3.6) Ten built up 'booths' were given in Sector 19-C and five in 7-C. In all other cases only sites were allotted. At that time all these sectors, with the exception of three or four, were hardly developed and business prospects were extremely poor.

In 1975, fifteen years later, Bajwada remained 'unliquidated'. The 181 persons who were allotted alternative sites or built shops accepted the offer of the Government but did not necessarily move there. Some of them filed appeals in the High Court on the grounds that the alternative accommodation which had been provided was unsuitable for their requirements. These included a person who was running a bus transport company and had been allotted a small 'booth' in a residential sector. Another owned a flour mill. While such cases remained pending in the High Court for several years, these persons could not be evicted by force. In spite of several attempts at eviction, the persons engaged in trades such as 'kabadis' and 'bharpunjas', for whom no accommodation had been planned in the new city, continued working from Bajwada. Most of the others who had not been considered 'eligible' also stayed on.

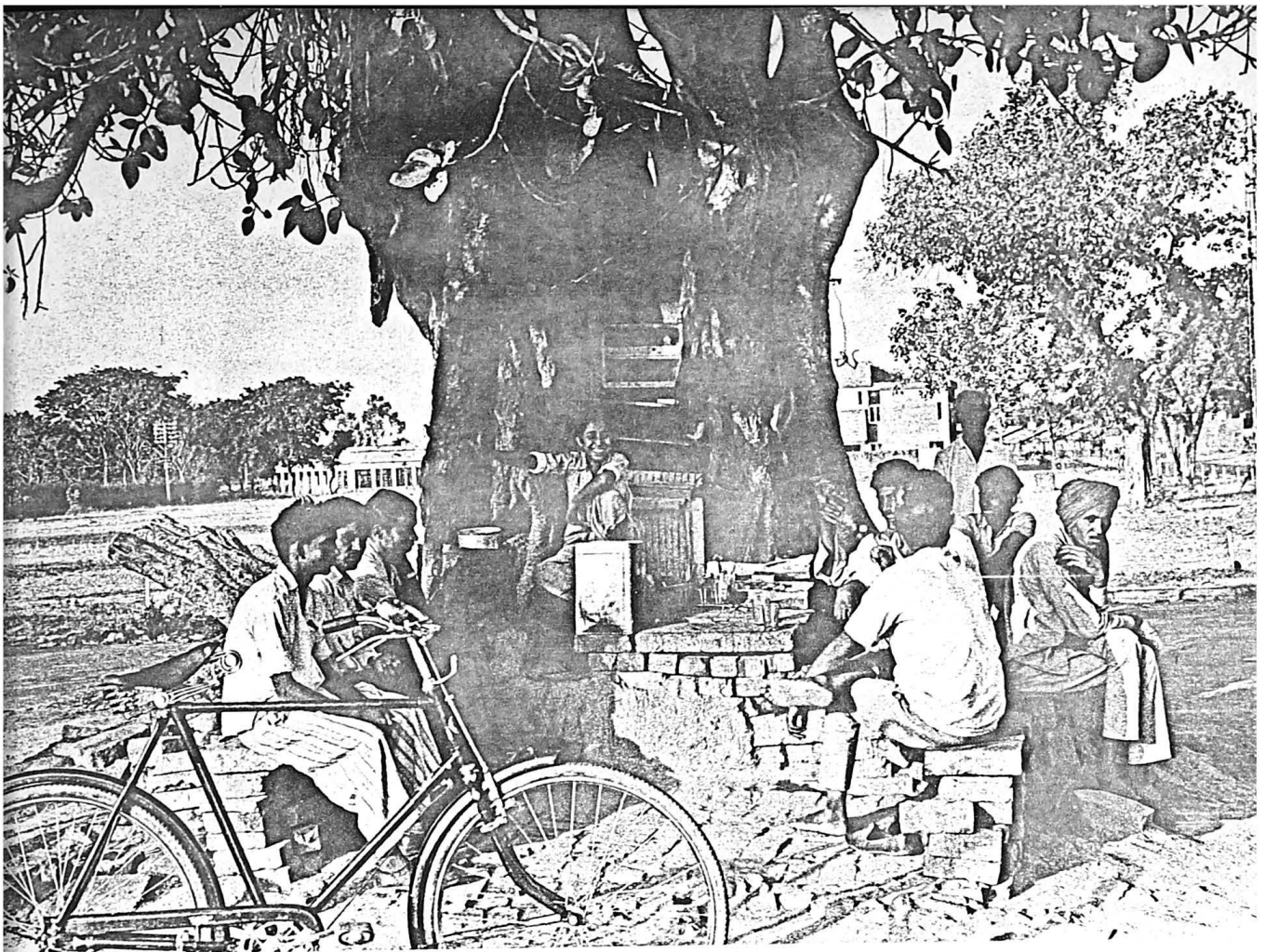
At present, Chandigarh Administration has another list of 231 'recognised' squatters in Bajwada. Again, it was not comprehensive. The definition of what constitutes Bajwada remains arbitrary. Just across the road there is a long line of one or two person enterprises providing services such as shoe repairs, second hand shoes, barbers, dyers, and potters selling earthenware pots. The present group of 'recognised' squatters has made an agreement with the Administration that no new person would be allowed to join them, and therefore, the number considered for rehabilitation remains the same.(16) In effect, it only amounts to the newcomers sitting on the other side of the road. The increase in numbers



15 & 16 Manufacture of tin trunks and quilts in 'Bajwada'. (1974)



17 & 18 Typical mobile 'rehriwalla' on a residential street (right) and 'rehris' and 'rickshaws' confiscated by the Enforcement Staff standing outside the Estate Office (left). 87A.



19. (Above) Improved tea stall from a tree trunk.
20. (Below) Cobbler working from the pavement.

has not stopped.

Parallel to the developments in Bajwada, other forms of non-planned commercial and service activities had been growing in the rest of the city. As mentioned earlier, development of the city was started at a number of dispersed locations. In the early years, roads were inadequate and public transport non-existent. Many hawkers on foot or bicycle and 'rehriwallas' (persons pushing four wheeled barrows) had appeared on the scene. They started providing daily necessities like fresh fruit and vegetables, popular snacks, sweets, etc., at the doorsteps of the early settlers. They had to go on long rounds to serve their dispersed customers and remain mobile most of the time. Slowly, as the low income population of Sectors 22 and 23 grew, many of them started congregating either near the fast developing planned shopping streets in these sectors, or on open spaces adjacent to high density residential areas. Some only worked as 'patriwallas' (sellers from the pavement) in such locations, without being mobile during any part of the day. Others, particularly fruit and vegetable 'rehriwallas', spent most of the day going from one area to another and came to such locations only in the evenings. Such locations started functioning as informal markets and became focal points for attracting large numbers of both customers and sellers, particularly in the evenings.

