

THE CITIES OF HYDERABAD-SECUNDERABAD:
With Special Reference to Their
Industrial Development

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ABSTRACT

The thesis is an attempt at a geographical analysis of the industries in the cities of Hyderabad and Secunderabad . These cities with their entirely different origin and historical backgrounds, established as separate entities, now form part of Hyderabad Metropolitan Area.

The first two chapters outline the historical and physical backgrounds. The developmental stages have been divided into certain periods, according to the morphological and industrial growth and expansion of both the cities. The environment, relief and climates have influenced to a great extent, in planning the cultural landscape of the cities.

After the re-organisation of States, Hyderabad city became the regional and administrative capital of Andhra Pradesh. Third chapter traces the regional differences and the resources available, which are responsible to a certain extent, for the economic and industrial development of the cities.

The land use pattern of the twin cities is formed by the industrial, commercial, administrative, residential and suburban land uses, with special emphasis to the main functions of the Central Business Districts. The intensity and the heterogeneity of the urban functions, decide the characteristics of the Central Business District. The extent of these urban functions conform the spacial extent of the C.B.D. in the twin cities. In the fourth chapter the land use pattern of Hyderabad and Secunderabad has been analysed within the frame-work of regional and local planning.

The phenomenal growth of the twin cities, gave rise to to different types and sizes of industries. Fifth and sixth chapters highlight the industrial structure of the cities. The industrial structure is formed by five Industrial Areas and four Industrial Estates, consisting of well defined ten industrial sectors. Small scale and service type industries are scattered all over the twin cities, but the localisation factor played an eminent role in the case of some industries, like chemicals and pharmaceuticals, cotton textiles and food processing industries, which show a concentric type of location. Peripheral location of three industrial estates, out of four, suggests being well considered, in terms of regional and urban planning. Chandulal Baradari industrial estate has been located in the old city of Hyderabad, in order to solve the problem of un-employment south of the river. During the Third Five Year Plan, a number of large scale and heavy industries, under a public sector undertaking, have been established on the north-western outskirts of the twin cities, therefore, in future, Hyderabad will develop into the biggest industrial complex of Andhra Pradesh.

The demographic structure its spatial distribution and growth of the twin cities has been analysed in the seventh chapter. The suburban towns of the twin cities, which, when joined together form Hyderabad town group, have their own functional entity which directly contributes towards the industrial and economic development of both the cities.

Finally, the conclusion consists of the general assessment of the twin cities.

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CHAPTER I

HISTORICAL OUTLINES OF THE CITIES OF HYDERABAD AND SECUNDERABAD

Hyderabad, the capital of Andhra Pradesh, and the adjoining city of Secunderabad, a former British Cantonment, with the population of 1,251,119 (1961 census), are the largest urban agglomerations in the Deccan Plateau, (Figure 1). Hyderabad's origin and development took place during the mediaeval period under muslim feudal rulers and Secunderabad's under British influence. Both the cities with their different historical backgrounds attract ones attention to make a study from geographical and ecological points of view. In the course of their historical development the twin cities of Hyderabad and Secunderabad have been influenced by complex historical, social and economic factors.

History is primarily concerned with the tracing of human events through time, occuring in a particular area. The historical background, to a certain extent suggests the ecological and industrial development of the dual cities.

1. Golconda and the Early Settlement of Hyderabad.

Hyderabad is the successor of the town of Golconda. It is an ancient fortress and ruined city situated in $17^{\circ}-23'$, northern latitude and $78^{\circ}-24'$ east longitude, on the north bank of the Musi river. The fort was

was originally constructed by the Raja of Warangal, ¹ who surrendered it to Muhammad Shah Bahmani of Gulbarga, together with its dependencies in 1364. During the 15th century the Bahmani dynasty of Golconda was one of the largest and powerful kingdom of Deccan. The fortress occupies a strong defensive location on a massive ridge of granite and contains many enclosures. It is surrounded by a strong stone wall over 3 miles in circumference with 87 bastions at the angles. Some of these still contain large pieces of ordinance bearing Persian inscriptions.

In 1512 A.D. the fortress town of Golconda passed from Bahmanies to the Qutub Shahi dynasty, who had their capital there until the foundation of Hyderabad, as a civil capital in 1589 A.D. It is situated on the south bank of the river Musi and 4 miles east of Golconda. Both shared the governmental functions until they had been annexed to Moghul Empire by Aurangzeb in 1687 A.D. Since then the glory of Golconda has faded, and it lost its importance as a military town. The city of Hyderabad was taking its place, performing civil functions and grown in population too. Now (1961) Hyderabad is one of the five big cities of India, with more than a million inhabitants.

1. Imperial Gazetteer of India, Provincial Series, Hyderabad State, 1909, pp. 108

Golconda was chosen as the first capital of the kingdom, for its defensive site and because it stood on the trade route from the port of Masulipatam on the east coast and to Aurangabad, a great military and trading centre which is 300 miles to the north west of Hyderabad. The growing prosperity of the Qutub Shahi kingdom paved the way to the commercial expansion of the town of Golconda. This has also attracted a large military and civilian population. By 1576 A.D. the fortress town was overcrowded and there was hardly any scope for expansion within it. So in 1578 A.D. the ruler, Ibrahim Qutub Shah had the river Musi bridged at its narrowest point, $2\frac{1}{2}$ miles east of Golconda. The construction of this bridge gave an intense relief to the crowded residents of the walled town. The principal measure of urban expansion is infact, the construction of several bridges on the river, which separates the old and new town.

2. Growth of Hyderabad and Secunderabad

The development of the urban complex can be divided into the following historical stages.

i	Qutub Shahi period	1519 - 1687 A.D.
ii	Asaf Jani dynasty	1723 - 1799 A.D.
iii	The Origin of Secunderabad	1797 - 1874 A.D.
iv	The Development of Railway and Transport	1874 - 1908 A.D.
v	The Metropolitan Stage	1908 - 1965 A.D.

These stages indicate the occurrence of a significant political event or the introduction of new economic factors having a marked influence on the growth of the twin cities.

It is intended that the present cultural landscapes shall be studied in terms of their development, following Huntington's statement that "a rational understanding of history requires a good knowledge of the changing physical background upon which the historical events occur" ². ~~Therefore,~~ A characteristic feature of this modern urban complex has been the development of more than one settlement. When Mohamad Quli Kutub Shah, the fifth ruler of the Qutab Shahi dynasty, wanted to bring about the physical expansion of the city of Golconda, then he founded Hyderabad, as an annexed city to share the functions of Golconda, but the further expansion of the city of Golconda came to an end with the collapse of Qutub Shahi kingdom. The second twin city i.e. Secunderabad came into existence about a century later. Secunderabad, in due course emerged as a mature, though secondary city, with its own distinctive economic and industrial development. Although Hyderabad attains supremacy over Golconda,

2. Richard Hartshorne, The Nature of Geography, Pennsylvania, 1939, pp. 175.

while Secunderabad, being a British Cantonment had only subsidiary status and was always influenced by the capital in political, social and economic growth.

3. Qutub Shahi Period 1519-1687

During the Qutub Shahi reign, the development of Hyderabad was at its initial stage. The city was planned on a grid pattern, consisting of two main roads running east to west and north to south and intersecting at Charminar (Four Minarets). In the civic centre of the city Charminar, a building was constructed in 1591, and it occupies a central position, with four roads radiating from its base. This is one of the most graceful and beautiful buildings of Hyderabad. The minarets are 180' high and thus form four quarters. The northern quarters were set apart for royal palaces and state offices, and the southern quarters for the residences of the nobles.

Within a short period of its creation, Hyderabad became the commercial metropolis of the Kingdom of Golconda. Tavernier found local business transacting with foreign traders, and was surprised to see in this city a number of rich merchants, bankers, jewellers and skilful artisans. Tavernier also mentioned about the manufacture of chites or chintz (painted cotton cloth)

in the Kingdom of Golconda.³ Comparatively with other places he appreciated this product, because it is done with a brush.

Soon after its foundation, Hyderabad superseded the fortress town of Golconda and became the heart of the kingdom by its administrative, intellectual, cultural and commercial activities. In 1593 A.D. when the bridge, called Puranapul or (Old Bridge) was constructed over the river Musi, the possibilities of expansion towards the south bank was opened out and thus Hyderabad soon supplanted Golconda, both in size and wealth. Hyderabad continued its growth from east to west along the commercial highway of the kingdom, until 1687. (Fig. 1) It was suddenly halted because of the annexation of the kingdom to the Moghul Empire of Aurangzeb. For about a period of forty years, there was a halt in active life and growth of the city. The Capital was shifted from Hyderabad to Aurangabad, which was the headquarter of the Deccan Province of the Moghul Empire. Meanwhile Aurangabad suffered from political instability and eventually the situation at Hyderabad was also unstable. But towards the end of 1725 A.D. political conditions settled down to a certain extent, and Nizamul Mulk

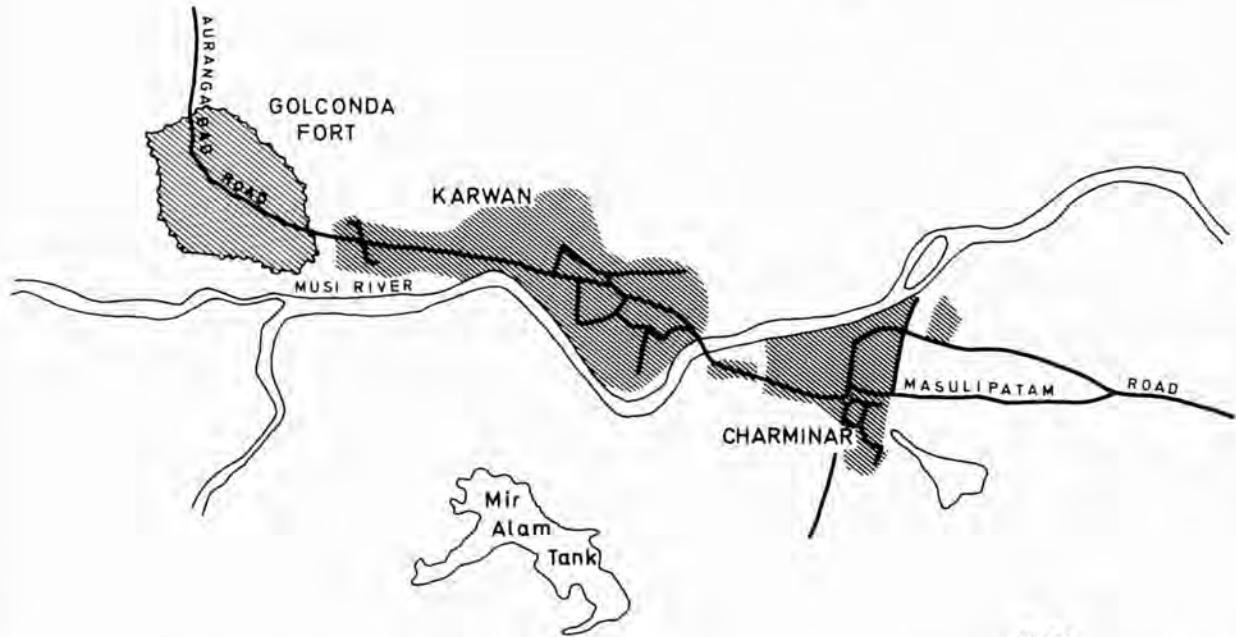
3. Tavernier, Travels in India, translated by V. Ball (ed.) William Crook, Oxford University Press, 1925,

HYDERABAD - SECUNDERABAD Growth of Settlement 1687

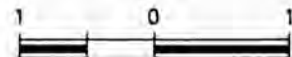
Roads



Husain Sagar



MILES



Source :- Hyderabad Metropolitan Research Project

Fig. 1

Asaf Jah I, a Turkoman descent, founded the Asaf Johi dynasty at Hyderabad, which lasted until 1748. He took firm control over Deccan and Hyderabad city. Nizamul Muik was the most remarkable personage in history of the later Moghals. He was a clever strategist, and a far sighted statesman, "who clearly envisaged about the inefficient reigns of Aurangazeb's successors lacking both in military genius, and administrative capacity"⁴.

4. The Early Asaf Jahi dynasty: 1723 - 1799 A.D.

The Asaf Jahi reign can easily be recognised with two distinct phases, one is of stagnant economy due to political instability (1725 - 1763), and the other is of flourishing economy and political stability (1763 - 1798). The period of the first phase, was one of great economic stress and strain for Hyderabad, because Aurangabad was still the capital, many other wealthy feudal landlords had migrated there. The death of Asaf Jah I in 1748 A.D. made the situation worse, and the Anglo-French struggle for supremacy over Deccan (1750 - 60 A.D.) renewed political uncertainty, which adversely affected Hyderabad's growth. Even the construction of the ruler's palace, and of his ministers' mansions in the south-west quarter of the city, could not check the stagnation set

4. Yousuf Husain, The First Nizam, 1963, p.3.

by other factors. The city was only partially filled, and only that part of the city which during the Qutub Shahi period contained royal palaces was crowded with dwellings.

The phase of economic expansion and political stability started from 1763 A.D. when the Viceroy or the Nizam Ali Khan shifted his headquarters to Hyderabad. The Nizam probably realised that he had more political claims in the south than in the north, for which purpose Hyderabad was more centrally located. Hyderabad thus re-emerged as the chief city of the Deccan after a long gap of seventy six years. As the result of this decision the nobles of the court and their retainers also returned to Hyderabad, and thus the inflow of land revenue, commerce and city building were greatly stimulated. Within the city walls a phase of urban renewal commenced, the old buildings were demolished and the new ones were erected. Settlement expanded rapidly beyond the walls both north and south of the river. This great increase in power and population of the city was reflected in enhanced commerce and craftsmanship. While in 1763 A.D. there had been only one grand bazaar, and no organised wholesale trade, but by 1798 A.D. there were three flourishing grand bazaars in the city and one wholesale

district in its northern suburb.

5. Origin of Secunderabad: 1797 - 1874 A.D.

In 1798 two significant political decisions influenced considerably the city's development. In the first instance the Nizam's permission for the construction of the British Residency on the north bank of the river Musi, changed the trend of Hyderabad's growth, and secondly the subsidiary Alliance of the Nizam with the East India Company in 1798, created Secunderabad, which subsequently influenced by the growth of Hyderabad. Secunderabad named after the Nizam Sikandar Jah. The British troops stationed there were formerly known as the Subsidiary Force, and were paid from the revenue of the districts ceded by the Nizam under the residency, and its buildings were completed by 1806 A.D. Following its construction, there came into existence around it a cluster of shops and houses of the bonafide subjects of the ruler of the state. This new settlement being efficiently administered, enjoyed peace and security. In contrast to this, the civil administration was chaotic in Hyderabad and especially in suburbs, where burglars quite often molested the merchants and bankers who, therefore, migrated from Karawan to the Residency. Not only bankers but the native civil servants of Nizam's Government also moved to Chadarghat. Besides this native

infiltration a strong foreign element was also introduced mainly of Europeans and Eurasians. Although they held an important position in the service of the Nizam, they desired to stay near the residency. This European - Eurasians colony adjacent to the walled city was a valuable addition to Hyderabad's cultural development. Houses of European style, christian churches and missionary schools dominated Chadarghat. The first church of the city and its suburbs were built in this area in 1800 A.D. The first native christian colony was established by the French, round a gun-foundry built by M. Raymond and referred to by Malcolm (1798 A.D.) as a place in which they cast excellent cannons and muskets, this area served as a nucleus for the growth of christian settlement and it is within 1,000 yards of the foundry's radius that Hyderabad's christian population, churchs and convent schools are still concentrated. The emergence of the British East India Company in the early 19th century as the paramount power in the Deccan, lent political stability to Hyderabad state and its capital. This naturally stimulated commerce and encouraged immigration. The density of dwellings led to the emergence of another grand bazaar. This rapid economic growth of the walled city and its suburbs, the residency bazaars and Chadarghat stimulated contacts between the two and generated movement of people and goods in either direction.

This was further assisted by the addition of two bridges across the Musi river at Chadarghat and Afzalganj in 1839 A.D. and 1857 A.D. respectively. Afzalganj being most central, it joined two densely populated parts on either side of the river Musi, and was the direct link between the Royal palaces on the south, and the British Residency in the north of the river Musi. Its central location was of critical importance in the future growth of Hyderabad. The setting of the residency near Hyderabad contributed to the city's physical expansion, introduced a critical change in its growth pattern, and added new social values and fresh cultural horizon to its surrounding landscape. (Fig. 2).

The Subsidiary Alliance of 1798 A.D. stipulated the permanent residence of the British East India Company's forces within the Nizam' State, and granted them certain economic concessions. Article 4 of the Alliance reads that "the duties on grain and articles of consumption, as well as all necessaries whatever for the use of the new Subsidiary Force, shall be commuted agreeably to the practice that obtained with the former detachment".

Soon after the treaty was signed, 5,000 British troops arrived near Hyderabad and camped on a low flat ridge immediately to the north of Husain Sagar Tank, and near the village of Husain Shahpur. The growth of the cantonment was initially rapid. It started with an area

HYDERABAD - SECUNDERABAD Growth of Settlement 1865

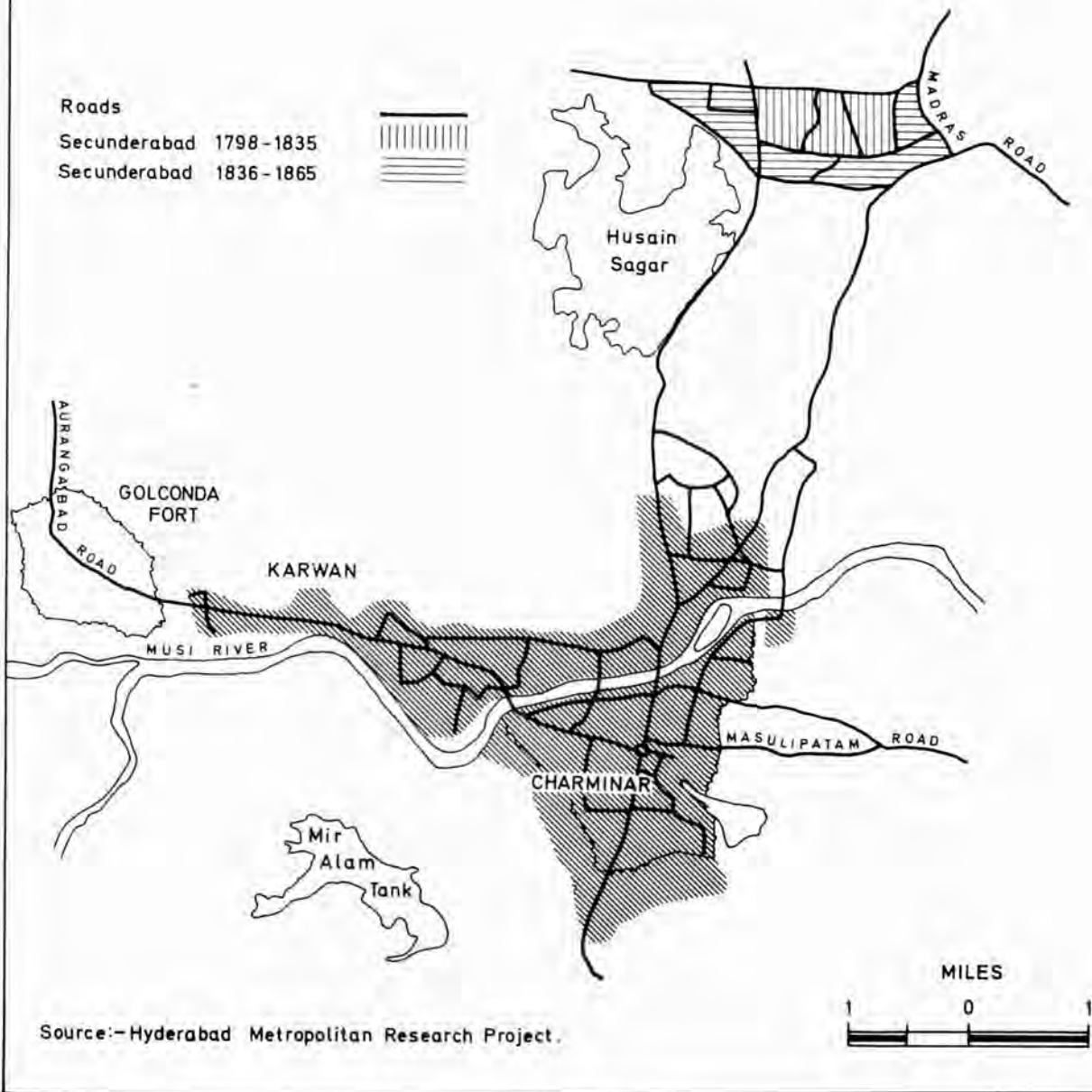


Fig.2

of 4 sq. miles, and a population of 5,000 troops, and several thousand civilian natives, but in 60 years time its area expanded to 20 sq. miles (including the beautiful tank and magnificent parade ground), and the population including armed forces was over 50,000. Secunderabad being a British Cantonment was developing a cultural pattern quite different from that of the capital. St. John's Church and St. Marys Cathedral dominated its urban profile. A centre of native settlement was Hindu, due to Mahakali's Temple. English and not Persian was its official language; Telugu and not Urdu was the language of the natives. Missionary schools teaching was through the English medium of instruction. In Hyderabad, on the other hand, there were Madarsa and Maktab (oriental types of schools). These linguistic differences are still prevailed in the social and cultural setting of the twin cities. Despite these differences the two were being fused into one through their military and economic association.

6. The Development of Railway and other Transport:

1874 - 1908 A.D.

The introduction of railways in 1874 A.D. made a great difference in Hyderabad and Secunderabad. Regionally the railways made a tremendous difference by transferring the trade of Hyderabad from Masulipatam

to Bombay and Madras. There were no modern industries in either city before 1874 A.D., but a couple of years later a few workshops were established in Secunderabad, and four factories sprang up in the south and east of Husain sagar. These industrial units became the nuclei of new industrial settlement.

Due to the increased economic pull of Secunderabad the growth of Hyderabad was practically halted and its axis of growth was definitely turned northward. Rapid extension of settlement occurred in the north of the river, round Begum bazaar, Chadarghat and the Residency bazaar. (Fig. 3). Secunderabad's wholesale and retail business considerably expanded during this period, and being located on the junction of broad gauge and metre gauge railway systems it extended its wholesale business to other towns in the state. Locally its retail trade, specially in luxury goods was stimulated by the further expanding numbers of Europeans and Eurasians, most of them in the employe of the Nizam.

By 1928, the railway system of the state was completed and by 1936 bus routes radiated from the capital to all the district headquarters. Shortly after the completion of the rail system, two industrial estates came into existence, one in the city and another in its suburbs. The rail and bus services in the city helped in advancing the various urban functions

HYDERABAD - SECUNDERABAD
Growth of Settlement 1930

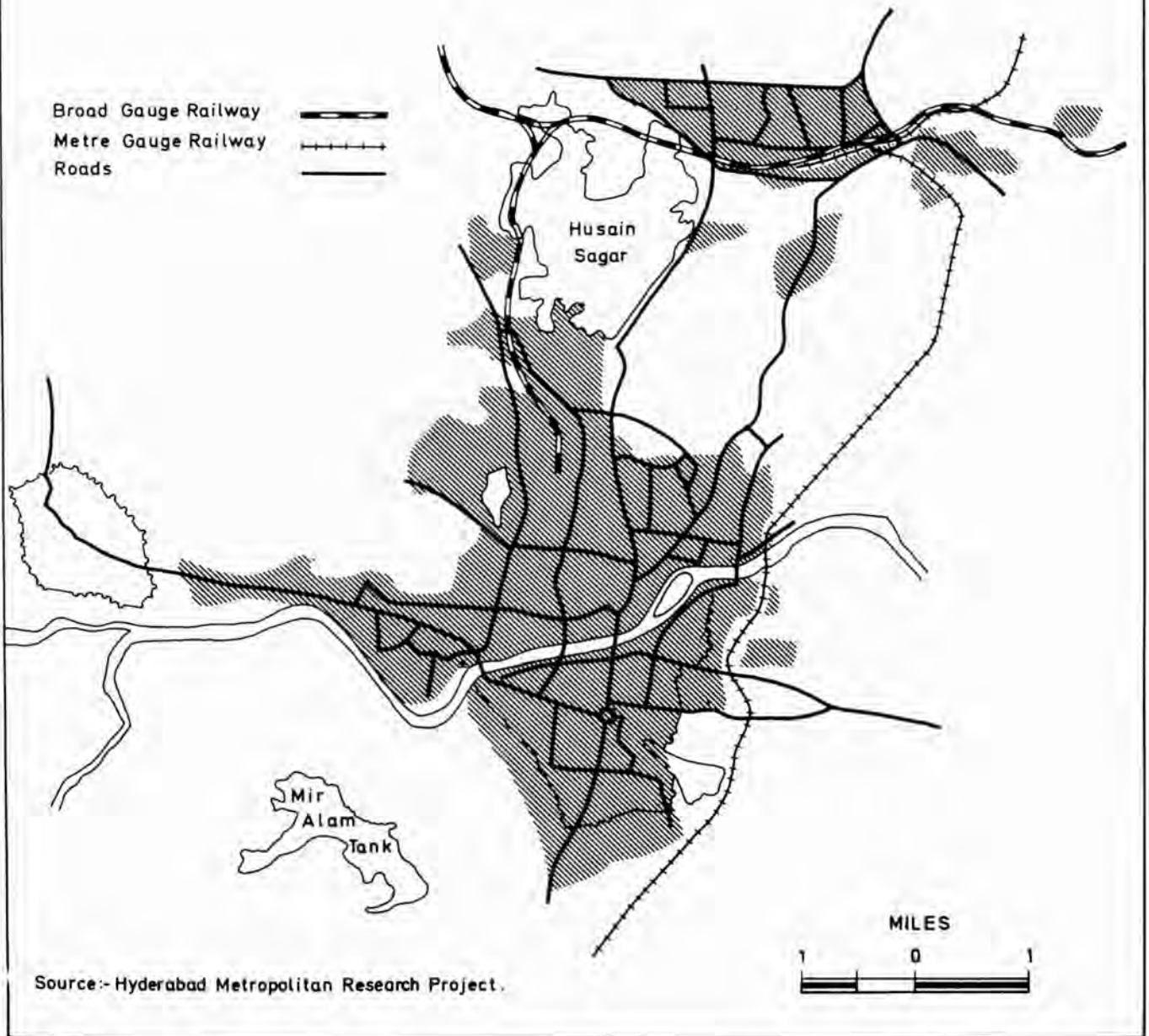


Fig. 3

and new residential neighbourhoods, and business centres developed along the inter-city transport routes, and helped in uniting Hyderabad and Secunderabad into one conurbation. (Figure 4)

7. The Metropolitan Stage of the Cities 1908 - 1965

The modern era of the twin cities and their fusion into a great metropolis followed a catastrophic flood which dislocated life in Hyderabad. The flood of 28th September, 1908 was subsequently followed by events of economic and political significance which changed the social, cultural, political and economic structure of Hyderabad and Secunderabad. This was the worst flood ever experienced at Hyderabad. The catastrophe was magnified because the main population concentration, lying between the old bridge and chadarghat bridge was the worst affected. The Nizam was faced with the colossal problem of rehousing thousands of people left homeless overnight. The authorities first adopted temporary relief measures but subsequently appointed a City Improvement Board in 1912, in order to study the problems of the city development. On the advice of the Board two reservoirs for controlling the flood were constructed, one on the Musi and another on its tributary Esi, in 1917 and 1927 respectively. These reservoirs now supply water to the twin cities.

HYDERABAD - SECUNDERABAD Growth of Settlement 1944

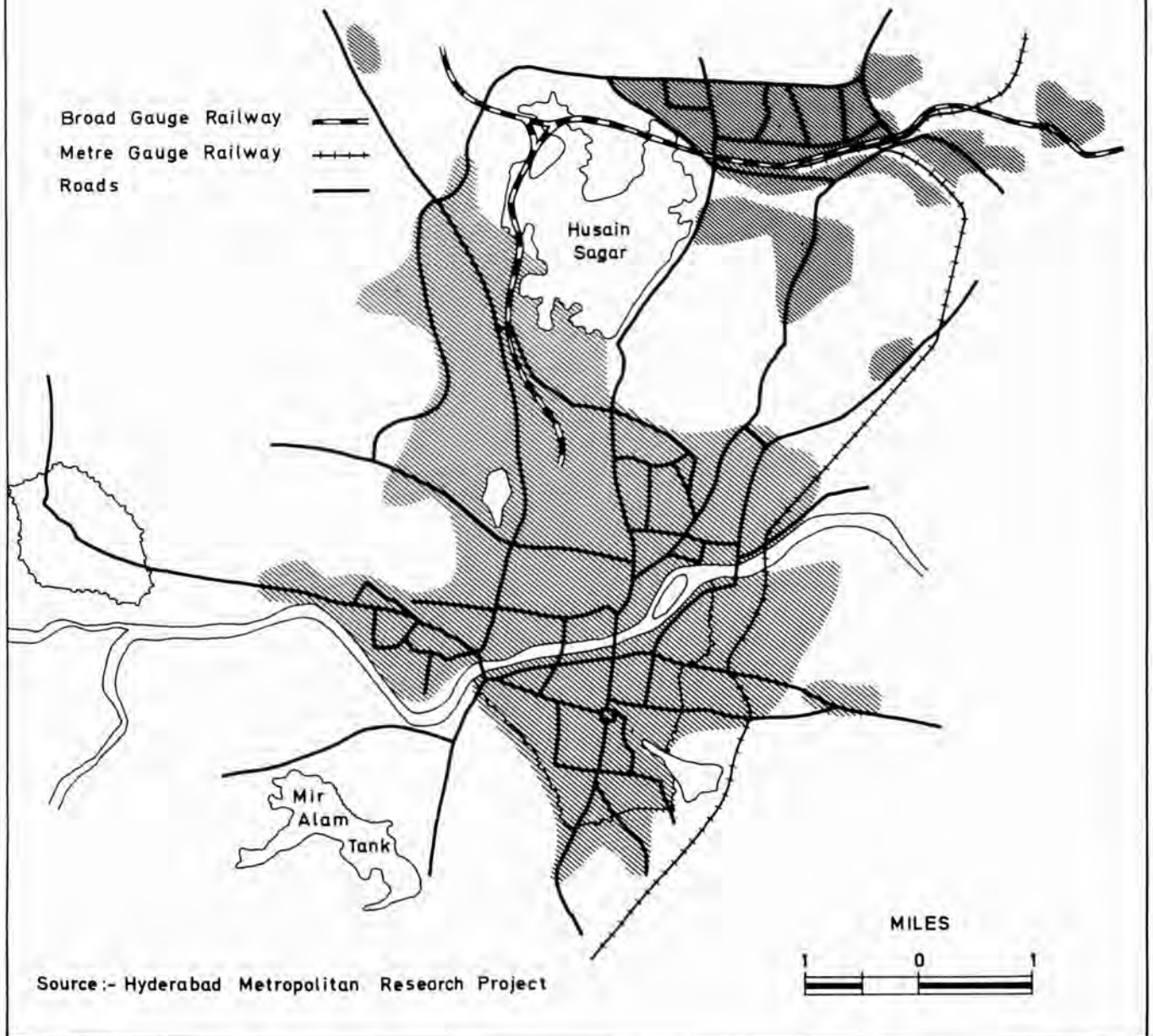


Fig.4

The Board did not review the replanning of the city as a whole, but confined its activity to clearing slums, developing new residential neighbourhoods and laying out new roads. Although Secunderabad was not affected by the flood its slums and the general insanitary conditions in the General Bazaars called for remedial measures. The cantonment authorities established a Town Improvement Trust in 1930, responsible for carrying out work on lines similar to that of the Board in Hyderabad. The Trust concentrated on developing residential colonies for the working class, although one of its creations was Kingsway (Rashtarpathi Road) laid out in 1936 to relieve congestion on James Street, (now called Mahatma Gandhi Road) which before 1936 was the only main thoroughfare.

8. Suburbs of the Twin Cities:

The changing social and economic conditions have strongly influenced the growth of suburbs and their types. The traditional character of suburbs, consisting of scattered villas of the nobles, have been largely replaced by a suburb of a dynamic character. The modern suburbs of different types such as industrial, residential, military, educational, and religious have developed around the two cities.

There are a number of suburban towns such as Medchal and Shamsabad and urbanised villages such as Fatehnagar and Saroorhagar, residents of which work in the twin cities or in their industrial, educational and military suburbs. The well planned industrial suburbs of Sanathnagar, developed during the World War II, on the road to Bombay is the only industrial area outside the twin cities. Its impact has been felt on the surrounding rural areas from which it draws a large population of its labour force.

i. Educational Suburbs:

Osmania University Campus and Himayathsagar Agricultural Research Farm are very important in the life of the area and they have created two educational suburbs. Their catchment area extends far beyond the city limits. The University has attracted a number of other research institutes and there has developed a large block of houses around the Agricultural Research Farm.

ii. Recreational Suburb:

The two water-supply reservoirs for the twin cities, Osman Sagar and Himayathsagar have also been developed as recreational suburbs. Their beautiful gardens and luxurious rest houses attract tourists.

iii. Religious Suburbs:

Maula Ali Hills, Dargah Husain Shah Wali and Pahari

Sharif, are places of religious significance for Muslims and important centres of annual religious fairs in which all sects of the population of the cities and their suburbs participate.

iv. Market Suburbs:

The two cattle supply markets for the twin cities are Yarragadda and Narsinzi.

9. The Impact of Political Changes on the Growth of the twin cities:

Changing political conditions for a period of one decade, (1946-1956) influenced considerably the growth of the twin cities. They are as follows:

1. The Rendition Act of 1936 and 1945.
2. The Police Action of 1948.
3. Re-organisation of States of 1956.

The Rendition Act of 1936 released the residency building and premises from the residents' administrative control and integrated it with Hyderabad Municipality. The city of Secunderabad was released by the second Rendition Act of 1945, when 3.6 sq. miles, covering the civil area of Secunderabad Cantonment and transferred it to the Nizam's control. Secunderabad's freedom from British control enabled it to share the fortunes of the capital city.

The partition of India in 1947, the Police Action

of the Court of India on Hyderabad state of the Nizam in 1948, and the Re-Organisation of states in 1956 were the great political events which had manifold effects on both the cities. The Princely State of Nizam of Hyderabad, after Independence of India had the option of joining to India or Pakistan or even to remain independent. The Government of India whose territories bounded Hyderabad on all sides did not appreciate the existence of an independent enclave with accompanying disorders, and took measures to force the accession of Hyderabad.

Conclusion

On the recommendation of the states Re-organisation Commission the boundaries of the Indian States were redrawn on a linguistic basis. The state of Hyderabad being composed of 3 linguistic units (Marathi, Kanarees, and Telugu) was dismembered and its Telugu speaking area, Telangana was joined with Andhra, a Telugu speaking state, to form Andhra Pradesh.

Due to communal troubles in northern India, after partition, a large number of Muslims migrated to Hyderabad state and particularly to the capital city. The Police Action caused a great economic crisis in Hyderabad city, for if on the one hand it resulted in the mass movement of Muslims from the districts to the city, on the other

hand it led to emigration of wealthy Muslims to Pakistan. These shifts in population were of great significance. Meanwhile the capital received some economic support as a result of communist terrorism in Telangana, for the local landlords, migrated to the twin cities, with their wealth which they invested in building, commerce and industries. At this critical period, Hyderabad's selection as the capital of Andhra Pradesh in 1956 stimulated and re-established the development of the twin cities. Since that date they have expanded with great rapidity and their built-up areas have become joined in many parts.

CHAPTER IIHYDERABAD - SECUNDERABAD: THEIR PHYSICAL SETTINGS.

The economic and industrial growth of a city, its social and ecological developments show in a sense of relationship to its physical setting and climate.

1. Location

The twin cities are located almost in the centre of the Telengana plateau. Hyderabad is situated in 17°-26' north latitude and 78°-27' east longitude. The adjoining city of Secunderabad, a former British Cantonment is situated in 17°-27' north latitude and 78°-30' east longitude. Hyderabad being the fifth largest city of India, it is well connected by air and railways. Delhi is 1,044 miles, Bombay 491 miles, Madras 539 miles, Calcutta 1,043 miles and Bangalore is 400 miles away from Hyderabad,¹ Figure 5.

The physical setting of the twin cities in their wider regional setting of Andhra Pradesh State, plays an eminent part. Andhra Pradesh lies in the east central part of the Deccan Plateau. This is formed predominantly of the peneplaned Archean complex, consisting of gneisse

1. Newman's, Indian Bradshaw, pp. 20-22, Calcutta, 1954.

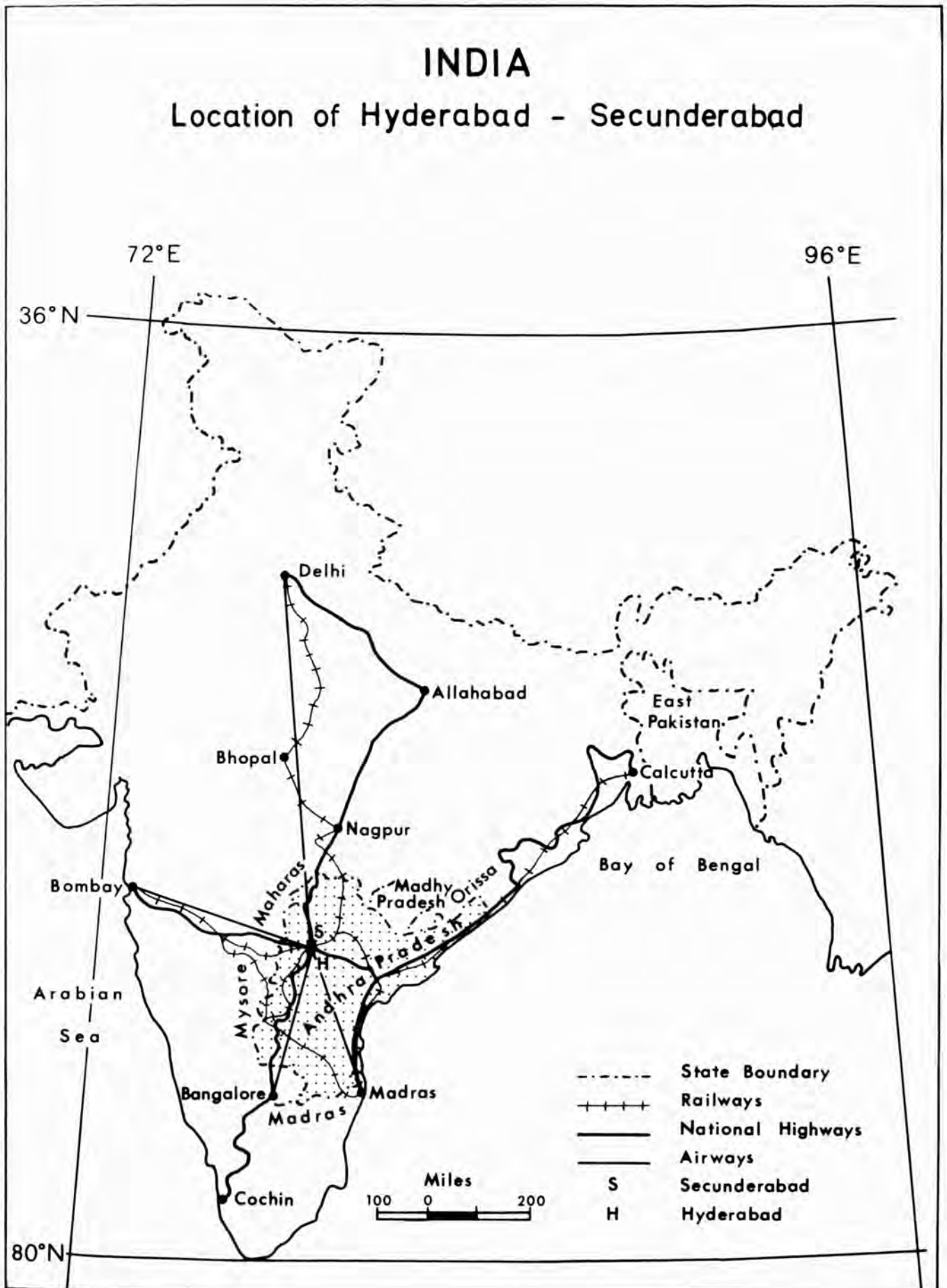


Fig.5

and of widely distributed crystalline granites (Figure 6). The general tilt of the plateau is from north-west to south-east and its elevation in Andhra Pradesh varies from 1,000-2,500 feet above sea-level. The undulating surface of this peneplaned plateau is composed largely of graded valleys with a general elevation of 1,000-1,500 feet, separated by thin worn-down ridges rising from 300-500 feet above the valley level. In some places there is more rugged relief formed by low but steep craggy tors and serrated ridges, bosses and dykes of harder granite, gneiss or quartzite. This type of topography is broken towards the north-east by the valley of Godavary river, a faulted trough of lower Gondwana rocks, and most of the part is from 300-600 feet above sea-level. On the eastern margin of the plateau, the eastern hills rise in between 2,000-3,500 feet above sea-level. In the north, there are thickly forested Archean Khondalites and Charnockites, while in the south, are the thickly wooded Cuddapah ranges of the Cuddapah limestone and sandstone. These gneissic and Cuddapah limestone hills flank the coastal plain, which is of submarine origin ². These three regions, the Deccan plateau, the Eastern hills, and the coastal plain, mark