In addition to such markets, concentrations of 'dhabas' selling cheap cooked meals, tea shops, hot and cold snack sellers, etc., grew up in the vicinity of large building sites where large numbers of construction labourers were employed or adjoining other busy locations such as the points where buses connecting Chandigarh to other towns stopped. In such locations, some people had built 'khokhas', others had 'rehris' and many simply worked from the ground as 'patriwallas'.

As in the case of Bajwada, all these forms of activity were taken for granted and tolerated in the beginning owing to the inadequate availability of alternative planned facilities. As the pace of planned development increased, the continued growth of 'rehris', 'pattris' and 'khokhas' started being viewed as a cause for alarm by the Capital Project Authorities. No land use allocation had been made for such activities in the Master Plan. The non-planned use of land particularly by the informal markets, consisting predominantly of fruit and vegetable sellers was interpreted as an 'enforcement' problem. The enforcement staff was instructed to prevent such persons and activities from being stationary at any one location. This resulted in frequent confiscation of the goods of 'rehri' or 'patriwallas' caught by the enforcement staff. Some of them

responded by escaping such persecution by offering bribes to the enforcement staff, but generally, this resulted in causing considerable resentment among the petty traders.

From the beginning, retail distribution of fruit and vegetables in the new city was more or less totally monopolised by 'rehri' and 'pattriwallas'. They were amongst the first of the petty traders to form an association to use organised and collective effort to defend their interests. In 1957, the 'Fruit and Vegetable Sellers Association', had already organised a strike to resist the introduction of less favourable terms by the wholesalers. In 1959, it took up the issue of desirable working conditions and rights of the fruit and vegetable sellers and made a representation to the Estate Officer demanding the allocation of a number of clearly demarcated sites in the city where they could function without a constant threat of having their goods confiscated by the enforcement staff.

According to an official document, "The entire problem was examined in detail in the year 1959 and the Capital Project Authorities earmarked certain places in the city for the parking of 'rehris'. Simultaneously, hand-cart by-laws were framed under the Punjab Municipal Act, 1911 and notified in November 1959."

However, by defining the specially earmarked areas as 'rehri parking sites', no consideration was given to 'pattriwallas'. They continued to remain totally unprotected. Owing to the relative security the possession of a 'rehri' started signifying after the framing of the by-laws, many of the 'pattriwallas' who could afford it, acquired 'rehris' to put their goods on. But, for them, 'rehris' were useful only as a passport to some sort of legal protection. They never had, and still did not, functionally require 'rehris' for carrying on their work. Such persons included some fruit and vegetable sellers but mainly those engaged in the trading of other commodities such as provisions, cloth, 'dhabas', etc., or those providing services such as cycle repairs, shoe repairs, etc. A majority of these, unless carried on at an extremely small scale, were incompatible with mobility, a characteristic considered essential for 'rehris' according to the official definition adopted by the Administration.

With the framing of the first hand-cart by-laws, a system of issuing licenses for 'rehris' at a nominal annual fee was also introduced. At the same time, excepting at 'authorised' sites, parking of 'rehris' at other places, including the V2, V3, V4 and V5 roads, and pavements and verandahs opposite planned shopping centres, was forbidden.

With the available strength of the enforcement staff, implementation proved to be an impossible task. In the middle of 1961, unable to control

the growth of 'rehris' by other means, at the recommendation of Capital Project Authorities, the then Secretary for the project fixed the maximum number of hand-carts permitted in the city as 956 on the basis of licenses already issued. In addition, instructions were given that licenses should be issued or renewed only to persons plying the 'rehris' themselves, requiring every licensee to give an undertaking to this effect in writing in the form of an affidavit.

Enforcement continued to prove difficult. The problems created by 'unauthorised' parking were discussed in a meeting of the Local Advisory Committee towards the end of 1965. It was decided to constitute a special sub-committee to study the matter in detail and in early 1966, the latter made the following recommendations:

1. Licenses for 'rehris' not being an alternative to shops, the pliers should maintain its mobile character and not park their 'rehris' at odd places.
2. Licenses should be issued to actual pliers only except in the case of minors or widows.
3. Foodstuffs may not be allowed to be sold on 'rehris'.
4. Parking sites in various sectors as proposed by the Senior Town Planner were approved.
5. Parking hours for 'rehris' may be fixed and the latter may be allowed to be parked only after 3.00 p.m."

Accordingly, fresh hand-cart by-laws were prepared and notified in February 1967. The main features of these included the following:

- a) Provision was made to fix the maximum number of 'rehris' from time to time.
- b) The license fee was increased from Rs.12 to Rs.50.
- c) Provision was made for requiring the use of special 'designs' for 'rehris' for specific trades.
- d) Driving licenses for 'rehri' pullers were introduced.

These by-laws were assailed in a writ petition filed by the 'Rehri Workers Union' in the Punjab and Haryana High Court. The court held that restriction could not be placed on the number of 'rehris' and the increase of license fees was held void. It further observed that the Administration may modify, delete or amend the by-laws and develop them in accordance with the Law and the Constitution. Restrictions on 'rehri' parking times could not be enforced until made into a by-law.

Another special sub-committee, consisting of senior officers like the Chief Architect, Retired Chief Engineer, Estate Officer, etc., and a number of prominent politicians was constituted in 1969 to study

the 'problem'. This sub-committee unanimously decided to abolish the plying of 'rehris' in Chandigarh. It also recommended that the Senior Town Planner and Chief Architect should find suitable areas in various sectors where cheap sheds could be built and leased out to the actual pliers of 'rehris'.

However, when consulted about this proposal, the Legal Advisor to the Administration had the following comments to make:

"Imposition of an absolute ban on the plying of hand-carts in the Union Territory of Chandigarh is not legally permissible. Partial restraint, restricting their entry in specific sectors can, however, be imposed in the public interest."

The recommendation regarding the construction of 1500 sheds for 'rehris' in various sectors was accepted by the Officers Committee in 1970. It also decided that no restriction be imposed on the trades being followed by 'rehriwallas'. Accordingly, 48 sheds were constructed in Sector 23 on an experimental basis.

In the meantime, after framing of the first by-laws, since when the 'problem' had come to be defined as the 'Rehri problem', whereas 'rehris' had at least started receiving limited protection, the enforcement staff continued confiscating goods and equipment of 'pattriwallas' caught working anywhere in the city. Many of them had started selling from the pavement opposite the regular shops in Sector 22. Although there is a notification dated the 20th of February 1961, under which 'By-laws for Regulation of Hawkers' were framed, there was no evidence that these were actually being adhered to by any of the 'pattriwallas'. Even the Estate Officer, when interviewed, appeared to be unaware of their existence.