2. Wadia, D.N., Geology of India, pp. 29, Macmillan & Co. Ltd., London.

SOUTH INDIA Geological Outlines

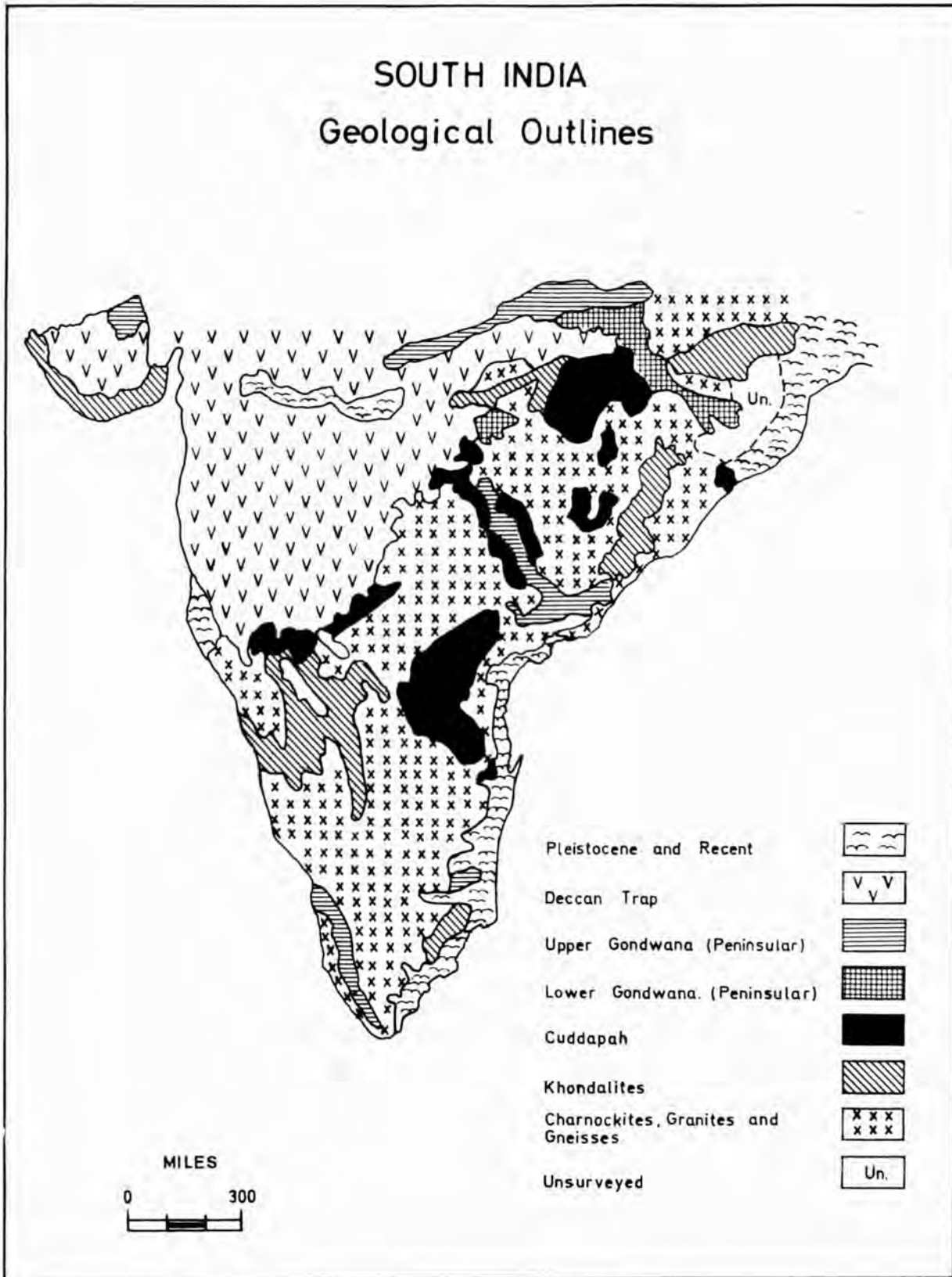


Fig.6

(After D.N.Wadia, courtesy Chamber's Encyclopedia)
 Spate, O.H.K. and Learmonth, A.T.A., India and Pakistan:
 A General and Regional Geography, Australian National
 University, pp.17.

out the three broad physical divisions of Andhra Pradesh State (Figure 7).

The drainage of the State of Andhra Pradesh is dominated by two rivers, namely Godavari and Krishna, with their few tributaries. Godavari and Krishna are considerably large rivers, with extensive catchment areas, and their sources are in the high rainfall regions of the Western Ghats. This coupled with the undulations of the plateau, makes it somewhat difficult to utilise them for irrigation, without the construction of major dams, except during the monsoon season. Just before the heads of the deltas, the rivers are navigable.

Andhra Pradesh has monsoon-type climate, with late summer rains, but prolonged spring drought. The variability of rainfall is considerable. Its regional significance is proportional to the distribution of the annual rainfall. Most of the states come under tropical Savanah (AW) and CAW, according to Koppen and Thornthwaite classification of climates respectively. The southern part of the littoral which, because of its 'dry season in high sun period' is under (AS) L.D. Stamp divided the State of Andhra Pradesh into three climatic regions, and the main criteria is the quantity and the periods of rainfall and the average January temperatures. They are as follows:

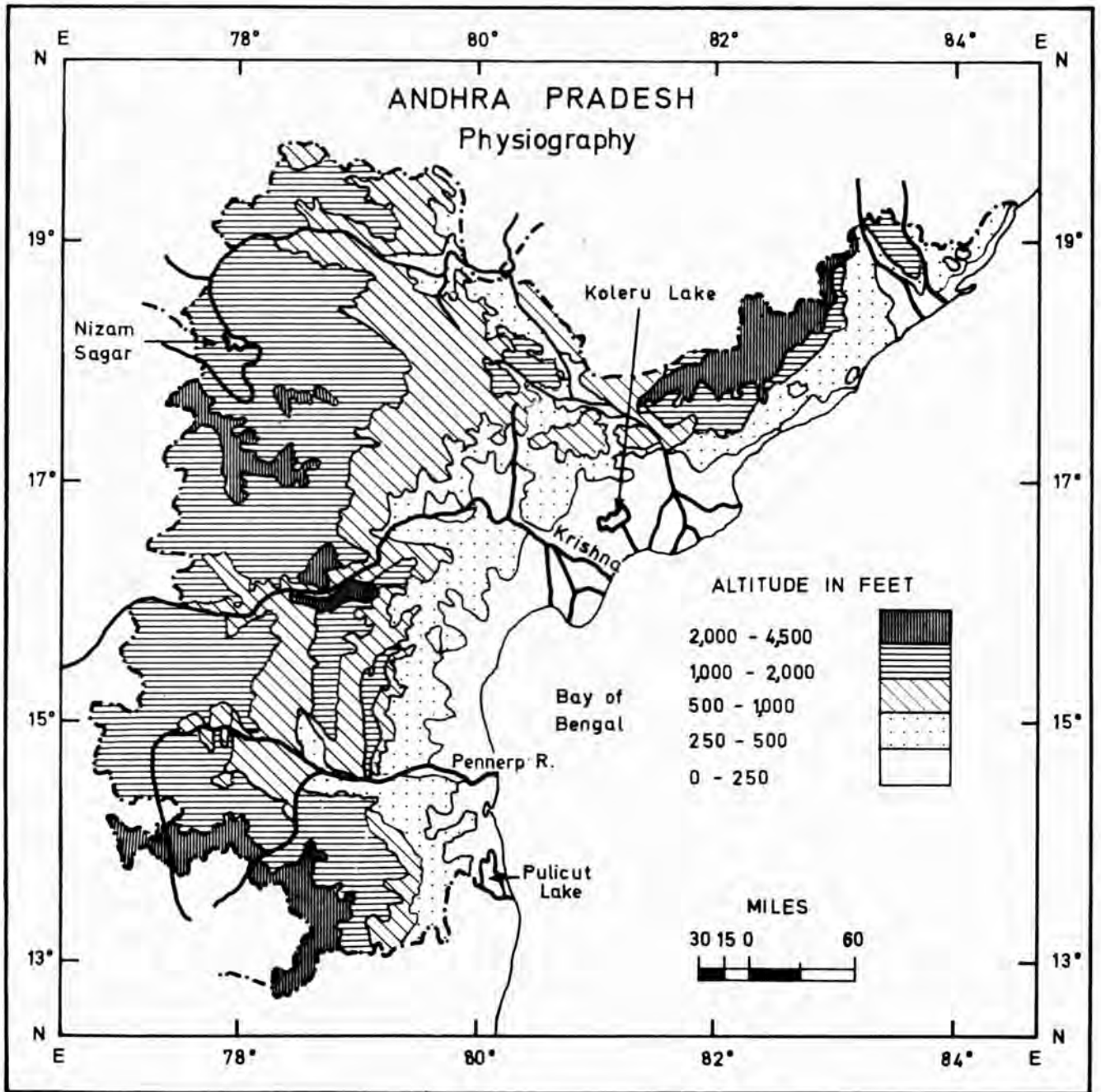


Fig.7

(1) North-east region of heavy monsoon rainfall (40-80 inches), with considerable humidity and January temperature between 65° and 75°F.

(ii) Central moderate monsoon rainfall region (20-40 inches), with January temperatures between 65° and 75°F.

(iii) Southern region with greatest rainfall in November and December (30-40 inches) and with January temperature over 75°F.

~~Therefore, the climatic conditions, depending upon the above mentioned periods, suggest the physical environment of the twin cities which consequently conveys an idea of their regional setting in Andhra Pradesh.~~

2. Situation:-

The cities of Hyderabad - Secunderabad are situated in the heart of the Telangana plateau, which is surrounded by the Maharashtra plateau and Dandakarnya in the north, Tamilnad Uplands in the south, Karnatak plateau in the west and Eastern hills in the east. Unlike the Maharashtra plateau, the Telangana plateau is formed out of Archean gneissic rocks. The Krishna river divides the Telangana plateau into two sections. In the northern section the rolling surface and gneissic rocks created favourable conditions for the building of a large number of irrigation tanks, and these usually mark the sites of settlements. The surface of the plateau is dotted with low hills and shallow depressions. One such depression

surrounded by low hills, 130 miles high provided the site for the twin cities of Hyderabad - Secunderabad.

Immediately surrounding the twin cities extends the rolling Telangana with a general surface elevation of 1,750-1,850 feet above the sea level.

3. Site:

The city of Hyderabad is situated in the valley of the river Musi, a north bank tributary of the river Krishna. Here it occupies an undulating plain of elevation from 1,600-1,700 feet above the sea-level. The distant horizon is marked by the continuous hillocks rising 400 feet above the city level. From the foot of these hills the land, in easy gradient rolls down to the valley. Six miles further north, on a ridge 50 feet higher than Hyderabad stands Secunderabad.

The river Musi divides Hyderabad into two parts, the North and South Banks. The north bank (Northern Hyderabad) covers more than two thirds of the civic area which includes Secunderabad, also an undulating plain. Its average surface elevation is between 1,550-1,700 feet. The general slope of the land is south-east. Unlike the southern part of the city, here are many hills and ridges, which rise from 50-300 feet above this surface. The prominent physical features of the northern part of the city are the hills of Golconda in the extreme west and Jubilee Hills in the north-west. Until the early 19th

century much of this tract was covered by dense forests. But with the rapid expansion of the city and for the construction of roads and buildings, the forests have been cleared and the tanks have been drained either for settlements or for parks and gardens. So by the end of the 19th Century this part had been considerably changed.

The Southern part of the city is a plain surface, which is bounded by Mir Alam tank in the south-west and Falaknuma hill in the south and Saroornagar tank in the east at distances of 6, 3 and 4 miles respectively, from Charminar. Mir Alam tank is 8 miles in circumference and its dam consists of 21 semicircular retaining walls with their convex side facing the water,³. Its total length is 1,120 yards, constructed by a French engineer, in the Nizams service. This plain has an elevation of 1,600-1,650 feet above the sea-level, with a uniform northerly slope which was utilised in the laying of the city's water and drainage pipes. The hills and tanks are conspicuously absent from the inhabited tracts and occupy the peripheral position, which determines the actual site of the city. As Vidal de la Blache wrote (1911) that, "Nature prepares the site and man organizes it in such a

3. The Imperial Gazetteer of India, volume XIII, Gyaraspur to Jais, (New edition) Oxford, 1908, pp. 308-312

way that it meets his needs and wants".

Hussainsagar tank separates the northern Hyderabad from Secunderabad. In 1575, Sultan Ibrahim Qutub Shah constructed the dam in order to have a link between both the cities. It is 2,500 yards long. The total cost came to about Rs. 2.5 lakhs.⁴ In the north-west of northern Hyderabad is the Husainsagar drainage area, which is composed largely of barren lands with boulders and a group of hills, separated by narrow valleys, called Banjara hills. These are broad and flat top hills, 300 feet above the plain surface, which commands the beautiful view of Husainsagar, which has now become an upper-class residential neighbourhood.

4. Topography and Drainage:

The topography, in general is undulating with broad and shallow valleys and easy gradients. The twin cities of Hyderabad - Secunderabad grew in the heart of the Peninsular plateau. The geological formation is Archean gneiss, composed of basalt and granite piled up in picturesque confusion. (Fig. 8) The Deccan trap is characterised by flat topped hills and terraces. Being dense, hard and durable, the Deccan traps are used fairly extensively as building stones in the areas in which they occur in large

4. Ibid., op.cit., pp. 312

HYDERABAD - SECUNDERABAD Topography and Environs

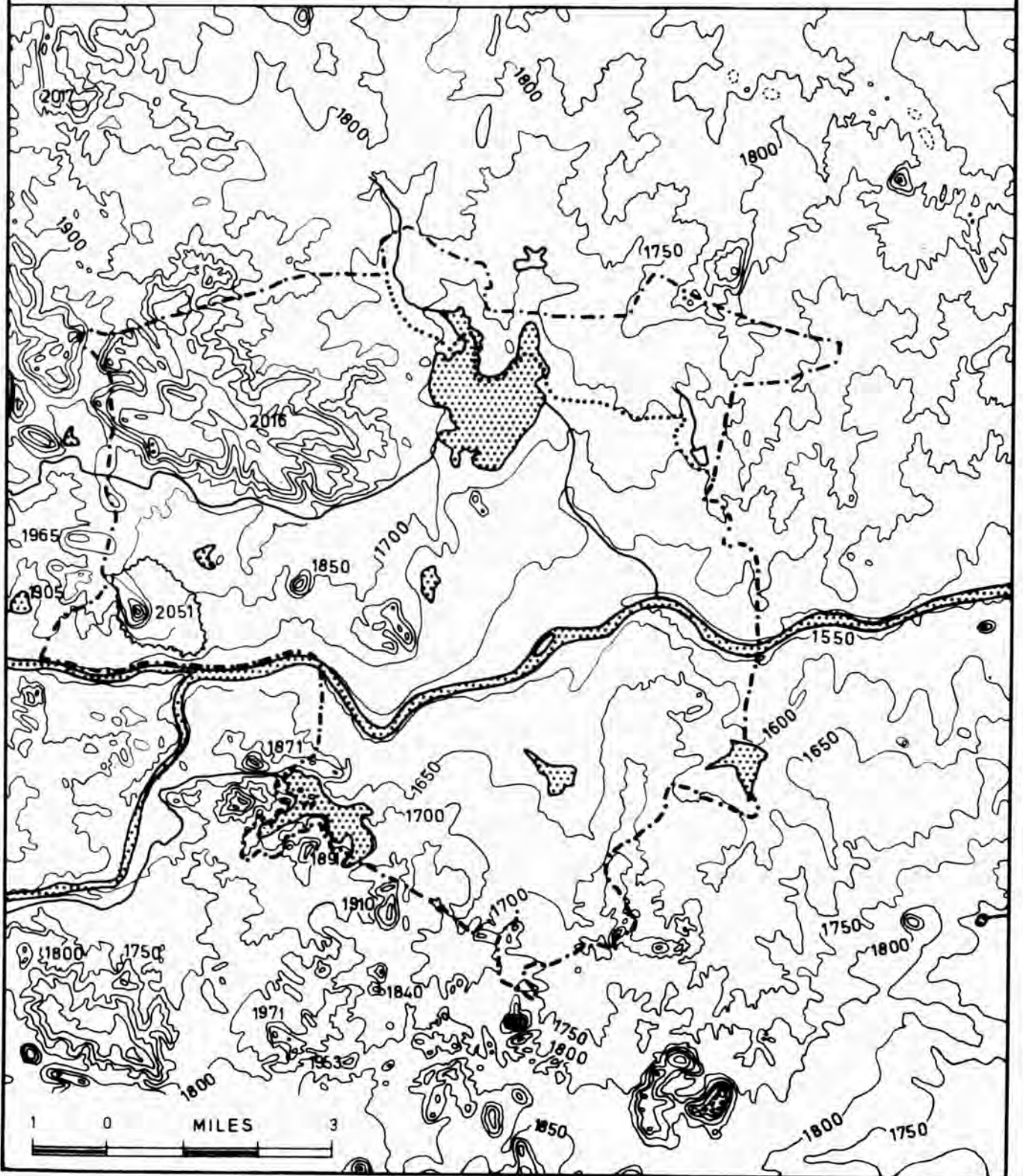


Fig. 8

masses.⁵ The depth of the soil in the city varies from 5-20 feet, the solid granites lies immediately below this soft soil and has provided a firm and strong foundation for the construction of the great buildings like Charminar, and Osmania University.

The city is situated in the valley of the river Musi. The Musi flows quite smoothly over its rocky bed. It can be regarded as a perennial river, because it gets water for more than eight months. During the four monsoon months it is filled up from bank to bank. It is 52 miles long from its source in Ananthgiri hills and falls at the rate of 10 feet per mile within the city. Its course is through hard beds of granite and boulders. Its width in the city varies from 400-500 feet,⁶ and at its narrowest point stands the Old Bridge (Purana Pull). In between Afzalgunj and Chadarghat bridges is an island called 'Imlibund', which owes its formation to the construction of a weir or anicut across the river, centuries ago.

The river banks were originally low, but now both the banks are raised to approximately 30 feet above the river bed and are well protected against the floods and erosion.

5. Krishnan, M.S., Geology of India and Burma, Madras, 1949, pp. 420

6. Hunter, W.W., The Imperial Gazetteer of India, Volume III., London.

Of the Musi tributaries the Esi is the most important and which joins it 4 miles above the Old Bridge.

Until 1908 the Musi was liable to occasional flooding during the rainy season and some of these floods brought havoc to the city. Of the catastrophic floods recorded since 1572, the last one of 28th September, 1908, was the worst. The Musi and the Esi are fed by 788 large and small tanks and numerous minor tributaries. Because of crystalline rock beds and steep slopes in the catchment, run-off is rapid. During the period of heavy downpours these tanks are quickly filled, and should an upper tank give way through a sudden increase in pressure, the tanks, downstream will also yield and as a result the Musi is over-filled and damaging floods follow.

The flood of 1908 was due to the prevalence of cyclonic conditions in the Musi drainage basin, from 26-28th September, which resulted in heavy downpours. Due to the heavy rain, even the largest tanks were broken, and released large volumes of water into the Musi, which was already full. The water rushed downstream, overflowed the banks, which brought disasters to the city. The nearby city streets were nearly 15 feet under the water. The flood lasted for only a few hours but meanwhile the worst was done, and within this short period a square mile of thickly populated area on the north bank and about half a square mile on the south was devastated. Nearly 1,900

houses were demolished, 15,000 people lost their lives. A beneficial result of this tragic occurrence, however, was that the Musi and the Esi were dammed to eliminate the danger of floods and to provide a permanent source of large water supply for the two cities.

5. Climatic Characteristics:

According to Koppen and Thornthwaite classification of climates, the twin cities come under AW and CAW types respectively. Both the symbols signify the distinct dry season combined with a moderate annual range of temperature and rainfall. (Fig. 9) According to a recent scheme for the climatic classification of India, both the cities fall in the sub-humid zone (20-40 inches) mean annual rainfall and the range of temperature between 15° and 25°F.⁷ This is a broad generalisation, which does not show the local behaviour of the climate of the city. To understand the climate of the twin cities it seems appropriate to study the different seasons of the year. Therefore the year could be divided into the following four seasons.

- i. The Cold Season (December-February)
- ii. The Hot Season (March-May)
- iii. The Monsoon Season (June-September)

7. Ghosem S.K., Climatic pattern of India, Geographical Review of India, Vol. XXI Nos. 2, 3, 4, Dec. 1959 pp.

HYDERABAD - SECUNDERABAD
Climatic conditions during 1931 - 1960

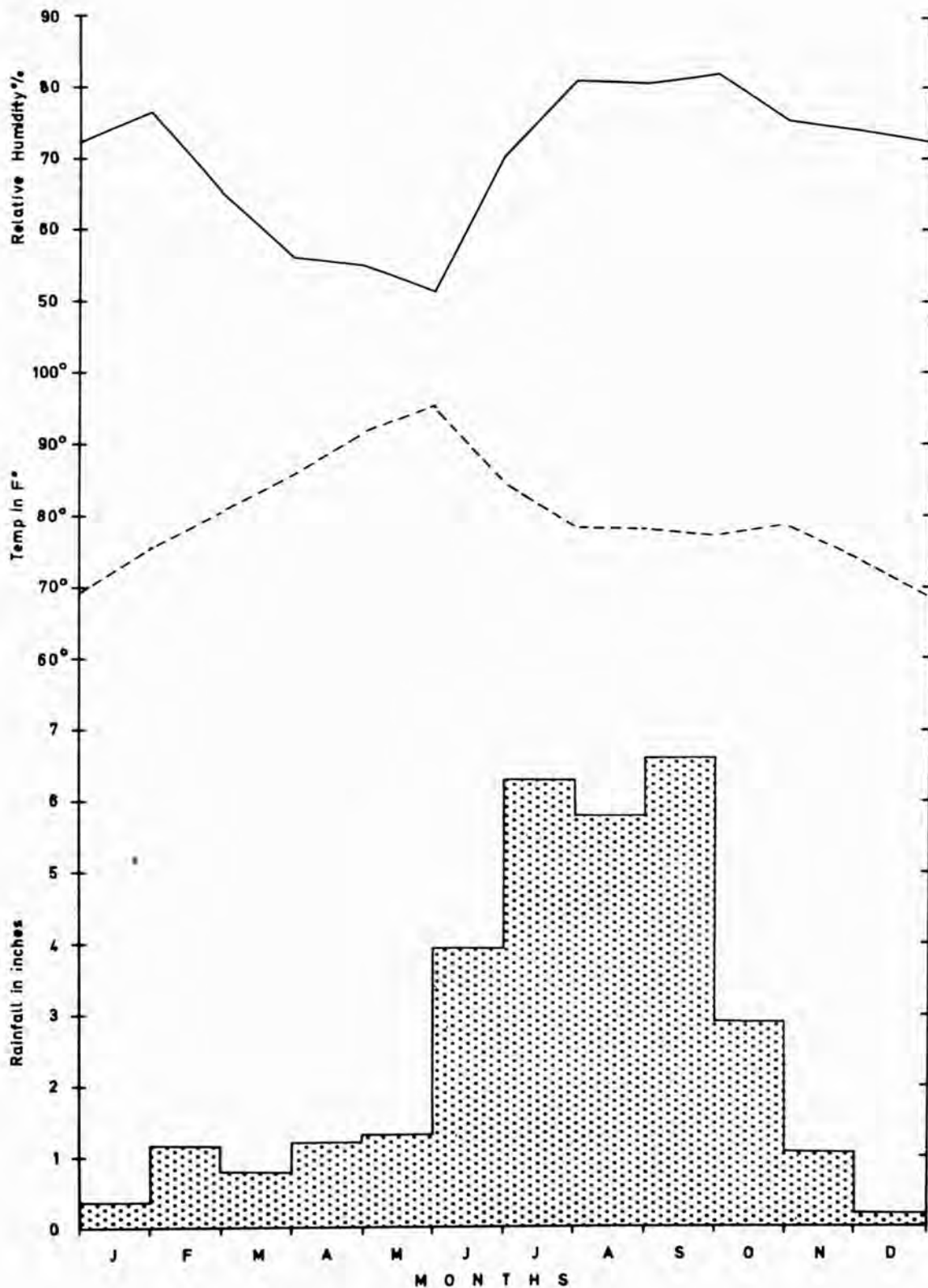


Fig.9

Source:- The Meteorological Office, Bracknell,
The data shown for the W.M.O. period.

iv. The retreating South-west Monsoon Season (October-
November)

1. The Cold Season (December-February)

The twin cities in the cold season are under the north Indian high and the dry continental airmass passes through them. The minimum temperature ranges from 56^o-62^oF. Skies are generally clear and bright, but in association with western depressions, travelling eastwards across northern India. The sky sometimes remains cloudy for about 2-3 days. The light rainfall rarely occurs but occasionally light showers are experienced. The winter mornings are usually dull, but brighten by 9 a.m. This is, in general, a very healthy and stimulating season and from the economic point of view the most active one. Trade with the hinterland is intensified and all the markets in the twin cities are active. It is also notable for outdoor sports, open air Theatrical performances and for field excursions.

ii. The Hot Season (March-May)

March is the transition month from winter to summer season. During this month two highs develop, each over the Bay of Bengal and the Arabian Sea, which is a sort of partition between the dry north-westerlies and the moist air from the Bay, spread all over the Deccan. When this is accentuated by the passage of Western

depressions in the north, then severe thunderstorms occur in the evening. As the season progresses, increased stability results in scorching heat, persisting for several days. This weather is tiring and leads to lowering of work output. In May the prevailing winds change to westerlies and get stronger, ready for the transition to monsoon conditions.

iii. The Monsoon Season (June-September)

June 7th is the official date for the onset of the south-west Monsoon for Hyderabad - Secunderabad. Sometimes with the association of storms and depressions in the Bay of Bengal and the Arabian Sea, there may be a temporary advance of the Monsoon in late May. But this lasts only for a few days and recedes as soon as the depression clears away. The bulk of the annual rainfall occurs in this season with 10 rainy days, on the average, in each month. This season is characterised by strong gusty winds and intermittent rains. The local strengthening of the Monsoon is generally associated with the formation of the depression over Bay of Bengal, which travels westward and sometimes passes quite close to northern Hyderabad. During the short breaks of the Monsoon in August and September, the clouds cleared away and fairly bright weather prevails, usually for over a

week. The 'normal' date for the withdrawal of the Monsoon is October 13th. In the Monsoon season, when the tanks are filled and the fields are well-watered, the agricultural activities are stepped up in the rural areas, which surround the twin-cities. Yet, in the cities themselves the economic activities are hampered, because absenteeism in the factories increases and commerce due to the reduction of the flow of goods from the hinterland. Apart from this, the increased incidence of deaths and diseases such as cholera, malaria and diphtheria spread over the rural areas.

iv. The Retreating Monsoon Season (October - November)

After the withdrawal of the Monsoon, the days again get hotter in October, before the winter circulation establishes in November. Westerly winds are replaced by easterly and north-easterly winds, and the number of cloudy days diminishes considerably. This period is characterised by occasional spells of very heavy rains, accompanied by high winds occurring in association with the depression and storms from the Bay of Bengal which cross the Peninsula from east to west. By the middle of the November, days and nights get progressively cooler and conditions gradually change for the winter.

The above mentioned four seasons of the year suggest the importance of the different elements of the weather in

deciding the climate of the twin cities.

6. Temperature Conditions:-

The twin cities have mild temperatures, due to their elevation of 1,600-1,700 feet above sea-level, although they have got tropical inland location. The temperature rises rather uniformly from January - April. May is the hottest month of the season. The average maximum is above 100°F. This heat is uncomfortable and effects the working capacity of the people, especially the labourers, during the day. Even the electric fans are useless, therefore, the Air-conditioners and Air-coolers are widely used in the cities. Due to elevation and crystalline rocks the heat is radiated out quickly, after sunset, and unlike the Gangetic Plain, nights are cool and comfortable in Hyderabad and Secunderabad. The daily range of temperature, during the summer months varies between 30° and 40°F. The highest summer temperature ever recorded at the Begumpet Weather Observatory was 112°F., (28th May, 1935), From mid-June onwards, with the gradual onset of the monsoon, the temperature falls until December, which is the coolest month with an average temperature of 69.7°F. Sometimes in December and early January the temperature falls down to 45°F before the dawn, and forms early morning mists near the foot of the hills and water bodies, but it clears away by 9 a.m. In general,

the temperature conditions are healthy and pleasant in the twin cities, throughout the year, except for a few summer weeks.

7. Humidity and Rainfall:-

The average annual relative humidity is 68%. It does, however, fluctuate between 51% in December and 81% in July. (Graph No. 1). High humidity in the monsoon months with relatively high temperatures, tend to create muggy conditions, which to a great extent hampers the working capacity of a man. This condition is nevertheless, dispelled by the strong circulation of winds.

The rainfall is, generally, from the South-west monsoon. The average annual rainfall is 31.7 inches with 50 rainy days of 0.1 inches and sometimes above. About two thirds of the rainfall occurs during the four monsoon months. The average monthly precipitation increases with the advance of south-west monsoon winds (Graph No. 2). Sometimes in either late September or early October, strong depressions cross from the Bay of Bengal, causing heavy downpours. Winter rains are rare and summer rains which accompany thunderstorms, though of great intensity, are of short duration. The heavy rainfall regularly affects transport from both the cities to their surrounding villages, and makes a quick

expansion and contraction of the city services.

8. Pressure and Winds:-

The pressure system over the twin cities follows a seasonal rhythm. The highest average pressure of 1,013.6 mbs. occurs in December, afterwards the pressure falls gradually until February, then falls rather sharply till the minimus of 1,000.8 mbs. is recorded in June. According to five day normals of pressure the highest average pressure gradients are insignificant in December and January, because of the prevalence of a stable continental air-mass over the sub-continent of India. So far as the wind system is concerned, throughout the year the percentage of the distribution of the winds of different intensity is as follows.

<u>Wind Speed</u>	<u>Percentage</u>
1. 3 knots or less	21.4
2. 4-16 knots	65.0
3. Over 17 knots	13.6

In summer, during the early monsoon the normal daily weather conditions are frequently disturbed by the thunderstorms which are invariably accompanied by squalls, generally with a speed of over 60 m.p.h. Rains which are normally accompanied with these thunderstorms greatly relieve the scorching heat, hailstorms also occur, but rarely.

Conclusion

Location of the Cities of Hyderabad and Secunderabad in their topographical and climatic settings, having influenced considerably, its growth and development as one of the big metropolises of India. Surface relief, being an easy gradeint all over the cities, except near Golconda and some parts of Banjar hills, made it feasible for the expansion of the settlement and the construction of thick network of the roads.

Thus it can be summarised that the physical growth of the cities and their economic and industrial activities have been facilitated by the local relief and the temperate type of climate of the twin cities.

CHAPTER IIIHYDERABAD - SECUNDERABAD - THE REGIONAL CAPITAL

A study of the development of Hyderabad, as a regional capital reveals that it is a nucleus of activities such as commerce, administration, education and industry, which are concentrated in certain parts of the city, according to their requirements. All these activities in one way or another are functional expressions contributing to the morphology of the city.

2. The meaning of regional capital

The twin-cities, as a regional capital implies a capital of the geographical region, (Fig. 10) it applies to a city which owes its importance to its population and its prosperity, to its antiquity and its historical reputation, and which is the head of the region¹. Hyderabad, being the only big urban agglomeration of the Deccan Plateau, enjoying the role of capital city since the fifteenth century A.D., when for the first time the Qutub Shahi dynasty planned the city on grid pattern. During the British Rule, the city of Hyderabad and the adjoining city of Secunderabad (British Cantonment) was the capital of the Princely State of Hyderabad.

In 1956, the Re-organisation of States Act passed, Indian Union's States and Territories were re-organised

1. Robert E. Dickinson, City and Region, A Geographical Interpretation, 1964, pp.9

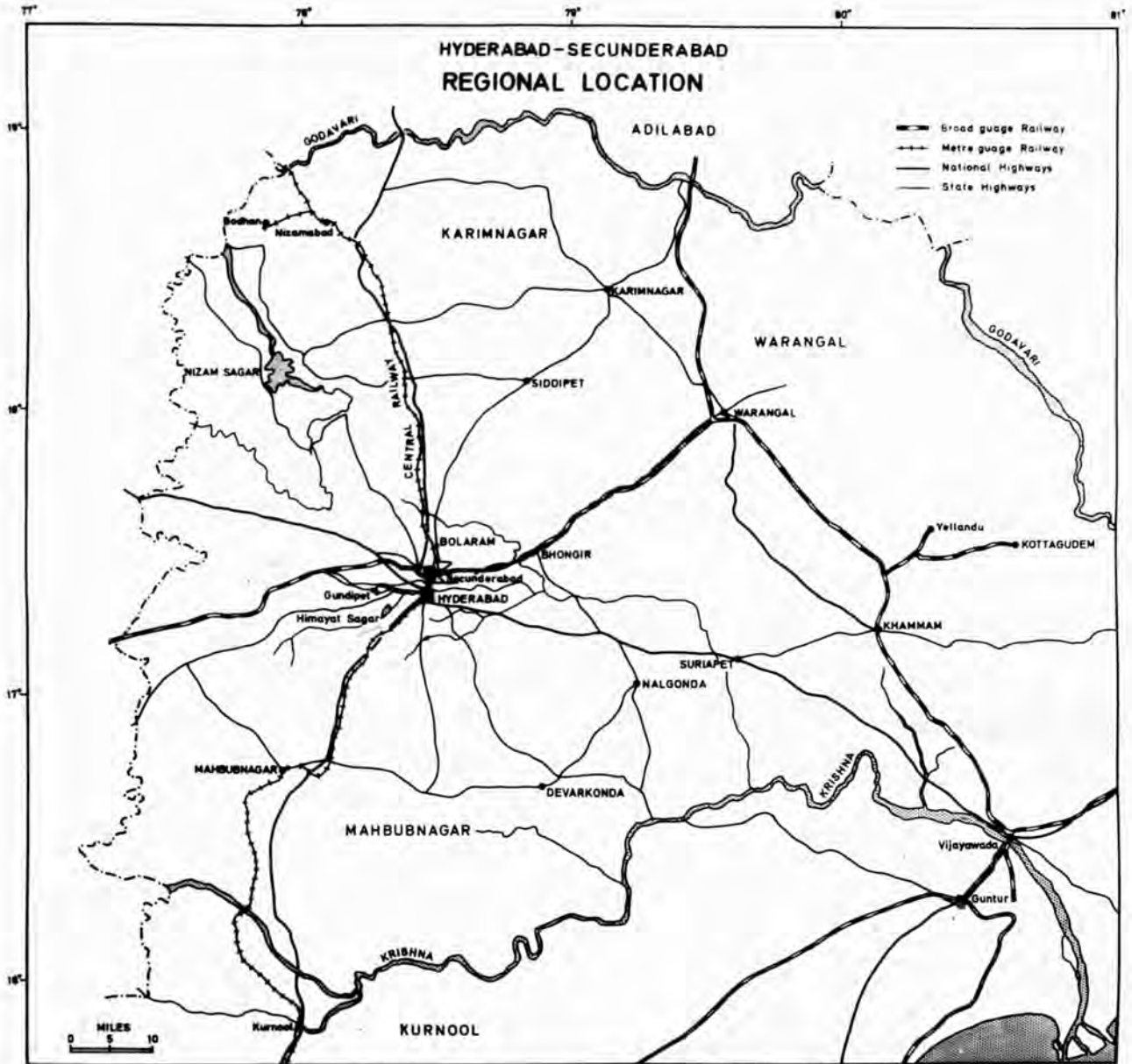


Fig. 10

entirely with a constructive point of view. This amendment was to a certain extent, necessary to achieve certain objectives.

3. Objectives of the States Re-organisation Act, 1956

The first and main criteria of re-organisation of States was to restore the territorial contiguity and the linguistic homogeneity. India being the seventh largest and the second most populous country of the world, the diversity of language, culture, people and resources are very prominent. The process of merger and integration of the regions with one another was necessary, in order to have cultural and linguistic affinity, administrative convenience, financial considerations and economic progress, both, the States and of the nation as a whole. As Sauer says, 'Every human population, at all times has needed to evaluate the economic potential of its inhabited area, to organise its life about its natural environment in terms of the skills available to it.'²

The second aim of the re-organisation of States Commission was due to the greater development of political consciousness among the people, and the growing importance of the regional languages, which led them gradually to ask

2. Carl, O Sauer, The agency of Man on the Earth, (ed.) William L. Thomas and others, University of Chicago Press, 1955, pp.49

for the formation of certain States on linguistic basis. The language and culture of an area have an undoubted importance, because they represent a special pattern of living, which is common in that area. David Grigg remarks, that 're-organisation is a similar process to classification. Classification is the grouping of objects into classes on the basis of properties and relationship they have in common.³ Therefore, in 1956 after the abolition of Hyderabad State, the city of Hyderabad became the capital of the new State of Andhra Pradesh. The earstwhile Hyderabad State had following three linguistic regions.

1. Marathwada, (regional language Marathi)
2. Karnatika, (regional language Kanarese)
3. Telangana, (regional language Telugu)

This linguistic heterogeneity was felt to be too much, and, every linguistic region of earstwhile Hyderabad, was merged into its respective linguistic States.

Telangana comprising of nine telugu-speaking districts, merged with the eleven ceded districts of previous Madras State in order to form Andhra Pradesh (a Telugu speaking State), Linguistic homogeneity, therefore, provides the only rational basis for reconstructing the States, for

3. David Grigg. The Logic of Regional System, Annals of the Association of American Geographers, Sept. 1965.

it reflects the social and cultural pattern of living and obtaining in well-defined regions of the country.⁴ Therefore, Andhra Pradesh is divided into three administrative and economic regions, namely Telangana, Coastal Andhra and Rayalaseema. Fig. 11.

Having considered the linguistic affinity, it is useful to study the homogeneity of the economic structure, and the availability of the resources in the new State of Andhra Pradesh.

4. The General Economic and Social Conditions of Andhra Pradesh.

Andhra Pradesh is the fifth largest and fourth most populous State of Indian Union, with an area of 106,286 Sq. miles and with the population of 35.98 millions (35,983,447-1961 Census). Being centrally located, it served as a link between the northern and the southern parts of this vast country. Further the new State has an extensive coastal territory of 600 miles, whose economic value is bound to increase in due course of time.

Andhra Pradesh is primarily an agricultural State. Agricultural occupation provides the livelihood to the 67 per cent of the population, which clearly suggests, that it is a subsistence economy, with a very low level of industrialization. Agriculture can be regarded as the backbone of State, as it is revealed by at least two statistical

4. Report of the States Re-Organisation Commission, 1955, pp.35.

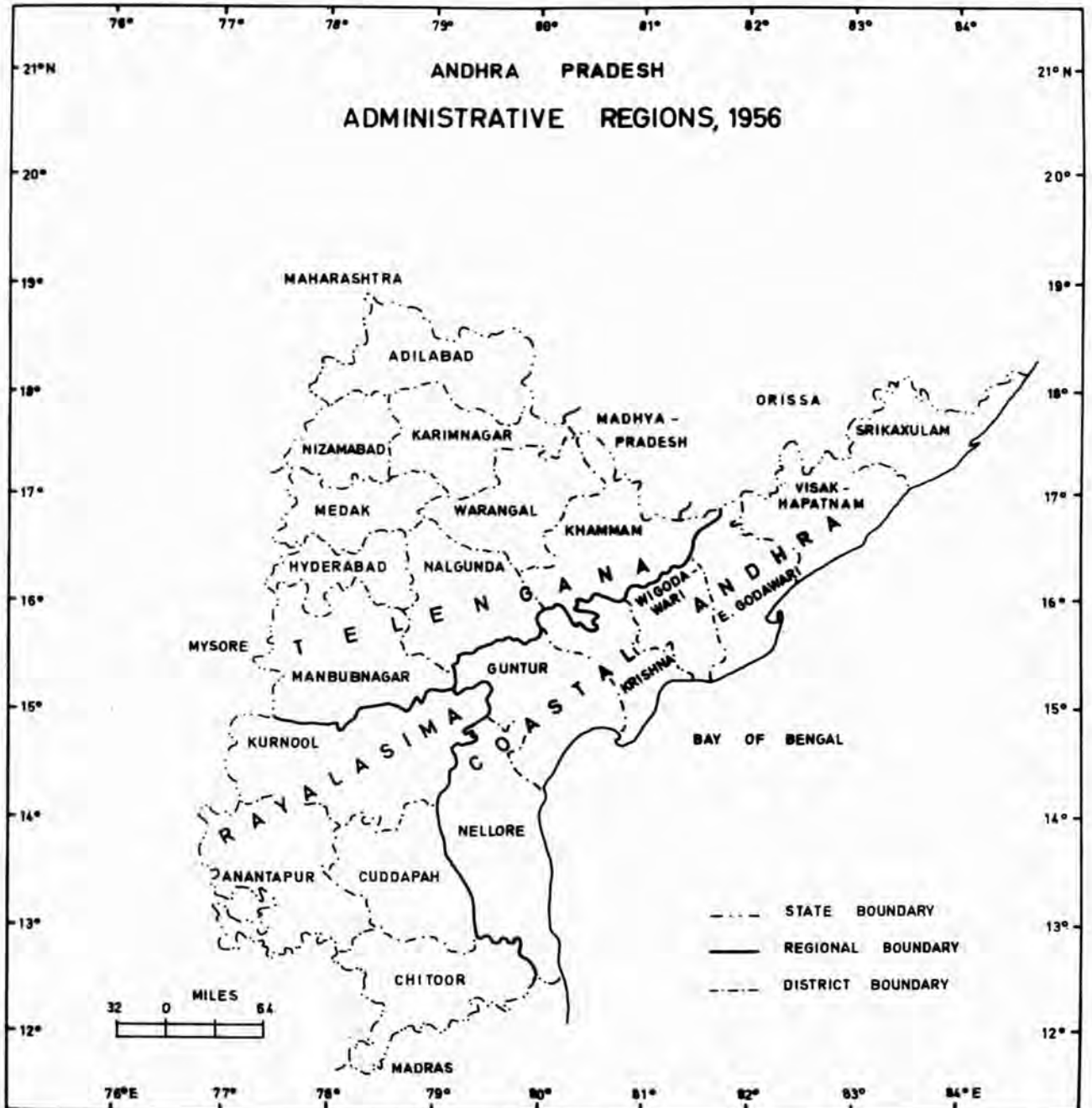


Fig. 11

factors namely the main source of income of the people and the relative importance of agriculture throughout the State. Almost 90 per cent of its population depends on the agricultural income. The agricultural sector of economy in Andhra Pradesh is better placed in regard to its natural resources, land utilization and land productivity as compared to similar sectors in many other States of India. ~~Moreover~~ The agricultural sector contributes about 58 per cent of State's revenue, which indicates the agricultural bias of the economy of the State, with an inadequate industrial base and little development of the secondary and tertiary sections of economy. As it is shown by the income composition, given below in Table No.I.