Under these by-laws, no 'hawker', defined as a person 'who deposits goods for sale in a public street', is allowed to do so within Chandigarh, except under written permission granted by the Estate Officer in the form of a licence subject to the conditions contained on it. Besides other requirements, the major condition attached to issuing of a hawker's licence is that

"the licensee shall not deposit his goods for sale in a public street for longer hours than is necessary to effect the sale, and in particular, shall not deposit his goods for display when not actually attending to a customer."

Literally interpreted, this implies that a 'hawker' does not have the right to display his goods for the purpose of attracting customers. Although there was no evidence of any of the 'pattriwallas' having

acquired a license under these by-laws, or even of being aware of their existence, these had possibly been framed with the intention of providing legal grounds for preventing the growth of hawking in the city. Under these, the enforcement staff could be instructed to confiscate the goods of any person not conforming to them.

Around 1964/65, 'patriwallas' decided to organise themselves to take collective action against regular onslaughts by the enforcement staff and formed an association called 'Patri Beopar Mandal'. Initially, the association made representations to the Capital Project Authorities demanding 'authorised' sites from which 'patriwallas' could be permitted to work without harassment. They received no sympathy and were told that there was no room in the new city for 'patriwallas'. Unable to achieve anything through regular channels, under the initiative of the chairman of their association, this original group of 40 to 50 'patriwallas' grew into what later came to be known as 'Nehru and Shastri markets'. (For detailed case history Ref. 3.15)

The first act of the association was to start functioning as a coherent unit from the same location. By a skillful manipulation of political factors, the group initially set itself up as an informal market under the name of the then Prime Minister, Lal Bahadur Shastri. The launching of the operation was carefully timed to coincide with four official holidays when preventive action by the enforcement staff was not possible.

Within two years, after having been moved twice to different locations and having attracted members of another 'rehri' union who named themselves 'Nehru Market', the Nehru/Shastri markets were well established as a throbbing and vital centre of commercial activity, offering a whole range of goods and services at highly competitive prices. At one point, their strength went up to between 700 and 800 small enterprises but stabilised at approximately 450. They became extremely popular, attracting customers from all over the city, and were the closest to a typical Indian 'bazaar' that Chandigarh ever had. Their final 'unauthorised' location was on a piece of land adjoining the V3 road between Sectors 22 and 21 which is reserved for city-scale commercial establishments in the master plan. However, the master plan visualises large and exclusive showrooms as the appropriate form of development there (Ref. 2.27) and this collection of small, at times untidy and colourful enterprises, did not conform to this image.

By 1971-72, it had been decided to remove these markets as well.

The Administration considered forceful eviction, but legal, as well as political factors militated against this. After prolonged negotiations, meetings, political interventions, etc., it was agreed to resettle the petty traders in planned shopping centres of different Sectors. A majority of the 'booths' allotted were dispersed in a number of relatively undeveloped sectors (Ref. Figure 3.7). The price for land was fixed at 75 per cent of the average amount fetched by similar plots by public auction over the last three years. The buildings were charged at cost price. The allottees were given the additional concession of being sold the booths on a hire purchase basis with repayment spread over 12 years in 144 monthly instalments. This was a decisive benefit given to the traders as such credit facilities are not available even from nationalised banks for commercial purposes.

The method used for screening the persons eligible for allotment was similar to the one adopted 13 years earlier in the case of Bajwada. Under the scheme, 224 'eligible' persons were allotted built up booths on hire purchase basis in different sectors. Another 164, which included those considered 'ineligible' as well as some who felt they could not afford the booths, were provided temporary sites in Sector 34-C on a rental basis. (Sector 34 till today is virtually undeveloped). All the rest, particularly the many 'patriwallas' and 'rehriwallas' who were not members of the 'Nehru and Shastri Markets Federation', were provided no alternative. All 'khokhas' and stalls of the markets were raised to the ground in one clean operation and the site cleared.

Owing to various factors, the corner of the site where 'rehri' and 'patriwallas' used to work adjoining Nehru/Shastri Markets has again grown into another fairly large 'unauthorised' market. It was alleged, although could not be verified, that many of those allotted planned booths were back, operating from the same location.

The phenomenon of Nehru/Shastri Markets occurred during the phase when the Administration was considering the possibility of abolishing the plying of 'rehris' in the city altogether. 'Rehri' and 'patri' markets continued to spring up at locations from where they had been removed against the provision of hand-cart by-laws. Standing instructions were issued to the enforcement staff to remove goods placed on the ground in various 'rehri' parking sites so that these may not get converted into regular 'patri' markets on the pattern of Nehru and Shastri Markets. At the request of the local MP, the Chief Commissioner convened a meeting with representatives of 'rehriwallas' of various sectors before removing their goods. The policy of the Administration was explained to them and they

were told that:

- i) Goods would not be removed from 'rehris' parked at authorised sites.
- ii) Goods placed on the ground even in the authorised sites would be removed.
- iii) 'Rehriwallas' may fix a small tent or tarpaulin on their 'rehris' in order to protect their goods from rough weather.
- iv) 'Pattriwallas' would not be allowed to sit in the authorised parking sites.

Despite these policy clarifications, enforcement still proved difficult. Goods continued to be placed on the ground even in authorised parking sites and even 'pattriwallas' kept working from there. Further, in spite of the demarcation of authorised parking sites, a number of concentrations in areas particularly good for business persisted in 'unauthorised' locations. These include one in the City Centre, one adjoining the Secretariat in the Capitol Complex, and one on the road between the University and the Post Graduate Medical Institute.

The experiment of building cheap sheds for 'rehriwallas' did not prove successful either. After the first 48 had been built, the waiting list of others wanting them started growing at an accelerating rate. The Administration decided that it would be extremely difficult, if not impossible, to provide sheds for all the 'rehriwallas'.

In April 1972, the Estate Officer suggested that as an alternative to 'rehri' sheds, all existing approved parking sites may be paved with cement, and water and electricity provided in them. Till the beginning of 1975, this had not been done. Some officers were of the view that certain trades such as provision goods and cloth should be banned on 'rehris' as these tended to become stationary in fixed locations. Some felt that by allowing parking even in approved sites only during fixed hours the tendency towards permanent occupation of space could be controlled. To enable the Administration to do this, it was necessary to seek approval by Parliament to an amendment of a clause in the Punjab Municipal Act of 1911, which is applicable to Chandigarh. The bill was approved at the end of 1974 and fresh draft by-laws 'for the purpose of controlling and regulating hand-carts in Chandigarh' were notified in May 1975.