Table No.I. SECTORAL COMPOSITION OF INCOME OF ANDHRA PRADESH, 1965-66.
(Regional Analysis: in percentages)

<u>Regions</u>	<u>Primary Sector</u>	<u>Secondary Sector</u>	<u>Tertiary Sector</u>
1. Coastal Andhra	56.0	11.5	32.5
2. Telangana	38.0	18.1	43.9
3. Rayalaseema	53.0	8.5	38.5
4. Andhra Pradesh	49.4	13.6	37.0
5. India	45.4	18.5	36.1

The regional analysis of the sectoral contribution towards the State income, clearly shows that the primary sector of each region plays a major role. In this respect Telangana has been placed in a better position, due to the twin cities, the regional and administrative capital and other developing cities like Warangal, Vijayapuri and Kothagudem (mining town) are of considerable importance. Thus the

agriculture in the State's economy is the reflection of the country as a whole. India is at the stage of developing its economy. It is rich in natural resources and manpower. The resources, human as well as material are capable of fuller exploitation and more intensive utilisation. The India economy is still predominantly agricultural; about half of the country's national income is derived from agriculture and allied activities which absorb nearly three fourths of its working force.

Andhra Pradesh is well-known, throughout the country, as a major food producing region, contributing over 10 per cent of the whole country's production of cereals. Almost about 75 per cent of the cropped area in the State is under food grains of which paddy alone accounts for a third. Commercial crops are oil seeds, sugar cane, tobacco and cotton. About three fourths of the country's entire production of castor and virginia tobacco is produced in Andhra Pradesh. The table No. II overleaf shows the crop pattern and the average yield of main crops in Telangana and Andhra regions.

The land utilization pattern of Andhra Pradesh is fairly similar in both Andhra and Telangana regions. The only difference is that in Andhra region, the size of the barren and cultivable-wate land is almost double the size of that in Telangana. On the other hand in Telangana, both

Table No. II AVERAGE YIELD OF PRINCIPAL CROPS, 1964-65. ⁵

(in Kg. per Hectare)

<u>Crops</u>	<u>Andhra</u>	<u>Telangana</u>	<u>Andhra Pradesh</u>
1. Rice	1,490	1,333	1,447
2. Jowar	468	447	456
3. Bengal gram	446	299	318
4. Red gram	519	461	487
5. Green gram	235	155	179
6. Groundnut Pod	875	712	839
7. Castor	177	189	188
8. Sesamum	235	148	185
9. Cotton lint	55	49	58
10. Tobacco	1,096	1,096	1,096
11. Tobacco (Virgina)	844	844	844
12. Sugar Cane	8,381	8,381	8,381

areas which, are not available for cultivation are particularly extensive in Nellore, Chittoor, East Godavari and Srikakulam. So far as the forests are concerned, Visakhapatnam, Kurnool, Cuddāpah and East Godavari districts are well placed in Andhra region, while in the Telangana area, Adilabad, Khammam and Warangal occupy important positions. In East Godavari Nellore, Chittoor, and Visakhapatnam districts the net sown

5. Source: Hand book of Statistics Andhra Pradesh, 1965-66, Bureau of Economics and Statistics, Government of Andhra Pradesh.

area is relatively low. Thus, there are, on the whole, some basic dissimilarities in the land utilization within the State, which gives rise to the corresponding dissimilarities in the economic development of the State (Fig).

In the process of economic development, the relationship between agriculture and industry is one of mutual interdependence. On one hand, the industrial growth increases by the developments in agriculture, while on the other hand agricultural growth is conditioned by developments in industry. So, proper planning can help the two sectors to become complimentary to each other at each stage of development, and thus aid the acceleration of balanced economic growth.

5. The agricultural and economic background of the three administrative regions of Andhra Pradesh.

For planning the economic and industrial development of a region, it is, therefore, necessary to make a study of the relative advantages available from agriculture for industrial growth in a particular region. In Andhra Pradesh for instance, there is a great deal of regional disparity in the availability of agricultural products, natural resources, and consequently in the degree of industrialization and urbanization; These differences are apparently expressed

in the general level of economic and political development of each region, and the social and cultural attitude of the people in Andhra Pradesh. Therefore, it is proposed to make a general study of each of the economic and administrative regions of Andhra Pradesh.

(i) COASTAL REGION:-

The seven coastal districts of Srikakulam, Visakhapatnam, East Godavari, Krishna, Guntur and Nellore constitute the coastal region, which occupies 33.3% of the total area of the State, the most fertile of all. The fertile delta area is formed by the three major rivers, namely, Godavari, Krishna and Pennar, flow through this region. Alluvial and black cotton soils are mostly concentrated in this region. These rivers irrigate about 2.1 million acres. The net sown area is 290,000 acres during 1951-56 and the irrigated area constitutes 48.3% of the sown area, which is the highest in the State.

The crop pattern of this region has adjusted itself to the existing irrigation facilities, soils and rainfall. In the alluvial soil of the delta, where canal water is made available for only eight months a year, a long duration single paddy crop is raised. Pulses, green-gram, leguminous crops, and groundnut crops, and groundnut particularly in sandy soils, are grown in most of these areas after paddy has been harvested. In the delta tracts, where water is

allowed for a second crop, either two paddy crops or a single sugar-cane crop is grown in such permanent zones. The perennial zone, however, forms only a negligible part of the total area under flow irrigation. The productive levels of crops in the different parts of the deltaic area, seems to have reached the optimum level. Land improvements are also practised by the farmers. Most of the area is covered by the improved seeds, fertilizers and all the other locally available manures. are being liberally used, and cultivating practices have been developed to a high standard. The average yield of paddy in this tract is 1,740-2,900 lbs per acre. The land values are, therefore, quite high, ranging from Rs.2,000-6,000 per acre.

Well irrigation and intensive cultivation is widely practised in non-deltaic areas. Mostly high value crops, which require less water, such as sugar cane, chillies, banana and vegetables are grown, but mostly in rotation. The average yield per acre is even higher than in the delta areas, due to better regulation of water supply, drainage and intensive cultivation.

Dry farming is practised in the remaining areas. The crop pattern varies widely, usually depending on the rainfall, condition of soil and irrigation. In the northern parts of the region, which get maximum rainfall and consist mostly of red loamy soil, different pulses are main food

crops, while the commercial crops grown in this area, are groundnut and jute. In the southern parts of this region, which is a dry area, consists of black cotton soil, jowar and ragi (a kind of food grain) are the main food crops, while tobacco, chillies and groundnut are the chief cash crops. Tobacco, specially virginia, is highly concentrated in this region. Guntur district alone accounts for 52.6 per cent of the area under tobacco in the State. Therefore, this region is usually called as 'the granary of the South'.

The significant feature of the region is that while wet cultivation is mainly concentrated in deltaic areas, dry cultivation is confined to the uplands, which border and demarcate the broad flat delta. Taking the region as a whole, the agricultural out turn per acre works out at Rs.224.29 as compared to Rs.89.61 in Rayalaseema and Rs.57.07 in Telangana. This region derives 51.8 per cent of the total value of net agricultural output from food crops and the rest from commercial crops. Andhra Pradesh holds a virtual monopoly of virginia tobacco and 72% of the exports of tobacco are from Guntur district. Andhra tobacco is, thus a leading earner of foreign exchange. Sugar cane produced in this region forms 57.6 per cent of the total net value of agricultural output of the State.

Further, the population pressure on agriculture is high in this region. The density of agricultural population per

acre is the highest in the State, being 1.17 for coastal Andhra region, 0.57 for Rayalaseema and 0.55 for Telangana. With heavy pressure on the land, the per capita income from agriculture works out at Rs.194.03 as compared to Rs.159.13 in Rayalaseema and Rs.100.14 in Telangana. Apart from the land potentiality, the agricultural and commercial activities, trade, transport and allied facilities are comparatively well developed in coastal Andhra region. The chain of ports along the eastern coast, the ports of Srikakulam, Vizayanagram, Visakhapatnam, Kakinada and Masulipatnam add to the potential for the economic development of the region. Caltex refinery and the ship-building yard both located at Visakhapatnam are the only heavy industries in this region.

(ii) RAYALASEEMA:-

This region comprises of four districts, Anantapur, Cuddapah, Kurnool and Chittoor. It occupies 27.4 per cent of the State area, the most sparsely populated and economically most backward part of Andhra Pradesh, usually known as the 'famine zone of south-India'. The soil is rocky and the yield per acre is very low. The rainfall is scanty and uncertain. But there are considerable forest resources, good irrigation possibilities, and mineral deposits available, which are not exploited yet.

It lies mostly at an altitude of 1,000-2,000 feet above the sea-level. This is typical dry tract of Andhra Pradesh,

situated in an unfavourable natural zone. The average rainfall of this region during the last 10 years (1955-65) was 27.1 inches, compared to 41.3 inches of the coastal districts and 36.2 inches of Andhra Pradesh as a whole. Not only is the rainfall meagre, but the fluctuations are very wide from year to year and also occurs out of season. On an average there are only 42 wet days in a year.

There was no major irrigation project until 1951, except Kurnool-Chddapah Canal, which had been sponsored by the East India Company in 1870, mainly as a navigation project. However, there are some minor irrigation projects also constructed. Above all, the entire land is mostly undulating and soil erosion is common in the region as it is subjected to the down pours from the south-west monsoons.

The percentage of the area sown more than once is 7.9 compared to 18.6 in Coastal districts. The crop pattern of this region varies with the soils, climate, and the facilities available for irrigation. The area commanded by Kurnool-Cuddapah canal, is 100,000 acres, out of this, more than 58,000 acres are under irrigable dry; about 34,000 under single wet crop and over 4,000 acres under double wet crop. The double wet cropped area is almost restricted to Kurnool district and two paddy crops are mostly grown in such areas.

Well irrigation is mainly concentrated in Chittoor district. The sugar cane rotated with paddy has been the general practice and intensive cultivation is very well

developed in this district only. The average paddy yield under canal irrigation is 950-1,050 kilograms per acre, and under well irrigation is 1,320-1,580 kilograms per acre. Sugar cane yield is also very high. Except this, the entire Rayalaseema region is a dry tract, the low crop productivity in this area, inspite of cultivation, is the direct result of heavy reliance on nature.

The region, as a whole, the net value of agricultural out turn per acre works out to Rs.89.61 compared to Rs.244.29 for coastal Andhra and Rs.118.95 for the State. Food crops occupy 68 per cent of the gross cropped area contributing 46.3 per cent of the value of net agricultural output. Non-food crops occupy 32 per cent of the total cropped area - the highest of all the regions - contributing 53.7 per cent of the net output. The region is, however, well-known for commercial crops, yielding 53.8 per cent of oil-seeds produce of the State, 65.5 per cent of cotton and 33.6 per cent of chillies.

About 70 per cent of the population in Rayalaseema is dependent on land for their livelihood and the per capita net sown area is 1.75 acres, compared to 0.85 acres in coastal districts. The agricultural holdings in Rayalaseema are big, above the average for the State. The per capita agricultural income is Rs.159.13 in Rayalaseema, compared to Rs.194.03 of coastal districts and Rs.157.73 of the State.

The low productivity is due to the marginal nature of land, which led to larger holdings and the larger holdings in poor land, in their turn, have discouraged intensive cultivation.

However, the State government is putting its efforts to develop the major and minor projects, in order to increase the agricultural productivity of this region.

(iii) TELANGANA:-

Telangana comprising of nine Telugu speaking districts of former Hyderabad State, i.e. Adilabad, Nizamabad, Hyderabad, Warangal, Mahboalnagar, Karimnagar, Malgunda, Khamam and Medak districts occupying 39.4 per cent of the area of the State. This also can be regarded as an undeveloped region, except the twin cities of Hyderabad - Secunderabad. Despite the fact of favourable natural conditions in terms of ground-water and rainfall, intensive cultivation has not developed in this region. The main reason is the defective institutional organisation, which existed in the agricultural sector of this region. The region was under a feudal economy, Sarf-e-Khas (i.e. estate owned by Nizam himself) and Jagirs, occupying more than 30 per cent of the total area of Telangana. Unfortunately incentives were absolutely absent in that regime. Therefore, the whole economy was left stagnant and undeveloped, at least for a century. This factor is being removed through

agrarian reforms but their impact has yet to be felt.

Telangana is an extensive plateau with an average elevation of about 1,200 feet above the sea-level. The average rainfall is 35.2 inches. But the topography is the serious handicap to the development of agriculture. It is an undulating plateau, consists of red sandy loam known as 'chalkas' (local term). The soil is almost free of soluble bases, plant food, and generally poor in plant nutrient reserves and is developed under severe leaching conditions. The rest is the shallow black soil, concentrated mainly in tracts having even topography and are mostly found in low valleys.

As the topography is rough in Telangana region, the tanks form an important source of irrigation. Almost more than 66 per cent of the total irrigated area is covered by the tanks only. However, the proportion of irrigated area to the net sown area is only 16.6 per cent, compared to 48.3 per cent in the coastal region. Therefore, many major and medium irrigation projects has been taken up during First and Second Five Year Plans, but Nizamsagar has been the only major irrigation project so far.

The land-utilization and cropping pattern is evolved under the prevailing climatic, soil and irrigation conditions, except paday, which is grown irrespective of soil. Continuous utilization of the soil considerably reduces its

fertility, and moreover, nothing has been done to increase or retain its fertility by the application of chemicals and farmyard manure. Therefore, the average yield of rice per acre, is only 685 lbs. in Telangana compared to 1,293 lbs. of Andhra region.

On the basis of above mentioned, climatic and topographic background, Telangana can be regarded as a dry farming area. Here the crop pattern varies a lot, according to the type of soil. Generally, jowar (a kind of food grain) is rotated with cotton or groundnut in the black soils in 'rabi' season. In certain parts jowar is rotated either with tobacco or with chillies. In the 'chelka' lands and in the light texture and shallow black soils only 'Kharif' crop is grown, as the lands cannot support any crop growth in the dry winter season, however, in the dry region, though the cash crops yield better returns, but the farmer still follow the crop rotation, as it is the only device against soil exhaustion. The difference between Rayalaseema and Telangana, so far as the dry farming is concerned, is that the black soils predominate in dry areas in Rayalaseema, while red soil occurs in most of the area, where rainfall is sufficiently high in Telangana. Since these dry areas in Telangana are mostly situated on slopes, the soil erosion is a common phenomenon, therefore, the cultivators are not inclined to apply any manures at all.

The study of the existing structure of the holdings reveals, that the land is concentrated either in large holdings or in un-economic fragmented small holdings and a middle class peasantry having both labour and capital resources required for intensive cultivation has not yet developed. The efficiency of the agricultural population is relatively low, therefore, the per capita agricultural income in Telengana is Rs.100/- compared to Rs.159/- in Rayalaseema. This is mainly due to lower yields of crops, and lower percentage of area under the commercial crops. Another factor which is equally important for retarding agricultural growth in Telengana is the inadequate attention to manuring.

Andhra Pradesh, in general can be regarded as an agricultural State, because the industrial sector's contribution to the total State income is only 13 per cent. The same thing is reflected in the general economy of India. Within the State, the regional differentiation is also very high in respect of their agricultural development. The per capita income is Rs.225/- (1955-1956) in Rayalaseema, Rs.257/- in Coastal districts and in Telengana it accounts to Rs.201/-, which is the lowest among all the regions. The coastal region contributes more than half (51.1 per cent) of the State's income and is the economically the most advanced part in Andhra Pradesh and moreover there is an increasing tendency towards urbanization and especially in deltaic districts. The agricultural condition in Telengana, compared to the other regions is poor and backward, due to infertile soil and bad institutional set up, resulting in increased inefficiency among agricultural workers. No doubt the contribution of secondary and tertiary income is as high as 62 per cent in Telengana, which suggests its diversified economic structure. During the First and Second Plan periods a number of large scale, heavy chemicals and electrical industries and small scale industrial estates have been established in Telengana.

6. The Integration of Agriculture and Industries in Andhra Pradesh.

In the process of economic development, the relationship between agriculture and industry is one of mutual interdependence. On one hand the industrial growth increases by the developments in agriculture, such as increasing the productivity of cash crops e.g., tobacco, sugar, cane, cotton and castor, while on the other hand agricultural growth is conditioned by developments in industry. So, the proper planning can help both the sectors of economy viz., agriculture and industry, to become complementary to each other, at every stage of development, and thus accelerate the balanced economic growth.

For planning the economic and industrial development of a region, it is, therefore, necessary to make a study of the relative advantages available from agriculture for industrial growth in a particular region. Andhra Pradesh, being primarily an agricultural State with its 82.56 per cent of rural population, agricultural activities are of basic importance.

According to the Census of India 1961, 69 per cent of the working population in the age-group 15-59 years in the State are engaged either as cultivators or agricultural labourers. The lowest proportion of agricultural workers of this age-group is only 40.3 per cent found in Hyderabad district mainly because 60 per cent of the population of the district live in the urban areas of the twin cities and moreover total cultivated area is only 40 percent of the total geographical area of the district.

Andhra Pradesh has food surplus and a dynamic agricultural

growth. Among the food crops grown in the State paddy tops the list. The State is self sufficient and it exports about one fifth of the total production of rice (6-8 lakh tonnes) to the neighbouring States. The acreage under rice production is 73.17 lakh acres (7,317,000 acres), which constitutes 8 per cent of the rice acreage in India.

The integration of agriculture and industries can be reckoned by the production of leading commercial crops in Andhra Pradesh. The commercial crops include cotton, tobacco, sugar-cane, castor seeds and groundnuts. All these crops are the backbone of the industrial structure of Andhra Pradesh. Table No. III below shows the area and the out-turn of commercial crops in Telengana and Andhra regions.

Table No. III. AREA AND OUT-TURN OF COMMERCIAL CROPS,
REGIONWISE, 1964-1965.

Crops	Telengana		Andhra	
	Area (Sq.miles)	Out-turn (Tonnes)	Area (Sq.miles)	Out-turn (Tonnes)
1. Cotton	347	30,000	1,080	120,000
2. Tobacco	71	20,000	600	140,000
3. Sugar-cane	200	340,000	400	1,100,000
4. Groundnut	926	170,000	2,014	740,000
5. Castor	926	40,000	200	10,000

Although there is a great deal of disparity in Andhra and Telengana regions, nevertheless, Andhra region consists of the coastal districts, namely Guntur, Krishna, East Godavari, West Godavari, Visakhapatnam and Srikakulam, which is the most fertile region of all. Andhra Pradesh virtually enjoys a monopoly in the production of virginia tobacco. Guntur district accounts 85 per cent of the total acreage under the crop in the State.

Conclusion:-

Thus it can be summarised that, so far as the urban and industrial position of Telengana is concerned, it consists of small and medium size towns. By all methods of measuring urban concentration, the city district of Hyderabad-Secunderabad ranks first in Telangana region, followed by Nizamabad and Warangal. The overall pattern of the composition of urban growth in Telengana is one of domination by one or two towns, while the metropolitan cities of Hyderabad-Secunderabad, casts its urban shadow over a radius of 30 miles. Thus after the recommendation of the States Re-organisation Commission, there came about a radical change in the economic and industrial organisations, giving Hyderabad administrative control over the three regions. These changes gave to the twin cities of Hyderabad-Secunderabad considerable economic and political advantages which are reflected in the growing urban and industrial developments.

CHAPTER IVTHE TWIN CITIES - LAND USE PLANNING AND THE INDUSTRIES

The economic and industrial development of the Twin Cities of Hyderabad-Secunderabad, necessitate a sound base of land use planning. The functional differentiation within the urban complex involves the classification and mapping of landuses, such as commercial and industrial, administrative, residential, marketing centres and suburban land use. The occupational structure and the density of the population in any particular part of the city, to a certain extent, determine its functional entity. As they represent a real difference in functions that are significant for other kinds of phenomena in the same area and for the same population group.

The land use planning of any region originally depends upon the principle of Optimum Use. That it should be possible to determine the optimum use, in the national interest of any given tract of land.

Spatial planning can make a positive contribution to economic development in more than one way. Operating with collaboration of the national economic development plans it can greatly help in the utilisation of resources, including the land resources, by providing in advance a

precise framework for rational distribution of population and economic activities.

2. The Necessity of Regional Planning in Andhra Pradesh.

Economic development is now a major issue in world politics. All the under-developed countries of the world are trying to achieve in the shortest possible time a reasonable measure of economic progress. In this context India is undergoing enormous changes including the provision of new irrigation projects, dams, barrages, canals, roads, railways, townships, industrial sites, reservoirs, hydro-electric plants, transmission lines, etc; all are altering the physiognomy of the country as a result of the impact of Five Year Plans. At the social level these developments bring about movement of population. After independence the Government of India set up the Planning Commission in March, 1950, to prepare a plan for the 'most effective and balanced utilisation of the country's resources'. The objective of planning in India is to adopt a process of development which will raise living standards and open out to the people new opportunities for a richer and more varied life. The second and main objective is to increase the per capita incomes.

Planning is not a way of life, but it is a means to

an end, the end naturally varying with the state of the economy. The aim of the planning in India is defined as initiating a process of development which will raise living standards and open out to the people new opportunities for a richer and more varied life.

Over the period of the first two plans (1951-61) the national income is estimated to have increased by about 42 per cent. Per capita income increased by about 16 per cent only, due to a rapid population growth.¹ Both the First and Second Five Year Plans fully recognised the magnitude of regional problems and the value of the regional approach in planning. The First Five Year Plan mentions that, 'it is often desirable to prepare development programmes in terms of regions, determined by physical, economic and administrative considerations. The needs and priorities of different regions as well as their potential for short term and long term developments should be taken into account, in drawing up and continually reviewing their development programmes.

The techno-economic survey is an investigation into the economic development and potentialities of a given region, carried out by an inter-disciplinary team of economists, geographers and other technical personnel. The main

1. India, a reference annual, 1965, Publication Division Ministry of Information and broadcasting, pp. 165

objectives of this survey are as follows:-

- (i) To establish the availability and the utilization of the resources of the region and their development potentialities over a time horizon of 10-15 years.
- (ii) To examine technically feasible and economically sound industrial possibilities, based upon the resource endowment of the region.

Andhra Pradesh is the fifth largest and the fourth most populous state of Indian Union with an area of 106,041 Sq. miles and the population of 35.98 millions (1961) has great physical and regional contrasts. The economy of Andhra Pradesh bears great similarities with that of economic position of India as a whole. In other words the main factors of the Indian economy such as low per capita income, predominantly agricultural occupations, low industrial development, (which are creating hinderances in the way of rapid growth and industrial development of India) are reflected in the economic structure of Andhra Pradesh. ~~Therefore,~~ The sharp regional and sub-regional contrasts in physical environment, economy and culture are the factors which justify a regional approach and regional planning in India and Andhra Pradesh. Regional planning is as important and essential as local and national planning, whether in India or in any progressive country, irrespective of its geographical character and political philosophy.

The regional variations in the three administrative regions of Andhra Pradesh, namely Telangana, Coastal Andhra and Rayalaseema regions show a marked contrast in physical environment, climate, population density, urban and land use planning respectively. These are the main indices of regional planning in Andhra Pradesh, show overleaf in table number 1.

The coastal region is economically well developed, with its highest population density of 474 persons per square mile among all other regions of Andhra Pradesh. The urban population of Andhra Pradesh, according to 1961 census, is 6,274,508 which is only 17.4 per cent of the State's total population, again coastal region occupies the highest percentage of urban population, i.e. 7 per cent of the total.

3. Land use Planning of the Twin Cities.

The regional and land use planning of the Twin Cities of Hyderabad - Secunderabad has become urgent now, because of the rapidly changing unplanned land use in the central city and the peripheral areas and consequently the increase in the land use values. Similarly the rapid change in the land use is evident from the rise of industrial areas and their residential neighbourhoods in the north, north-west and the north-east of the Twin Cities. The second feature, which also requires serious thinking from the resource planning point of view is the viticulture (grape gardens),

Table No. IRegional Variations in Andhra Pradesh, 1965

Regions	% of cultivated area to total agricultural area	% of irrigated area to total cultivated area	Mean Annual rainfall in millimetres	% of urban population to total population	Population density per Sq. Mile
1. Telangana	17.4	5.0	912.1	6.8	286
2. Rayalaseema	14.4	4.0	697.0	3.6	250
3. Coastal Andhra	10.2	9.4	1,057.2	7.0	474

which is spreading around the periphery of the Twin Cities of Hyderabad-Secunderabad. All these developments have increasingly taken place since 1956. If, these tendencies continue, then land will not be available for future land use planning and the Metropolitan district of Hyderabad has to confront these haphazard developments.

The morphological study of the Twin Cities, reveals that the main urban complex of Hyderabad has been planned on the grid pattern by Qutub Shahi dynasty during the 15th Century A.D., while the adjoining city of Secunderabad was originally planned as a British Cantonment, 200 years later in 17th Century A.D. Despite the fact of the difference of origin among both the cities, the functional and demographic homogeneity permit to represent them as an organised whole.

The development of the Twin Cities of Hyderabad - Secunderabad, as a functioning entity in space and in due course of time recognises their significant functional regions. These geographic and functional regions are intimately interrelated and some times overlap each other, such as shopping, marketing especially retail have a great degree of overlapping. The association of these urban functions can be recognised by the land use mapping.

4. The General land use Pattern of Hyderabad-Secunderabad.

The cities of Hyderabad and Secunderabad present a

well developed land use pattern, with their well defined functional regions. In spite of the difference of origin and historical background, their urban land use characteristics have influenced each other. Urban land use is primarily concerned with the utilization of surface. Therefore, all the land which is used for the purposes that are recognised as urban in character.

Apart from the cultural, political and economic factors, location, topography and modes of transport play an important role for the development of the urban activities within the twin cities. The Table number II overleaf gives a picture of the general land use pattern of the Twin Cities.

With this high proportion of municipally owned vacant land available for urban use in Hyderabad, has more scope for future developments. On the other hand Secunderabad's higher proportion of built-up area has less possibility for future growth, more over the adjacent areas to its municipal boundary, such as Cantonment in the north, Osmania University Campus in the south-west, Sanathnagar industrial estate and its residential neighbourhoods in the east are fully built-up areas, therefore, there is no possibility of annexing new areas to it. The waste lands of Hyderabad are mostly on the west, in and around the Banjara Hills and Golconda areas.

In Secunderabad, a proportionately high percentage of built-up area is due to the railway workshops and the aerodrome, which were established by the British Government for military

Table No. II General Land Use, Area in acres, per cent to total, 1959 2

Name of the City	Total Area	Built-up Land	Municipally Owned Vacant Land capable of develop- ment		Waste Land	Water Bodies	Agriculture				
			Area	%			Area	%			
1. Hyderabad	39,680	16,767	42.1	12,698	32.0	4,500	11.3	3,395	8.5	2,380	6.1
2. Secunderabad	5,248	3,649	69.3	1,193	22.7	170	3.4	77	1.6	159	3.0
TOTAL	44,928	20,356	111.4	13,891	54.7	4,670	14.7	3,472	10.1	2,539	9.1

2. Alam, S.M., Hyderabad-Secunderabad: A study in Urban Geography, 1965, pp. 94

and strategic reasons. Begumpet airport, the railway station and the railway colony occupy almost 36.7 per cent of the total built-up area in Secunderabad. This, however, induced a more intensive use of land in Secunderabad, which is much more compactly built-up than Hyderabad, in this respect Secunderabad leads Hyderabad. On the other hand almost 60-65 per cent of the built-up land of Hyderabad has a great concentration of important business and administrative offices, educational institutions, public buildings, parks, playgrounds and mosques. Excepting those of the railways Secunderabad has no other important offices of the State.

The land use pattern of the twin cities as they have evolved are essentially functional, in character. The functional areas are dynamic and change their location and character in order to meet the needs of an urban community. The growth of the urban community accompanies with the progressive changes in the social and economic structure, in the size of the population and in the structure of the occupation. Increase in the urban population of the twin cities was, to a great extent, due to the change in the social-economic conditions and administrative decisions. Such changes are reflected in the land values. Although lack of data makes it difficult to discuss the great changes of land values in the twin cities, nevertheless on the basis of actual field study and observation, it can be said that

localities of a very high land value of 17th and 18th centuries, such as Moghalpura, Karwan and Golconda are now available at fairly cheap rates. The phenomenal rise in land values was followed by the formation of Andhra Pradesh, when there was a marked increase in population by immigration which resulted in increased economic activity. The land values in the north of Hyderabad was about Rs.100/- per Sq. yard (before formation of Andhra Pradesh) for instance, and now the same value has gone up as much as Rs.300/- per Sq. yard.

Land prices in residential areas are to a certain extent influenced by proximity to shopping facilities and better street frontages, but the main considerations are usually the electricity, water supply and better drainage services. Land values fall sharply from developed to undeveloped lands also.

Therefore, the land values in the twin cities have been determined primarily by the direction of growth, and accessibility to the public utility services available in different areas.

5. Industrial and Commercial Land Use.

The industrial land use of the twin cities is not very distinctive, nevertheless industries play an important role in the functional and occupational structure of both the cities. The functional land use is a mean to

identify the spatial structure of a particular city.

The functional land use of the twin cities include industry, trade and commerce, transport, business both retail and wholesale, administration, education and recreation.

These functions can also be regarded as an urban indices.

The functional areas are liable to change their location and character according to the changing administrative decisions and socio-economic conditions.

The industrial land use pattern shows the domination of small scale industries, which are more or less service types, scattered all over the twin cities. But there are five major industrial concentrations which can specifically be said as an 'industrial areas' excluding the industrial estates in both the cities. They are as follows:-

Table No. 3 Industrial Areas and their Location.

Industrial Areas	Location
1. Sanathnagar-Kukatpally Industrial Area.	Hyderabad
2. Mushirabad Industrial Area.	"
3. Tank Bund Industrial Area.	"
4. Lallaguda Industrial Area.	Secunderabad
5. Moula Ali Industrial Area.	"

1. Sanathnagar-Kukatpally industrial estates are located on the western out-skirts of the twin cities. The industrial origin of this area dates back to the Second World War, when a Bren gun factory was set up by the Government of Czechoslovakia with the assistance of the British Government. After the war, the Government of India allowed the local industrialists to acquire the land and the buildings of this project. Therefore, a number of large scale industrial units like Hyderabad Allwyn Metal Works, Hyderabad Asbestos Cement Products and Hyderabad Laminated Products Ltd. etc. were established. After the establishment of an industrial estate at Sanathnagar, one co-operative industrial estate at Balanagar and an industrial labour housing colony, several other private entrepreneurs have also acquired the land in the vicinity to establish their plants.

During the Third Five Year plan, the public sector projects like Synthetic Drugs, Hindustan Aeronautics and the Hindusthan Machine Tools by the Government of India have been located in this area, which includes Ramchandrapuram, Kukatpally and Musapet areas. It is, therefore, developing with a very rapid rate into an industrial town, and can be regarded as 'western sector of large and heavy industries.

2. Mushirabad industrial area is one of the big industrial complexes of the twin cities. It was created by the

former Government of Hyderabad State, in the early nineteen-thirties, developed a large levelled tract and leased it out for 99 years to various entrepreneurs. Other adjoining industrial areas are Azamabad and Bakaram. Mushirabad and Azamabad industrial areas consist of small, medium and large scale industries. Among the large scale industries are the Golconda Cigarette Factory at Mushirabad, Vazir Sultan Tobacco Co. Ltd. and Mahaveer Cotton Mills Ltd. at Azamabad and Road Transport Corporation at Mushirabad and are by far the most important industries. Vazir Sultan Tobacco Co. Ltd. is one of the largest cigarette factories having a most modernised plant and equipments, not only in India but in South East Asia. It was incorporated in 1930. The trade name is 'CHARMINAR', the other successful brands are 'Shahi-Deccan', quite prominent in the Coastal Andhra region, 'Quila' which has had phenomenal progress and 'High Court' is a virginia type cigarette of the same company. The company employs more than 2,200 people. The annual production is 10,000 million cigarettes.³

Road Transport Corporation and Workshop, Mushirabad, being a public undertaking gave an industrial impetus to the area. It was established in 1932 and after the formation of the State of Andhra Pradesh it is known as

3. Andhra Pradesh Industries Bulletin, Director of Industries and Commerce, Vol. I, No. 4, 1966, pp. 33.

Andhra Pradesh State Road Transport Corporation. The capital subscribed for the year 1960-61 was Rs.45.0 millions. It employs 4,800 persons and they have been provided with a big housing colony by the Road Transport Corporation.

Location of all other types of industries are facilitated by the broad guage railway of Secunderabad and the meter guage railway station of Hyderabad. In addition, the new settlement is taking place in Chikkadpally and the development of a new shopping centre, consisting of departmental stores, at Chikkadpally-Narayanguda road. Thus, during the last 30 years, Mushirabad has grown into an industrial town.

3. Tank Bund Industrial area, on the north-east and eastern side of Husain Sagar lake, consist of mainly those industries who tend to locate near the waterside, like the manufacturers of cotton textiles, chemicals, pharmaceuticals and ceramics and food products particularly confectioneries. Tank Bund Industrial area consists of Devan Bahadur Ramgopal Cotton Mills Ltd. and J.B. Mangharam & Co. (manufacturing biscuits and confectionery) which are the most important large scale industries. Development of this industrial area is favoured by the proximity to Husain Sagar lake and its surplus water channel and Secunderabad railway station. Now this industrial area is surrounded by the heavily populated wards of Secunderabad Division.

4. Tallaguda industrial area comprises of two railway workshops, namely Central Railway Loco Workshop and Signal and Telecommunication Workshop. Both the railway workshops draw their labour force from the surrounding rural areas.

5. Moula Ali industrial area on the north-east of the twin cities is also one of the big industrial areas of light and medium industries. The industries, located in this area are of different types, for instance Andhra Foundry and Machine Co. Ltd. manufactures spun pipes and capital machinery, Hyderabad Chemicals and Fertilisers Ltd., Hyderabad Roller Flour Mills Co. Ltd., Republic Forge Co. Ltd., etc. Location of the industrial area has been facilitated by the broad guage Central Railway line which connects almost all the big cities of Coastal Andhra. Outside the State of Andhra Pradesh it extends as far as Calcutta in the north and Madras in the south.

The industrial land use of the twin cities is, however, dominated by the small scale ubiquitous type of industries which produce cheap goods or articles of daily consumption. They are located mainly amid active residential and commercial districts and therefore, widely dispersed. The produce includes hosiery goods, steel trunks, cheap quality domestic goods, etc. The location of these industries also depends on the type of

market they serve. However, an integrated industrial development of the twin cities does not comprise of large scale units alone. In fact there are a very large number of small industrial units at the base which serves as ancillaries to large units and also produce a variety of consumer goods. Therefore, in the industrial land use pattern of the twin cities the small units hold an equally strategic importance.

Commercial land use of the twin cities besides the Central Business District, includes all those clusters of small shops found in every block (subdivision of Municipal Wards) and locality, deal only in elementary goods of daily requirements. They are normally food, grains, vegetables, meat, fuel (kerosene oil, wood and smokeless coal), cigarettes, tailoring, cloth and ready-to-wear dresses, taxi cycle, 'pan' (betel leaves) and a small restaurant (where only tea and biscuits are served). Shops of each type do not number more than one or two. The quality of goods offered in these stores is rather poor and their range is extremely limited. These shops have very small frontages. This type of local business centre is usually found in the old city of Hyderabad, for instance, Moghalpura, Yakutpura, Sultanshahi and Husaini Alam etc. The general standard of the shops is

very low and rather traditional. As the population south of the river still retain their social and cultural traditions, therefore, neither the type of shops nor the shopping habits changed considerably.

Local commercial and business centres differ in size and standard, according to the area in which they are located and the class of population they serve. The local business centres of northern Hyderabad, most of Secunderabad and others located along a traffic intersection with a fairly good frequency of public and private vehicles, consist of shops of better quality and quantity. They include provision stores, bakery, crockery and cutlery stores, chemists, electrical goods, cosmetics, photographers studio, hardware, paints and varnishes, book sellers and stationers, bangles and costume jewellery and novelty articles. However the commercial structure of the twin cities is not very prominent and confined to the purchasing power of the people.

6. Administrative, Residential and Suburban Land Use:-

Administrative offices of the central and state governments and all other types of offices are scattered all over the twin cities. Hyderabad, being the administrative and civil capital, had always been the seat of the government, whereas Secunderabad always consists of highly specialised commercial firms and business offices.

Administrative land use pattern of the city had

changed in 1881, when Finance offices of Hyderabad State shifted from the walled city to the wouth of Husain Sagar. Until the beginning of the 20th century, all types of government administrative offices, palaces of the Prime Minister, high Officials and of the nobles were confined to Charminar and Moghalpura areas of the walled city. In 1912, the last Nizam (H.E.H., The Nizam, Mir Osman Ali Khan) moved to his present residence 'King Kothi' at King Kothi road and later on all the nobles moved from the south to the north of the river Musi. Now there is a distinctive district of administrative offices consisting of Secretariat offices, Legislative Assembly and Legislative Council on the south of Husain Sagar. This administative district extends up to Saifabad area. The residential land use of the twin cities consists of different types of houses, according to the people belonging to a particular income group. Out of the total built-up area of the twin cities a major percentage is devoted to the residential uses. Despite this, the twin cities are confronted with numerous housing problems, like slum clearance, lack of public utility services (including electricity, drainage and water supply) mostly in the old city of Hyderabad etc. The residential land use pattern of the twin cities is quite prominent among all functional land uses of the twin cities. Due to

the lack of data one cannot distinguish certain categories depending upon the types of houses, nevertheless, it can be said that Banjara Hills, Masab Tank, Khairatabad, Bashir Bagh and Malakpet in Hyderabad, Marredpally Hills and Begumpet in Secunderabad are the first class residential neighbourhoods, which mostly belong to the upper-class people of the city. All these neighbourhoods are located in the periphery of both the cities.

The concentration of commercial, educational and business activities in the heart of both the cities, within the radius of more than one mile in Hyderabad and less than a half mile in Secunderabad, form the central business district of the twin cities. The residential neighbourhoods surrounding the core of the city, are the blocks of houses and flats constructed by the Housing Board and privately owned houses of upper-middle and middle income group people. Lower-middle and low income group people tend to concentrate in southern Hyderabad and in the walled city, where the land values are comparatively low.

The suburban land use of the twin cities is completely functional. It includes the north-western industrial sector of large and heavy industries and the industrial estate of Sanathnagar, Secunderabad Cantonment of military

posts in the north, Moula Ali industrial area of light and medium industries in the north-east, Osmania University and Regional Research Laboratories in the east, Agricultural University and Research Farm in the south-west are the main suburbs of the twin cities. Thus it can be summarised that the industrial, commercial, residential and suburban land uses of the twin cities have the potentialities to develop into a specialised functional zone like any other growing urban centre.