These are essentially aimed at controlling the growth of such developments through increasing the stringency of legal restrictions and imposition of heavy financial penalties for default. Their main features include the following:

1. Cooking of meals and serving the same is prohibited.

2. The Chief Administrator may specify the maximum number of licences which may be issued not only for the whole city, but for specific 'authorised' parking places.
3. Each hand-cart license issued will have an 'authorised' parking site allotted individually in each 'authorised parking place'.
4. Hand-carts may be parked at 'authorised' parking sites only during specified hours. Standing on any other road, street, or public land at any time is forbidden.
5. No hand-cart shall be taken or used in the Capitol Complex, the 'Leisure Valley', the City Centre in Sector 17, the sub City Centre in Sector 34 and near the Lake.
6. Penalty for the breach of any of the provisions is punishable with a fine of up to Rs.200, and if continued, for a further fine of Rs.20 per day.
7. Within six months of the coming into force of the above by-laws, each licensed hand-cart shall be suitably changed ~~for~~ conform to one of the 'standard designs' approved by the Chief Administrator.

The fate of these by-laws in practice remains to be seen.

In summary, the growth of informal commercial and service enterprises in Chandigarh has been viewed by the Administration as a 'problem' and all policy decisions have been aimed at curbing, restricting and minimising its growth. Inherent in the Administration's approach has been an assumption that such developments are negative and therefore have to be restricted. The latest set of by-laws are based on the same criteria. However, the history of the success of such controls is evident from present reality. More than half the total commercial and service enterprises in the city belong to this category. The controls have only resulted in producing a number of intricate responses of political and other manoeuvring to by-pass them. One of the most dramatic examples of these is the history of Nehru Shastri Markets (Ref. 3.15). The two resettlement attempts in the case of Bajwada and Nehru Shastri markets viewed their developments as isolated cases whereby a number of selected 'authorised' or 'recognised' individuals were offered alternatives within the master plan framework with notices of eviction served to others who didn't qualify. Even these were characterised by attempting to make all selected

enterprises fit into the physical framework of location and built forms initially visualised for commercial and services provision. Whether the latter was able to meet the spatial and economic requirements of the enterprises concerned, did not receive much consideration.

At a more fundamental level, the issue involved would appear to be what makes persons take up such occupations in the face of severe official hostility, who they are and who uses their services. And secondly, why is the framework of the master plan unable to absorb them resulting in their becoming a 'problem'. These questions have yet to be asked by the Administration.

From the top, a majority of the senior officers view such informal developments as an underworld of anti-social elements, exploitation by political and economic vested interests, protection rackets, tax evasion, profiteering, adulteration, etc. Although it is recognised that many resort to such forms of occupation because of poverty and a lack of alternative opportunities, there is a strong impression that a majority have high incomes and are actually very rich. There is also a fear, as in the case of residential settlements, that without severe restrictions Chandigarh would be swarming with 'rehri' and 'patriwallas'.

The findings of field work presented in Chapters 4 and 5 attempt to examine the basic issues involved and the validity of some of these views.

In the meantime, while awaiting approval to an amendment of the Punjab Municipal Act on the basis of which fresh by-laws could be framed, the issuing of 'rehri' licenses was completely stopped 'temporarily'. This had created a black market in licenses, the average price for one being in the range of Rs.250 to 300. One of the 'rehriwallas' interviewed was paying a monthly rent of Rs.15 for the license alone.

3.15 Case history: 'Nehru Shastri Markets'

The following is an account of the history, organisation, growth and development of Nehru/Shastri markets, and their resettlement within the planned framework for commercial development in the city. The information was obtained through a personal interview with the man who was largely responsible for organising the whole venture, and is presented in edited form as narrated by him in his own words. He was an active member of the Congress Party and professed to have been a 'freedom fighter' during the struggle for Independence.

"I used to run a teastall in Samrala. In 1960, I decided to come to Chandigarh with the intention of building a

house because I had bought a residential plot here. Soon after coming, I began to notice the many 'patriwallas' who used to make a living by selling their wares from the pavements. These people were frequently harassed by the enforcement staff who used to take their goods away. I decided to join them as a 'patriwalla' in order to find out more about their situation. In the process, I forgot about building my house.

I set up a 'patri' of ready made garments in front of the jeweller, Nikka Mull Babu Ram's shop in the shopping centre in Sector 22-D where many of them used to sit. At that time there were about 13 or 14 of us. What used to happen was that the policemen would come, accept bribes, and walk off with various goods belonging to the 'patriwallas'. All the latter could do was to try and run away.

Besides us, there were another 25 to 30 persons working in this way in the open space in front of Punjab National Bank in the same sector (Ref. Figure 3.8). I realised that nothing would be done to change the situation unless we made an effort ourselves. First I went to see the then Chief Secretary of Punjab to complain about our harassment. Instead of receiving any sympathy, I was told that the enforcement staff was doing the right thing because 'patriwallas' spoilt the beauty of the city by making it look disorganised and dirty. So I decided to call a meeting of all persons involved in the trade to work out a joint plan of action. In all, there were about 40 of us at that time. The meeting resulted in the formation of a Union and we called it 'Patri Beopar Mandal'. We started collecting a small subscription from all members which was deposited in a bank and used for meeting union work expenses.

Then the union made a representation to the Chief Secretary, demanding an 'authorised' site from where we could work in peace. Again he told us that no provision had been made in the new Capital for 'patriwallas' and no laws had been framed for them. In contrast, he pointed out the case of 'rehriwallas' who could obtain 'rehri' licenses and that the authorities were considering the demarcation of certain sites where they could gather for a few hours in the evenings. For us there was nothing.

I realised that we would get nowhere through regular channels and that some other means would have to be devised. So I contacted a journalist I knew, to seek his assistance. He was a good writer working for a local Hindi paper. Besides, he was quite influential and had good contacts with several ministers in the Punjab legislature. We brought him into our union by appointing him the Chairman.