7. Location of the Central Business District of the Twin Cities.

In the twin cities the business streets and main thoroughfares form the commercial structure, which eventually makes the central business district. The importance of central business district decreases from the city's centre to its periphery. On these business streets the shopping nucleation of varying grades have emerged and the business is intensified at traffic intersections. The central Business District in the Twin Cities include the principal retail thoroughfare, banking, administration and wholesale districts. Fig. 12

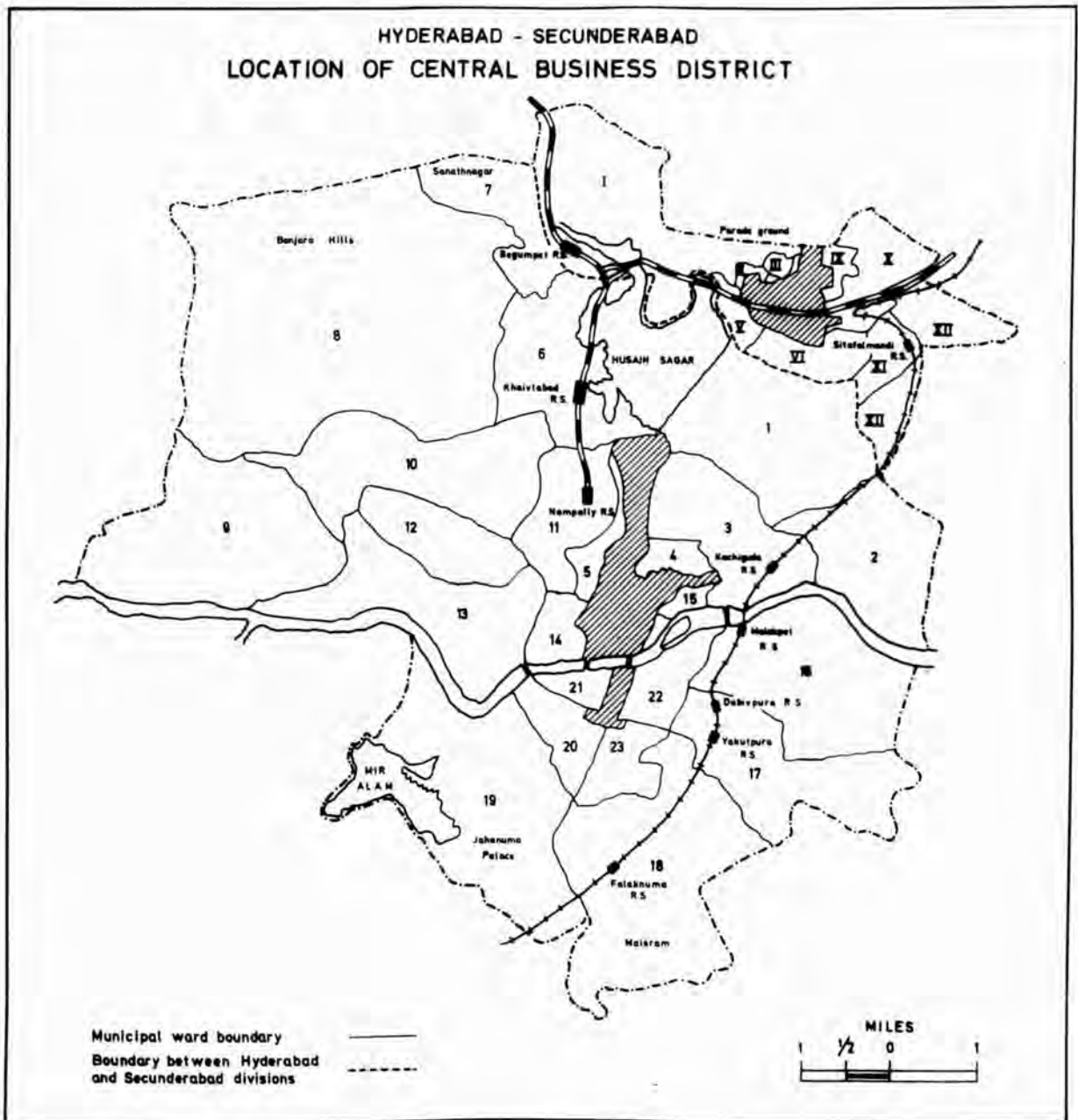


Fig. 12

Apart from the functional and service regions, (combining together form functional zones), the urban nucleus has its own core area, where the intensity of the business, shopping, banking, educational and commercial activities are found at their peak level. This is regarded as the central business district of the city. Here we can find the greatest concentration of offices and retail stores, reflected in the city's highest land values and its tallest buildings. The Central Business District of Hyderabad can be determined from Charminar in the south to the end of Mahattma Gandhi Road in the north, from Begum Bazaar in the west to the Kachignda station in the east. The entire area embracing these limits is about 4 sq. miles densely populated and the thick transport net-work radiates from here to serve the whole city. The Central Business District of Secunderabad is mainly the General Bazaar area, surrounded by the Rashtrapathi road in the east, Mahathma Gandhi road in the west and Sarojinidevi road in the north. In spite of the qualities that make the central business districts of the twin cities stand out as a unit, is by no means homogenous. The land use varies greatly throughout the district, but there is a broad element of rank intensity, which varies greatly in both the central business districts

of the twin cities. The rank of intensity of the commercial, banking, retail shopping, administrative and educational activities is very high in the ward numbers 21, 22 from south of the river and 5, 15, 14 and 4 of the central business district of the city of Hyderabad made it the 'Hard Core' of the city region. Fig. 12

The other aspects of variations within the central business district are, for instance, the regional specialisation, which is reflected in the shopping districts, theatre districts, etc. It can be noticed in some functional areas such as educational, medical and industrial, etc.

The delimitation of the central business district is fundamentally based upon the land use mapping.³ The highest land value intersection plays an important role. There are two types of land use mapping of central business district which are as follows.

1. The most essential central business functions are considered to be the retailing of goods and services and the performance of various office activities for private profit.

2. The other land uses can be regarded as the non-central business in character. These include the land

3. Raymond, E. Murphy, Central Business District Research, Proceedings of the International Geographical Union Symposium in Urban Geography, 1960, pp. 473

use for permanent residences, governmental and public purposes, organisational establishments, (such as mosques, churches, temples, etc.) locating the industries, the whole sale establishments and for commercial storage. These various non-central business land uses occur to some degree in all central business districts and they perform necessary urban functions.

The central business district core in the Twin Cities is the most intensive land use district and the highest concentration of social and economic activities are found within this metropolitan complex. Land use is characterised by the offices, banks, retail sales, consumer services, hotels and theatres. Typically the central business district of Hyderabad has the city's highest buildings, apart from Charminar, the highest historical building in the old city, the General Post Office and the State Bank of Hyderabad at Mahathma Gandhi road, etc. The highest retail productivity per unit of ground area and the freatest day-time population concentration in the big shopping centres such as Pathargathi in the south of the river Musi and at Mahathma Gandhi road in the north of the river in Hyderabad and Rashtrapathi road and the General bazaar in Secunderabad.

The northward growth of Hyderabad is well reflected in the northerly extension of its principal retail

thoroughfare, Mahathma Gandhi road, from the Residency (former British Governor's residence) to the south end of the Tank Bund road (the road leads to the bridge across the Husain Sagar Lake). Secunderabad's C.B.D. starts from the northern end of the Tank Bund road.

The principal retail thoroughfare of Hyderabad is the line of maximum convergence of traffic routes, the area with the greatest concentration of centralised services. The C.B.D. of Hyderabad serves the middle and upper income groups of the whole city. Radio and warch shops, automobile and steel furniture show rooms, cottage industries sales emporium, expensive electrical goods stores, gifts and provision stores, fashionable tailoring firms and luxury hotels are the exclusive monopoly of this district.

The sales level of this retail district is quite high and the purchasing power is far higher than that of the principal retail district of Secunderabad.

Conclusion:-

In the life span of 376 years from 1591-1967, Hyderabad city has to face extensive changes, due to changing historical, social, political and economic forces. It has inherited a rich culture reflected in the archectural designs of its buildings and the composition of its population. The city area and population increased enormously since its creation as a capital of the State, has changed considerably. The

feudal society has been replaced by a trend towards a democratic, socialistic system and the non-productive economy of the past is giving way to more productive and commercial forces. Hyderabad has all the elements of dynamic urban growth and its metropolitan tendencies are fast expanding.

Secunderabad, obviously, owes its existence to the attraction of Hyderabad, yet it long remained an independent entity with functional distinctiveness. However, its proximity to the rich capital, provided it with an opportunity to grow from a small military station to a mature city.

The twin cities of Hyderabad-Secunderabad, inspite of their expansion, political and economic development, particularly, after 1956, their heterogeneous is in many ways a unit of social life and organisation. The spatial structure of the city is the product of three basic forces. There are the centripetal forces of attraction and coagulation. There are the centrifugal forces of dispersion and disintegration. There are, thinly forces of spatial differentiation, which result in the segregation of buildings, persons and activities in distinct areal groupings. Clearly the process of centralisation is very much involved in the structure of the city and the areal groups within it. The structure and the landuse of the twin cities reveal that the suburbs of both the cities is occupied by the industrial land use.¹

CHAPTER VINDUSTRIAL STRUCTURE OF THE TWIN CITIES

Cities of the world have grown largely as a result of industrial activity. The twin cities of Hyderabad and Secunderabad have been primarily civic and commercial cities, but they have made significant industrial progress since 1930. After 1930 there has been a special character growing out of a changed emphasis on social and occupational values. This main incentive being the rapid growth of the cities and the urbanization of population which is accompanied with the industrial revolution and related technological change. Paul K. Hatt calls it the present 'spatial and temporal structure of the city'.¹ This eventually leads to form a metropolitan community, which is a centre of multiple activities.

The cities can be classified according to the functions they perform. All the large cities can be recognised as multifunctional. The different functional types, includes for example, industrial, commercial, mining and university. In this connection a quantitative method of functional analysis decides a definite type of city. The main criteria can be the two sets of figures which help in determining

1. Paul. K. Hatt and others, *Cities and Society*, The Free Press of Glencoe, Illinois, 1964, pp. 177

the main activities of the city, i.e. occupational and employment figures. The classification of the population under different occupational categories basically shows the relative importance of the various economic activities and signify the city as a 'functioning entity'. According to Census of India, 1961, the total working population has been divided into different occupational and employment categories, which in consequence forms the economic structure of the five big cities of India, ranked according to the size of the population. They are shown overleaf in Table No. I and Figure No. 13.

In the twin cities, 1.3 per cent of the population are still practicing the old agricultural techniques and engaged in primary occupation. It can be regarded as a negative aspect of development against the growth of a big metropolis. In the major cities of India the percentage of agricultural population is comparatively low. The productive means of livelihood, such as manufacturing, trade and commerce are also relatively less important. But the percentage of population in Administration and other services in the twin cities exceeds that of Delhi, the national capital. It is the reflection of Hyderabad's past feudal character. (Fig.14)

2. Growth of the Industries:-

Industries in Hyderabad, during Qutub Shahi period (1600A.D.-1687A.D.) were only confined to a few indigenous

Table No. I Percentage of Total Working Population to Occupational Categories in India, 1961

Name of the Cities	Occupational Categories					
	Agriculture & Cultivation	Manufacturing & Mining (excluding Household Industry)	Household Industry & Construction	Trade & Commerce	Transport, Storage & Communication	Administration & other services
1. Greater Bombay	0.4	41.0	4.0	18.0	11.2	25.4
2. Greater Calcutta	0.2	25.4	4.0	24.0	11.5	35.0
3. Delhi M.C. *	0.9	24.3	6.2	21.5	7.0	40.1
4. Madras M.C. *	0.5	25.5	6.5	19.1	12.0	36.4
5. Hyderabad M.C. *	1.3	16.7	8.0	19.8	10.2	45.0

* Municipal Corporation

PERCENTAGE OF WORKING POPULATION UNDER OCCUPATIONAL CATEGORIES FOR MAJOR CITIES, 1961

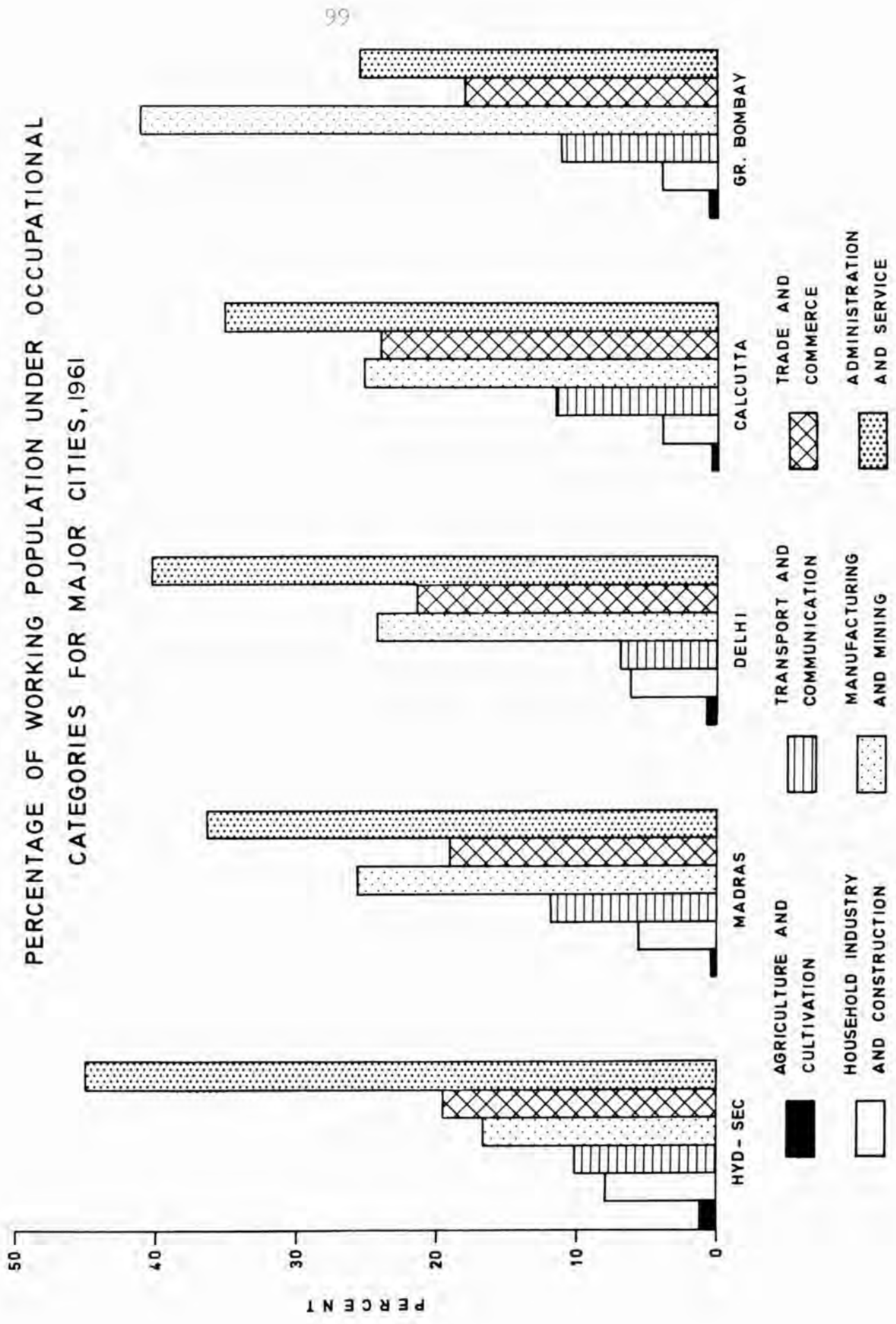


Fig. 13

PERCENTAGE OF WORKING POPULATION UNDER OCCUPATIONAL CATEGORIES IN TWIN CITIES, 1961

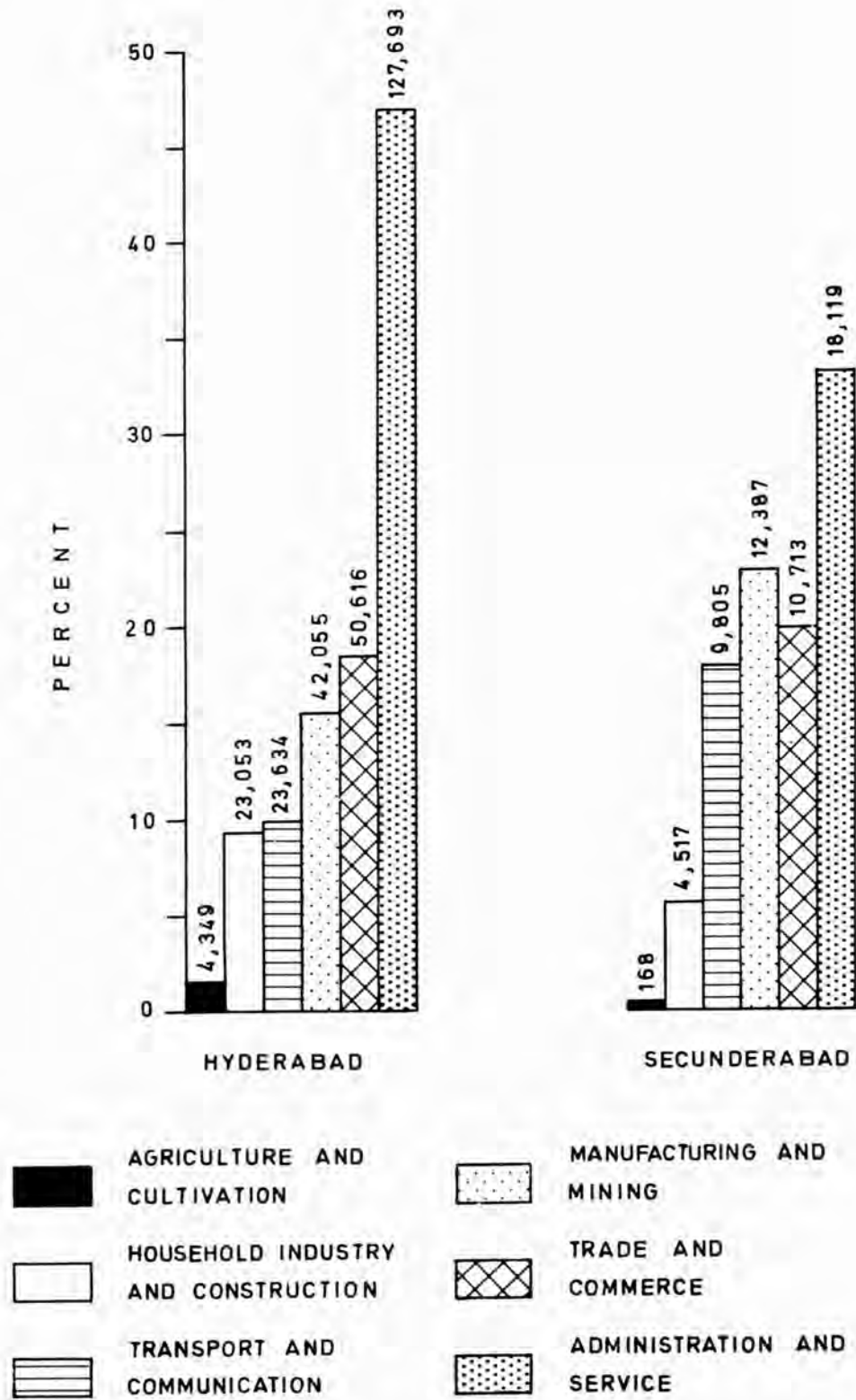


Fig. 14

consumer industries such as handloom, weaving, dying and printing of cloths, diamond cutting and polishing etc. These goods were produced not only for the local market but they commanded an international market. The mass production of goods by machine in British and European factories caused the collapse of indigenous industries. Therefore, export dwindled, and later on local markets were lost as well. The twin cities had to face industrial and economic crisis. However, this situation was improved by late 19th Century, The inertia behind this improvement was the development of transport facilities such as, the expansion of railways and the construction of road networks, not only in and around the twin cities but throughout the Hyderabad State, which paved the way to industrial growth.

The industrial phase of the twin cities started in 1874 with the establishment of a mechanical workshop for the Public Works Department. In 1901 two railway repair workshops (Loco and Signal) were constructed in Secunderabad. In the same year, a mint, at the south-bank of Husain Sagar lake and a cotton ginning, spinning and weaving factory was established in Hyderabad. In 1912, the installation of a 1,000 Kw. thermal power station in Hyderabad led to the changes in character of power requirements especially the medium sized industries.

By 1922 the number of factories had increased

considerably. In order to meet this increased demand, the generating capacity of the power house was raised to 3,000 kw. Due to the governments encouragement, Hyderabad made considerable industrial progress during 1929-33. An industrial Trust Fund opened in 1929 with a capital of Rs. 10 million to invest in large-scale industries and to assist existing units by advancing loans liberally. An extensive area of Mushirabad was made available for industrial establishments in 1931. Within two years, many industrial establishments became well-established and the main products were matches, hume pipes, pottery and raw edible oil. Due to the State's financial assistance the output increased and the market expanded to include exports abroad.

During the Second World War the industrial growth in the twin cities increased to a considerable extent. New large units such as Praga Tools Corporation, Allwyn Metal Works Ltd., and some pharmaceutical firms were set up, primarily to meet the war-time needs. When the war stopped in 1945, all these firms incurred huge losses, and ran into debt, which eventually led to an unstable industrial base in the twin cities. Moreover it led the industries to a depression and reduced their production to an uneconomic level. These industries did not improve even during the First Five Year Plan (1951-56), as the First Five Year Plan devoted much interest and concentration on agricultural

development of the country.

The formation of Andhra Pradesh and the Second five year plan (1957-61) commenced in the same year and both of these programmes shifted their emphases from agricultural development to the country's industrial development. The Planning Commission appointed many corporations to finance large, medium and small scale industries, and to give expert advice on the production and marketing of goods in all the constituent States of Indian Union. For instance Andhra Pradesh State Financial Corporation, has been set up by the state Government to promote rapid industrialisation of the State and to provide financial assistance to the industrial units in the form of medium term loans (Rs.1,000,000 c. £71,430) and in certain cases even more than this. It also extends other facilities such as disbursing of loan sanctioned by the government under the State Aid to Industries Act, and guaranteeing deferred payment due from industrial concerns for the purchase of equipment.