After getting the assurance of his support, I organised the two groups of 'patriwallas' to make a crucial move. I instructed each member to buy a few bamboos and a tarpaulin. After carefully studying the calendar, I picked a time when there were 3 or 4 public holidays in a row. Late in the evening of the last working day, all of us got together in the park in front of Punjab National Bank, quickly put up

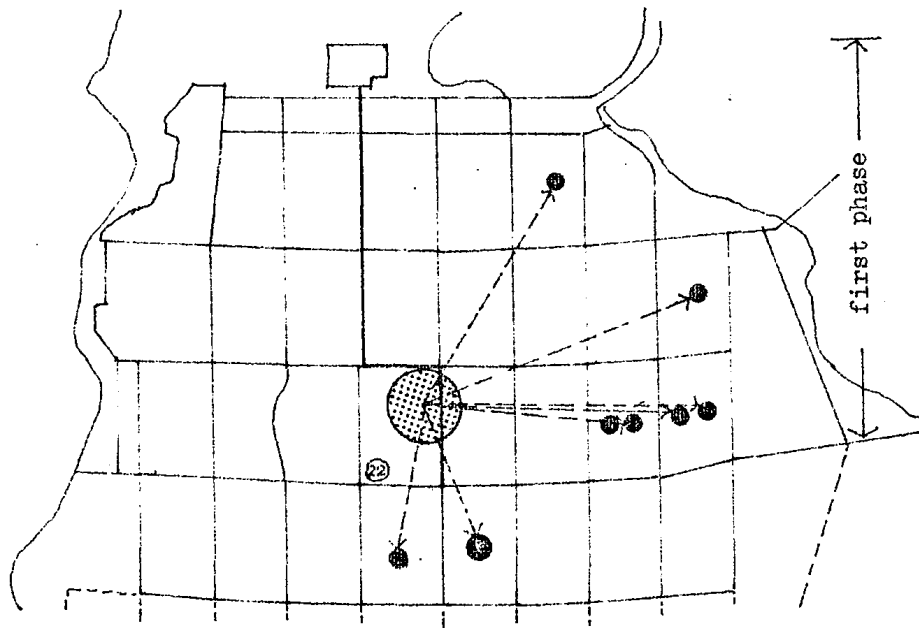


Figure 3.7 Relocation of the Nehru/Shastri Markets into regular shopping centres

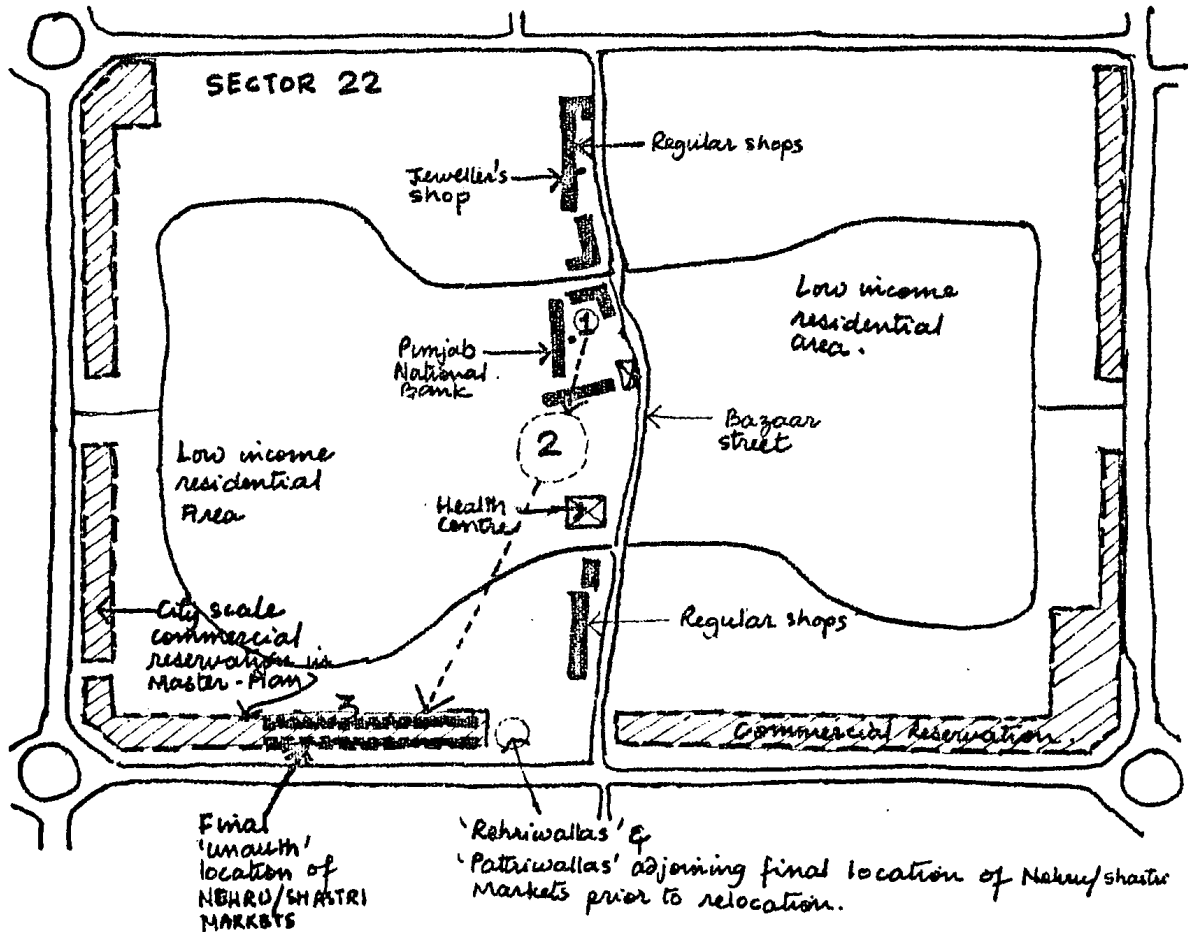


Figure 3.8 The different locations of Nehru/Shastri Markets in Sector 22 prior to rehabilitation in planned shopping centres

temporary stalls with the bamboos and tarpaulins, and started selling our goods from them. Simultaneously, we had got a large number of posters printed which were pasted all round the city. These announced the inauguration of 'Shastri Market' of petty traders with the blessings of the Estate Officer, the Capital Minister, etc., thanking them for their support and letting us name the market in honour of our beloved Prime Minister Shastri ji. To add to the fanfare, we had also invited a band to celebrate the market's inauguration.

This was in December 1965 when Punjab was still undivided and Master Tara Singh's campaign for a separate State for the Sikhs was at its height. I worked out a clever plan to exploit the political situation in our favour. Some members of our union were 'Akalis' (Sikhs). With the assistance of the 'Gurudwara' (Sikh temple) in Sector 23, we arranged the holding of an 'Akhand Path' (recital from the sacred book of the Sikhs) for the auspicious occasion of our market's inauguration.

At the end of the public holidays, we had an 'Akhand Path' going on in one corner of the market, a recital of the 'Gita' in another, and at night, 'Jagrata' was being held. In addition, by collecting Rs.1 or 2 per head, we were also holding 'langar' (free meals) for the poor. When the enforcement staff arrived to remove us, all these ceremonies were in progress. I quickly went and hid myself in the crowd. Our Sikh members reacted strongly saying that they would not tolerate an insult to their holy Guru 'Granth Sahib' which an interruption of the 'Akhand Path' would have implied. They started shouting slogans asserting that they would get cut to pieces before allowing such an act to take place. Unnerved by the situation, the enforcement staff sought the advice of the Estate Officer. The latter instructed them not to take any action for the time being.

This event was closely followed by Prime Minister Lal Bahadur Shastri's death in January 1966. While everyone was mourning his passing away, I realised what a boon it could prove for our cause. I told the others to stop mourning and be grateful for the great opportunity they had been granted for their own survival.

We decided to close the market for a whole week and launched another series of religious recitals and ceremonies as an expression of respect for the dead leader. Black flags were hung over all the stalls. Shastri ji's ashes were brought to Chandigarh for being taken round in a procession to enable the people to pay their last respects. Our market happened to fall on the route chosen for the purpose. When the procession reached us, many of our members stopped it by lying across the road insisting that the ashes be brought inside the market named after him for his last blessings prior to proceeding further. Our demands had to be met and we managed to place an enormous wreath around the urn containing the ashes. The wreath which had cost us Rs.150, besides having a large photograph of the dead Prime Minister,

had a board attached to it saying that it was an expression of respect of members of Shastri market. The urn, with the wreath around it, was later placed in Nehru Park where large numbers of people came to pay their last respects. In this way we managed to get a lot of publicity for the market.

A few months went by without further developments. Then we received a request from the Capital Minister to vacate the public space that we were occupying. We asked him to tell us where we could go. After a period of hesitation, he advised us to move to the undeveloped piece of land between the health centre and the rear of the shops (Ref. Figure 3.8). We took our stalls apart and rebuilt them in a more organised way at the new location, each stall conforming to a standard size of 8' by 16'.

Around this time, a number of 'rehriwallas' had formed a union called 'Milaap Rehri Union'. They had been watching how we, having started as 'patriwallas', had managed to get established in a big way without having paid anything to the Government. They decided to follow our example and set up a number of stalls similar to ours adjoining our market, and named themselves 'Nehru Market'. They took their decision independently and had not consulted us in any way. They were never quite as successful as us. With this kind of influx, the combined strength of the markets went up to almost 900 stalls at one point, but then slowly stabilised at about 400 to 450.

We had to remain constantly alert about the Government's plans of action against us. By moving us to a disadvantageous location behind the regular shops, the Capital Minister had reckoned that most of our businesses would fail and the market disintegrate slowly. On the contrary, we were doing extremely well. We organised a lot of lucky draws, gift schemes, etc., to attract customers and people flooded to us owing to the general cheapness and variety of goods available. Seeing that we were unlikely to go on our own accord, the Government decided to evict us by force. We found out about this in advance through our own sources of information. We filed a writ petition in the High Court against the Estate Office on the grounds that the Government itself had allowed us to use the vacant land and could not simply evict us without providing any alternative. The Capital Minister requested us to withdraw the petition on the understanding that our case would receive due consideration, and we complied.

Following this event, Punjab was reorganised into the new states of Punjab and Haryana and Chandigarh was brought under direct rule of the Central Government in November 1966. A new Chief Commissioner for the city was appointed who got the whole city surveyed. In his report he recommended that all unauthorised encroachments on Government land should be removed immediately excepting our markets, which were to be left undisturbed till an alternative solution could be devised.

A local Advisory Committee for the city, consisting of a number of private individuals and Government officials, with the Chief Commissioner as its chairman, had been formed. Our case reached this committee for discussion. Although the Chief Commissioner had earlier recommended special consideration for our case, he agreed with other members that we should be evicted by force. Again, we got hold of this confidential information through our own sources.

In 1967, when this happened, we filed another writ petition in the High Court. A notice was issued to the Estate Office to show cause for their plan of eviction. The Government counsel argued that we had illegally occupied Government land on which we had no rights. Our counsel replied that we neither denied this nor intended to assert any rights of ownership on the land. However, quoting the example of a person whose house had been illegally occupied by another, he pointed out that the former still had to take refuge in a court of law for getting his grievance redressed and could not simply resort to the use of force. Further, he pointed out that the Chief Commissioner himself had undertaken to give special consideration to our case and could not go back on his word. The Estate Office agreed to withdraw the case against us and not to evict us by force.

Things went on like this for some time. We maintained contact with influential persons to keep our plight publicised. We even approached Shastriji's son who took a special interest in our market and once even came to Chandigarh by air to look into the matter personally when we were threatened with eviction another time. Owing to having obtained such support, we were even able to get temporary connections of both water and electricity in the market.

Then we were asked to move once again. This was in 1967/8. We were called by the Chief Commissioner and told that the present site was unsuitable for a market because it caused a tremendous amount of disturbance for the health centre and adjoining residential areas. He said that this time we were being moved to a site which was reserved for commercial purposes even in the Master Plan and that the Administration would eventually build small shops or booths for us there and not ask us to move again. Again we built the stalls in a systematic way with each person having a standard plot measuring 8' by 16'. All these moves cost each of us a considerable amount of money. The first time we had spent Rs.3-400 each, the second time Rs.6-700 and the third time still more.

After this move, Nehru & Shastri markets joined together to form a single union because we decided that we were all fighting for the same cause and that we should join hands rather than fight each other. During this period we sought the assistance of the Congress M.P. from Chandigarh. It was with his support and efforts that it was eventually decided that each of us should be allocated pucca 'booths' in regular shopping centres in different sectors on a hire purchase basis.

The Administration got different numbers of 'booths' constructed in sectors 7, 29, 30, 28 and 35, for the purpose. (Ref. Figure 3.7). Their size was the same as our stalls in the markets. During the long period of negotiations preceding the final move, we raised several issues. Firstly, we were concerned that the 'pucca' booths in shopping centres of residential sectors were designed to cater for the daily needs of resident populations and included provision for barbers, butchers, etc., whereas our market consisted predominantly of general merchants, cloth dealers, furniture makers, 'dhabas', 'kabadiwallas', and sellers of fancy goods. We requested for special consideration that the general character of our market was not destroyed. We also pointed out that furniture makers, 'kabadiwallas' and 'dhabas' could not function from 8' x 16' booths as their space requirements were greater. Consequently, it was decided to allot double units for these particular trades.

The process of preparing lists of persons who were legitimate members of the markets, and therefore to be considered eligible for allotment of 'pucca' booths, proved to be tedious leading to many undesirable developments. Initially, we were asked to prepare lists of all our members. We did this on the basis of our membership records and sent copies to the President of the Congress Committee, members of the Advisory Board, the Estate Officer, etc. We pointed out names of persons who had recently infiltrated the markets by buying off smaller traders who couldn't compete and recommended that they should be excluded from those selected for allotment.

What actually took place was that names of a large number of persons who had never even worked in the markets crept into the official lists. In fact, at that time, starting from the most junior inspector up to the high officials in the Estate Office, bribes were being accepted. We complained to the Estate Officer that a wrong procedure was being followed. If the lists prepared by us on the basis of our records were not going to be accepted, why had they been asked for in the first place. The discrepancies between our lists and the official ones created a situation of confusion amongst the majority of our members who started losing confidence in the representatives. The land did not belong to any of us or our fathers, but the fraudulent means by which official lists were finalised led to a lot of rich traders, who had nothing to do with the markets, getting their names in. I personally went to protest to the Estate Officer but he replied that for the time being, the primary objective of the Administration was to get the present site vacated and that they wanted our co-operation in the matter. He said that our complaints would be taken into account after the move.

Another issue we raised was the fate of the 'rehris' and 'patri-wallas' functioning from the area adjoining our market. (Ref. Figure 3.8) Were they going to be allowed to continue at the same location while our members were sent to less developed sectors where business was sure to decrease, possibly leading to the bankruptcy of many. We felt that they should also be resettled in small sheds or some other form acceptable to the Administration. I even suggested that all selected allottees should be photographed and issued with identity cards so that any illegal subletting or transferring of rights at a later

date could be easily detected. All I was given in return were verbal assurances that this would be done but no action was taken.

I pointed out the case of 'Bajwada' where in spite of a number of attempts at clearing the site, it still remains a thriving centre of unauthorised activities. The reason for all this is the lack of a consistent and clear policy being followed by the Administration.

As a result of all this, whatever malpractices could get into our markets, crept in. As I said earlier, a lot of rich shopkeepers had managed to get in. They were able to evade both sales and incomes taxes to their heart's content. They did extremely well because they could afford to offer a larger variety of goods and therefore attract more customers. Even the small traders had started managing to get goods on credit from wholesalers owing to the general success of the markets. But they could not compete with the bigger ones so that success for them was limited from the beginning. The wholesalers, both within and outside Chandigarh, had started giving goods on credit to the smaller traders only after we had set up a market with fixed stalls. They didn't charge any interest but kept sufficient profit margins to make up for that. The rich ones amongst us had started making a fortune whereas the poorer ones remained poor as before. They neither had the brains nor the capital to do well besides being law-fearing.

Since resettlement in planned shopping centres, many of them have ended up almost bankrupt, having had to sell all their assets including their wives' jewellery. Owing to the lack of much business, even wholesalers are not prepared to give them goods on credit any longer. We neither got the benefit of being on popular bus routes nor of having much local demand to cater for. Many of our members have had to lock up the 'pucca' booths allotted to them and go back to the old location as 'rehriwallas' simply for the sake of economic survival.

At the same time, the 'rehriwallas' working at the old location in Sector 22 have remained where they were in spite of the Government's promises to the contrary. Their sales have shot up and so has the extent of new unauthorised development at the same location. They have been telling our old customers that the new markets have failed and that they constitute 'Shastri Market' now. Whereas we had maintained a certain discipline in conforming to standard stall sizes, now there is a free for all. One person with one 'rehri' licence is doing business of thousands of Rupees from 5 to 10 'rehris' put together. Some have stocks worth Rs.50,000 each. Many persons, whose stalls were well known have gone back to encroaching there. Many have sold the 'pucca' booths allotted to them on concessional terms but no action has been taken against them. Others have sublet them which is not permitted either.

Why should anyone bother to come so far here when there is no bus service connecting us to Sectors 22/23, from where most of our old customers came, particularly when the old location

continues to remain a throbbing market? Out of us, those who chose to abide by the law and wanted to make something of our lives are still fighting it out here but our financial situation is precarious. Take my example. When we moved to the new shops in 1972, they just consisted of bare shells. An average of Rs.4,000 had to be spent by each person on shop-fitting. The simple fittings you saw at my booth cost me Rs. 5,000. Then, I've paid approximately Rs.2,500 to the Government in monthly hire purchase instalments by now. On top of that, I've been sitting virtually idle for two years, with hardly any income. There are not many of us who can bear this kind of a financial strain. Besides, now we can neither get goods on credit from wholesalers nor invest much in our undertakings ourselves. What can people be expected to do under the circumstances?

When we moved to our new shops we were given a lot of assurances that all kinds of facilities will be provided to enable us to run reasonable businesses. But, in this sector, for instance, there weren't even electrical connections available. Only one bus going to the Industrial area used to pass by. Now I have managed to get two more buses routed past here but we still don't have any links with Sectors 23/24 or Manimajra where most of our old customers live. Some people do come from the P.G.I. and the University but they are not many. The unsuitable timings of buses and the usual wait of almost an hour makes it unattractive for most to bother.

I had been the General Secretary of our market from the beginning and from 1969 till today, I have remained the President. Everything was made with my hands. Most of our customers belonged to the lower income groups. Some even came from higher income backgrounds but they were not many. The general quality of our goods did not cater for their requirements. Our market had really become famous for the cheapness of its goods. Although many persons used to evade the payment of sales tax, the market still used to pay approximately Rs.10,000 per month. Now it isn't even Rs.2,000 because sales have dropped so much. There was a good spirit of participation amongst the members and donations were collected frequently for charitable purposes. We even used to organise a lot of social activities. We used to start work at 6 or 7 a.m. and come home around 9 or 10 p.m. because there were no regulations to conform to. In the evenings everything used to be tied up and 'chowkidars' used to watch the place at night. Later on, we had even made the stalls lockable. There were no thefts or the like. Few used to have incomes of less than Rs.1,000 per month. Now it isn't even Rs.200. It is difficult even to pay the monthly hire purchase instalments. Its all my fault. I got everyone in this plight and now they blame me for their predicaments. But how was I to know that the Government won't keep its word. It did not stop further unauthorised encroachment. Most of us were small businessmen who could not sustain the financial implications of the changed situation."(17)

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- 11 From official records, offices of Chandigarh Administration.
- 12 Offices of Chandigarh Administration, from a document signed by the Estate Officer dated 8.9.71
- 13 Chandigarh Administration: Draft Proposals, Fifth Five Year Plan (1974-79), Dept. of Finance.
- 14 Also refer 7.16.iv
- 15 Offices of Chandigarh Administration: from an official instruction to the Estate Officer from the Secretary to the Punjab Govt., undated.
- 16 Apparently since the beginning of the Emergency in India from June 1975, another attempt has been made to clear Bajwada by force but the basic issues remain unaltered.
- 17 Source, Personal interview.

TABLE 3.1 Distribution of workers in different categories of economic activities and workers as percentage of total population in Chandigarh during 1961 and 1971

Category (1)	1961		1971	
	Number ('000s) (2)	% age of total (3)	Number ('000s) (4)	% age of total (5)
1. Government service	17.0	50.0	45.0	61.5
2. Manufacturing, processing, servicing and repairs	3.0	9.0	9.0	12.3
3. Construction	10.0	29.5	4.0	5.5
4. Trade and commerce	3.0	9.0	11.0	15.0
5. Transport, storage and communications	1.0	3.0	3.0	4.1
6. Agriculture and allied groups	1.0	1.3
TOTAL	34.0	100	73.0	100
7. Workers as percentage of total population		37.5%		33.5%

(Source: Superintendent of Census Operations, Chandigarh)

TABLE 3.2 Incomewise distribution of households: all India urban areas and assumption for Chandigarh city

Income of household in Rs.* per month 1	% age for urban areas in India 2**	assumed existing % age for Chandigarh 3***
1. Below 250	40	25
2. 250 to 350	33	30
3. 351 to 500	15	25
4. 501 to 1,000	7.5	15
5. Above 1,000	2.5	5

* £1.00 = Rs.18.50 approx.

(Source: Draft proposals for the Fifth Five Year Plan (1974-79) department of finance, Chandigarh Administration)

- ** The above document based its information on various sample surveys of consumption levels etc.
- *** This distribution has been assumed by Chandigarh Administration on the basis of higher per capita incomes in Punjab and Haryana and because Chandigarh "is attracting prosperous new settlers" from abroad. Any significant impact of the latter is suspect given the occupational structure of the working population in Table 3.1.

TABLE 3.3 Allotment of Government Houses to employees and employees on the waiting list according to types of houses in May 1964

Type of house*	Total No. of units	Full units allotted	Shared units allotted	Total No. of employees living in Govt. houses	No. of employees on the waiting list
1	2	3	4	5	6
III	10	10	-	10	3
IV	10	10	-	10	6
V	44	44	-	44	21
VI	44	44	-	44	76
VII	39	39	-	39	95
VIII	92	92	-	92	168
IX	354	258	96	450	107
X	622	334	288	910	330
XI	1396	484	912	2308	710
XII	2220	1085	1135	3355	1085
XIII	3470	2264	1206	4676	440
TOTAL	8301	4664	3637	11938	3041

Source: Manjit Kaur: 'Problems of housing Government employees in Chandigarh'; unpublished M.A. dissertation in Sociology, Punjab University, 1965.

Quoted by Dr. V.S. D'Souza, in 'Problem of Housing in Chandigarh'; Urban and Rural Planning Thought, School of Planning and Architecture, New Delhi, Vol.XVI, No.4, October 1973.

*The size of each type of house and the salary scale of entitlement of employees decrease with the increase in the type number of each house.

3.III

TABLE 3.4 Allotment of Government Houses to employees according to types of houses as in March 1972

Type of house		Total No. Units	Full units allotted	Shared units allotted	Total No. of employees living in Govt. houses
Old	New				
1	2	3	4	5	6
II, III, IV	7	21	21	-	21
V & VI	6	70	70	-	70
VII & VIII	5	133	133	-	133
IX	4	411	382	29	440
X	3	842	640	202	1040
XI & XII	2	5484	3902	1582	7066
XIII	1	4644	4521	123	4767
CHEAP HOUSES		275	270	5	280
TOTAL		11880	9939	1941	13821

Source: Office of the House Allotment Committee, Chandigarh.

Quoted by Dr. V.S. D'Souza, in 'Problem of Housing in Chandigarh';

Urban and Rural Planning Thought, School of Planning & Architecture, New Delhi. Vol.XVI, No.4, October 1973.

TABLE 3.5 Present Distribution of persons on the waiting list by types of houses and percentage of demand for each type planned to be catered for during the Fifth Five Year Plan (1974-79)

Type of house (new)	Monthly salary range of employee in Rs.	No. of persons on the waiting list	3 as % age of total employees in each category	No. of houses planned for 1974-79	5 as % age of 3
1	2	3	4	5	6
1	Less than 110	4009	46.7	200	5.0
2	111-200	8787	68.7	240	2.7
3	201-350	2263	76.5	100	4.4
4	351-499	1926	82.7	40	2.0
5	500-999	1238	88.7	20	1.6
6	1000-1999	389	84.8	4	1.0
TOTAL		18612	604	

Source: Draft proposals, Fifth Five Year Plan (1974-79), Department of Finance, Chandigarh Administration.

3.IV

TABLE 3.6 Number of residential plots sold each year by Chandigarh Administration from 1961 onwards

Year	Number of Plots Sold		Total
	By Auction	By Allotment	
1	2	3	4
1961
1962	218	...	218
1963	43	...	43
1964	64	...	64
1965	36	...	36
1966	27	...	27
1967	19	2461*	2480
1968	35	665*	700
1969	19	...	19
1970	79	...	79
1971	139	...	139
1972	...	824	824
1973	92	109	201
1974	275	...	275
1975 (till 31.3.75)	66	...	66
TOTAL	1112	4059	5171

*Most of these were sold at concessional rates to members of the armed forces not resident in Chandigarh and to a selected few of the city's elite such as Government architects, engineers, doctors, professors, etc.

Note: During this period of 15 years, the city's population increased by approximately 170,000. In addition to the sale of only 5,171 private residential plots, only 3,579 Government houses were built.

(Source: Chandigarh Administration, Estate Office.)

TABLE 3.7 Increase in residential land prices in Chandigarh since the introduction of the policy of sale through open auction

A. Fixed allotment prices for residential plots up to 1960

Size of plot	Fixed allotment price per square yard
1	2
1. First 125 square yards	Rs.12
2. Next 125 square yards	Rs.8
3. Next 250 square yards	Rs.6
4. Above 500 square yards	Rs.4

B. Average prices fetched in open auction by different sized plots in 1973-74

Size of plot in square yards	Average auctioned price per square yard	Percentage increase over allotment prices in 1960
1	2	3
1. 125	Rs.181.00	1408
2. 187	Rs.154.00	1343
3. 250	Rs.125.00	1150
4. 375	Rs.108.00	1147
5. 500	Rs.95.00	1087

Source: Estate Office, Chandigarh Administration