The second corporation is the Andhra Pradesh Mining Corporation, established in 1961 to exploit the mineral resources of the State.

The third corporation is the Andhra Pradesh Industrial Development Corporation Ltd., has been set up in 1960 by the state government as a special agency for promoting

rapid industrialisation. The main objective of the corporation is to provide financial assistance to the medium and large scale industries in the State.

The fourth agency is Andhra Pradesh Small Scale Industries Corporation Ltd., through which the state government is trying to intensify the development of small scale industries in the State. The Corporation manages the control over six raw material-servicing centres. Among which one is located at Sanathnagar and the rest are at Warangal, Vijayawada, Samalkot, Visakhapatnam and Cuddapah. These centres provide the raw materials to the small scale industries. Therefore, the industrial areas of Sanathnagar, Mushirabad and Azamabad have developed and become the main industrial nucleus of large, medium and small scale industries of the twin cities.

3. Classification of Industries:-

Total industrial units of the twin cities are classified into large, medium and small scale, according to their capital investment, by the Director of Industries and Commerce, Government of Andhra Pradesh. There are 1,210 industrial units in Hyderabad and Secunderabad. The large scale industries include all those establishments with a capital investment of above Rs.1,000,000 medium industries Rs.500,000-1,000,000 and small scale not more than Rs.500,000.² The distribution of the industrial units in both the cities

is as follows.

Table No. II Classification of Industries according to their Capital Investment, 1966

Name of the City	Total Industrial Units	No. of large units	No. of medium units	No. of small units
1. Hyderabad	221 221	18	25	947
2. Secunderabad	221	6	8	207

The predominance of the small scale industries in the twin cities apparently shows that they do not contribute much towards the growth of the metropolis. Almost all the small scale units consist of either the city-serving type or the consumer goods industries. On the other hand the large and medium scale industries are only 5.0% of the total industrial units in the twin cities. But they employ almost 48% of the total industrial workers of both the cities. The same striking feature also exists in the industrial sector of the economy of Andhra Pradesh. The large and medium units constituted in 1956, only one-fifth of the total number of units, but absorbed about three-fourths of the total number of factory workers. Although the small

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2. The average size of the small scale factory in the State of Andhra Pradesh in terms of capital investment is smaller than in India, i.e., Rs.7.5 lakhs, irrespective of number of persons employed, Directory and Year Book, 1967

scale units dominate in number in Andhra Pradesh, but the agro-based industries provide major employment i.e. 73.5%³. The same phenomenon is reflected in the industrial structure of the country as a whole.

4. The Structure of the large, medium and small scale industries in the Twin Cities.⁴

The analysis of the industrial structure of the twin cities reveals the dominance of small scale industries, as a major feature of its nature. The average size of the small-scale unit in the State of Andhra Pradesh in terms of employment is smaller than in all India. The small scale industry in the State is defined to include all those establishments offering employment to persons not exceeding 50 if using power and 100 if not using power, whereas the all-India average does not restrict the number of operatives. More over the small scale industry is primarily the responsibility of State government and not of the centre. Therefore, this suggests that Andhra Pradesh is industrially an under developed State.

The large and medium industries in the twin cities constitute only 5% of the total, industrial units. They were 3.1% in 1959. Thus comparatively the tendency is towards their increase and development. The decennial

3. Techno-Economic Survey of Andhra Pradesh, 1956, pp. 101

4. The analysis is based on the data provided by the office of the Directorate of Industry & Commerce, Andhra Pradesh, and the field-work of the author.

growth of large and medium industries in the twin cities, since 1930 also demonstrates this fact. It is shown in the table number III.

Table No. III Decennial Growth of large and medium industries, in the Twin Cities, 1930-1966

Year	Hyderabad		Secunderabad	
	Large	Medium	Large	Medium
1930	2	4	2	-
1940	3	6	2	-
1950	5	19	3	2
1959	15	15	4	2
1966	18	25	6	8

There has been continuous increase in the number and size of the large and medium scale industries in Hyderabad but there was not corresponding development in the medium scale industries in Secunderabad. The main reason is that Secunderabad being a military Cantonment could not concentrate on industrial development. Moreover Secunderabad is one of the biggest transport repairing centres in India. In 1959, out of four large units three are repair workshops, two of them for railways and one for air-craft. The net decennial growth of large industries in Hyderabad is from 1950-59 is due to the re-organization of States, which

particularly paid attention towards the industrial development of the cities. In many cases improvement in capital position was limited with a change in ownership, which ultimately improved the type and size of the industrial unit. For instance, Vazir Sultan Tobacco Co., was a private firm with a capital of Rs.15.85 lakh, but in 1959 the ownership was given to Imperial Tobacco Co., which improved the capital position up to Rs.252.52 lakhs and it is one of the biggest manufacturers of cigarettes in Andhra Pradesh. The Central Railway Signal and Telecommunication workshop was owned by Hyderabad State Government. In 1959, the government of India took the ownership and improved the capital position. The same action done in the case of the Praga Tools Corporation Ltd.

The new ownership, not only improved the capital position, of the units, but also by using their vast organisational skill and marketing agencies, which, made a wide market available for the industrial products of Hyderabad, all over in India.

5. Nature and Type of Industries:-

The small and medium scale industries of the twin cities are classified into the following ten sectors. These industrial groups basically depend upon the kind of economic activity they perform in the industrial structure of the twin cities. The second criteria of this classification is their produce. The table is as follows.

Table No. IV Industrial Sectors in the Twin Cities.

Sl.No.	Name of the Industrial Sector (S.I.C.)	Number of Industrial Units
1.	Food products, Drinks & Tobacco.	113
2.	Chemicals & Allied industries.	165
3.	Paper, printing & publishing.	65
4.	Foot wear and other wear.	73
5.	Asbestos, cement, glass & paints.	69
6.	Light Engineering.	275
7.	Manufacture of machinery except electrical goods.	125
8.	Electrical goods.	77
9.	Plastics, Polythene, & nylon articles.	65
10.	Miscellaneous industries. (n.e.c.)	20

(i) Food Products, Drinks and Tobacco:-

The food products include the confectioneries, bakeries, ice-cream and ice depots, cool drinks, different types of flour mills, oil mills and poultry farms. There are about 88 industries in Hyderabad and 25 in Secunderabad. The location pattern is fairly scattered in both the cities

(Fig.No.15) which shows that they meet the food requirements of the people in every part of the city.

Among the confectioneries, J.B. Mangharan & Co. is the large scale manufacturer of confectionery goods, which was established in 1950 in Hyderabad. The city was selected particularly, because of the facilities offered by the state, by granting free land to the firm. The second reason was the availability of raw materials such as ample supply of sugar from Nizamabad and fine flour supplied by the flour mills in the cities, viz. Hyderabad Roller flour Mills and Andhra Roller flour mills, which are the biggest among all the flour mills in the twin cities.

Poultry farming is also increasingly gaining grounds since the last decade, in the twin cities. It is accordingly with the increasing demands of the people for the poultry products. Hy-fed poultry and cattle feeds at Tilak road, in Hyderabad and Moubli Poultry farm, Ialguda, in Secunderabad are the biggest among all, with the capital investment of Rs.157,000 and Rs.73,450 respectively.

(ii) Chemicals and Allied Industries:-

This industrial sector includes the manufacture of chemicals, acids, pharmaceuticals, cosmetics, toileteries and photographic equipment. There are about 165 chemical and allied industries in the twin cities. There is 1:7 ratio in Secunderabad and Hyderabad. It is only after the



Fig. 15

re-organisation of the states, that the manufacture of chemicals and acids began in the twin cities, mainly to meet the demands of other industries. There are about 70 units of chemicals, acids and pharmaceuticals in the twin cities. The main products are ethyle acetate, phasphoric Acid, aluminium Hydroxide, Amyl Alcohol, Tetra Acetic Acid, Methyle silicitate, and zinc acid. The pharmaceutical products consist of mainly vitamins B-1 and B-2, para-amino, salicylic acid, codinc, sodium and calcium salts, Ayurvedic and homeopetnic medécines (Indian medicines). Most of the industries are small scale size, except a few of medium scale, such as Indian chemical and pharmaceuticals at Azamabad, United drugs and pharmaceuticals, at co-operative industrial estate, Hyderabad chemical and pharmaceutical Works Ltd., Azamabad on a large scale. This company was established in 1942 with a capital investment of Rs.5000,000. At the initial stage the manufacture was confined to B.P. and B.P.C. and a few more proprietary medicines.

In order to meet the increasing demands of the company's products, it has to improve the capital position. Therefore in 1950 the managing agents viz. Messrs. Badruba and company were elected. In 1953 the company acquired an Elther Plant, with an installed productive capacity of one ton per day. During the same year the manufacturing of Arasthetic Elther was also started. Now the firm is the sole supplier of

solvent and Anaesthetic Ether to the Government of India, and the company employs more than 200 workers.

So far as the cosmetic and toiletries are concerned, they are about 65 industries in the twin cities. Mainly they include perfumery, cosmetics, tooth powder and hair-oil, different types of toilet and talcum soaps and washing soap-powders. They employ about 220 workers. Most of them are located south of the river and mostly near about in Charminar and Begum Bazar. (refer Fig.15)

(iii) Paper, Printing and Publishing:-

This group consists of mostly printing and publishing industries. There are about 60 units in the twin cities. The main products are paper bags, envelopes, corrugated cardboard and water proof packing material etc. All of these industries are more or less on small scale except Asiatic industrial enterprise in Secunderabad and Sri G. Sudhakan Reddy industries at East Amberpet. Both the industries manufacture mainly corrugated boards and boxes.

(iv) Foot wear and other apparel:-

The industrial sector includes the manufacture of shoes (Chappals and Sandals), travel goods of leather and canvas, hides and tanning, hats and caps, ready-made dresses, different types of bangles and jewellery, fancy decoration and presentation articles etc. There are about 73 units in the twin cities and they bear the ratio of 1:10 in 1951.

cities of Secunderabad and Hyderabad. (refer Fig.15).

The location pattern of the tailoring firms reveals that they are concentrated at Pathargatti and in the old city, except Ram Dresses at Azamabad. More or less all the units are on a small scale and can fulfil the requirements of the local people. The second important handicraft is the manufacture of fancy bangles and jewellery. The handicrafts and cottage industries products which have both utility and artistic value is a cultural heritage of India. The handicrafts are Bidri ware. Silver filigree, Ivory and Lorn Nirmal work, Kalamkari etc. Among these handicrafts stone studded bangles is the speciality of Hyderabad city.

From Charminar, the famous land mark of Hyderabad city, runs a road to the west, known as Iad Bazar, a busy crowded street with numerous shops on both the sides. These bangles shops are found on both sides of the street, rather more on the right hand. The origin of this handicraft dates back as far as Qutub Shahi period. In the beginning it was in the city and even today Hyderabad claims to be the only place making this variety of bangles. The growth and expansion of this craft is very rapid, according to the growing tastes and demands of customers. The studding process of stones is done at the shop in most cases workshop-cum-shop.

(v) Asbestos, Cement, Brick and Paints:-

This group includes asbestos and cement products, drainage

pipes, cement tiles, sanitary wares and other sanitary wares and other sanitary fittings, nitro-cellulose paints and pigments, French polish, varnishes, enamels, hydraulic brakes and fluids. The total industrial units in this group are 62 situated in the twin cities. Almost all of them are small scale industries, except Hyderabad Asbestos Cement Products Ltd., at Sanathnagar which is one of the large scale concerns of the city. Indian Hume pipes Co. Ltd., and Hyderabad Potteries Ltd. at Bakaram are medium scale units. These three units grew with the increasing local demands for their products. The Hume pipes and Hyderabad Potteries were mainly to supply the drainage and water pipes in the twin cities. The government housing scheme for low income groups such as Hyderabad Improvement Board and Secunderabad Improvement Trust led to the establishment of asbestos and cement factory.

The Hyderabad Asbestos Cement Products Ltd., was registered under the old Companies Act, Hyderabad on 17th June, 1946. In the beginning the company used to manufacture the corrugated sheets and was sponsored under the patronage of the Nizam's Government. So far as the raw material of the manufacture is concerned, abundantly available in the State, except the asbestos fibre, which has to be imported. The company's products are the roofing sheets and pipes, which are one of the chief materials for the construction of all types of buildings. Therefore, it has a wide market all

over India. The present ownership of the company is under Birla Brothers, India and the productive capacity is 4,000 tons per month. The present employment potential of the concern is 565 persons, which is 205 per cent increase over 1953. The government of Andhra Pradesh share capital constitutes 16.2% of the total.

The Indian Hume Pipes Ltd., established in 1930. The main products are water and drainage pipes, RCC pipes and poles, non-reinforced pipes used especially for cables. The unit occupies an area of about $3\frac{1}{2}$ -4 acres, as it requires an open place to keep the finished products in the sun for a few days.

There are about 18 establishments connected with Paints, varnishes and French polish industries in both the cities. Location pattern of the paint industries shows a significant correlation in its distribution with a range of chemical and other types of industries. Most of them are located in Azamabad and Bakaram, which clearly suggests that it is due to the availability of oil and greases and the chemicals required for the manufacture of paints and varnishes. (Fig.15)

(vi) Light Engineering:-

This group consists of the metallurgical light engineering and moulding, forging, galvanizing and iron casting. The Hyderabad Iron and Steel works, the Allwyn Metal works and the Praga Tools Corporation are the principal large scale

metallurgical light engineering manufacturing units of the twin cities. The rest of the light engineering processes are done locally on a small scale.

There are 273 units in the twin cities (the ratio 1:4), in Secunderabad-Hyderabad. This group consists of Ferrous and non-ferrous metals and alloys works such as the copper wires, conductors, aluminium wire, P.V.C. cables, brass vessels, brass, copper, and aluminium wires, presentation articles of non-ferrous metals, conduit pipes, builders hardware, general and industrial castings, agricultural equipments, stainless steel hospital and commercial requisites etc. Almost all the units produce on a small scale, and cater the requirements of the city only. There are 5 units, manufacture on a medium scale, such as Vinayak & Sons, Messrs. Bombay Construction and Engineering Co. P. Ltd., and Federation of Industrial in Secunderabad.

The location pattern shows that they are mostly located in northern city, which indicates the expansion of the northern city is mainly due to the industrial development. (Fig.16)

(vii) Manufacture of machinery, except electrical goods:-

This manufacturing group includes the manufacture of motorist rikshaws, cycle spare parts, vegetable oil presses, spare parts, vibrators, fabrication of light steel structural fabrication and castings, weighing machines and panels and all types of industries and mills spare parts. There are 125

units in the twin cities. The structure of the manufacture of machinery shows that they are not enough to meet the requirements of the people of the twin cities. Most of the raw materials are imported outside the State and in some cases for instance, in the case of a stainless steel industry, they have to depend upon the foreign imported raw materials, e.g.

Although alloys and some ferrous metals are available in the open market, but a very few firms can really afford to buy, because of very high prices of the open market.

The location pattern of the manufacturing industries in the twin cities, show that most of them are located in Mushirabad, Azamabad and Kvadiguda industrial areas. Fairly large concentrations of this type of industry is also found south of the river Musi, in the old city area, almost in every ward, but they are confined only to the repairs of bicycle and rikshaw spare parts, as these two conveyances are used by the majority of the people. (refer Fig.16)

(viii) Electrical Goods:-

Electrical goods include electrical transformers and general appliances, air conditioners, deep freeze cabinets, refrigerators, radios, assembly of transistors and amplifiers, car radios and amplifiers, wireless receiving amplifiers, electrical insulation tapes and slabs. The total electrical goods units are 75 in the twin cities, and

they have the ratio of 1:7 in Hyderabad - Secunderabad Fig.17.

The electrical goods industries are developing rapidly, as the electrical goods are in great demand. Most of them are in small scale units of production, the main reason being the shortage of capital. There are a few large and medium scale industries such as Frizier Corporation, manufacturing air conditioners, and the produce is in a great demand especially during summer. Second is the Indian Insulation Co. which manufacture electrical insulation tapes. The annual productivity is 66,000 rools. The great demands for the electrical goods in the twin cities led the government to establish a heavy electrical enterprise in the State. Therefore, Bharath Heavy Electrical Project, Ramachandrapuram, Hyderabad, is one of the four major industrial projects covered under the Indo-Czech economic co-operation in the Third Year Plan. Ramachandrapuram is about 17 miles from Hyderabad city. This project covers one of the major industrial suburbs of the twin cities.

(ix) Plastics, Polythene and Nylon Articles:-

The plastic goods industry has expanded rapidly since the last decade in the twin cities. This group includes the manufacture of plastic hand bags and lamp shades, nylon buttons, bangles and fancy goods, radio cabinets and presentation articles, toys and fancy jewellery, etc. A significant feature of the plastic goods industry is, they



Fig. 17

are localised in the old city, Begum bazar and Sultan bazar areas. They have a strong correlation with cardboard box manufacturing industries. There are 65 plastic goods industries in the twin cities, except for a few rather big industries located in Secunderabad, the rest of them are in Hyderabad. There is only one large scale industry, i.e. Hyderabad Laminated Products Ltd., at Sanathnagar. The company was established in 1946, with the collaboration of H.E.H. the Nizam and Messrs. Bakelite Ltd., London, who were pioneers in plastic production. For better operation of the factory, the managing agency was transferred in 1951 from Messrs. Khan Bahadur Ahmed Alladin & Son Ltd. to Messrs. Best and Company Limited. (refer Fig.17)

The main products are synthetic resin (phenolic and polyester), bonded laminated sheets and tubes, and moulding powders. Hylam Ltd., is one of the large scale industries total factory building area is 64,112 Sq. metres. ⁵ Location of the industry in this particular area is benefited by many factors, for instance, the labour availability and infrastructures and the government assistance of 33.33% of share capital. Apart from this, the main choice of location is the nearness to the urban nucleus of Hyderabad-Secunderabad and the availability of transport facilities,

5. Information provided by the personal manager of the firm, in accordance with the questionnaire.

such as, buses and railways.

The produce has wide markets all over in India, and 90 per cent of the manufacture is sent outside the State and it is only 5% that is sold locally. The remaining 5% is exported to Holland and Spain. The firm employs more than 600 people. The freight rates are F.O.B. destination, in the case of both, rail and road transport.

6. LOCATION PATTERN:-

The location pattern of the industries in the twin cities consists of two industrial estates viz. Sanathnagar and Chandulal Baradari, four industrial areas, which are major concentrations of small, medium and large scale industries. This area covers about 400 acres as shown in Table No. V.

Table No. V Industrial area in the Twin Cities

Name of the Industrial Area.	Acres.	Location
1. Lallaguda Industrial Area	60	Secunderabad
2. Tank Bund " "	100	Hyderabad
3. Musheerabad " "	200	"
4. Min and Oower House " "	35	"

Apart from these industrial areas, small scale service type of industries are found all over in the twin cities.

So far as the origin of Sanathnagar is concerned, it

goes back to the Second World War period, when Bren gun factory was set up by the Czechoslovakia Government (in exile), with the assistance of the British Government. After the War, the Government of India allowed a local industrialist to acquire the land and buildings of this project and a number of large scale industrial units like Hyderabad Allwyn Metal works, Hyderabad Asbestos Cement products were located thereon. Later on a portion of this land and other adjoining lands were acquired by the Government of Andhra Pradesh for establishing Sarathnagar industrial estate and a labour housing colony. Several other private enterprises also acquired land in the vicinity where they have located their industrial plants. Now it is rather over-crowded industrial estate. Industrial location in this particular part of the city was facilitated by the National Highway, joins Hyderabad to Bombay.

So far as the other industrial estate, at Chandulal Baradari, in the old city of Hyderabad, about a mile from Charminar and about three furlongs from Hyderabad. Mahboobnagar Trunk road is established in 1960. The main object of establishing the estate in this area is to relieve the acute problem of unemployment in the old city. The estate covers an area of 30 acres and consists mainly of small scale industries.

The location of industries, in general, in the twin cities, represent a pattern of industrial concentration in

the north of the city and a mixture of cluster and scattered in the south of the river Musi. Therefore, it is a complex pattern of concentration and scattering.

The spatial pattern of industries in both the cities show that the trends of industrial developments are in the western and eastern outskirts of the twin cities, namely Sanathnagar-kukatpally and Maula Ali industrial areas respectively. The industrial development and expansion in these two directions have been facilitated by the two National Highways, which join the city of Hyderabad with other big marketing centers. One is the National Highway No. 9, which passes from west to east, connecting Vijayawada on one side and Sholapur and Bombay on the other side. Second is National Highway No. 7, which goes from south to north, connecting Bangalore on one side and Nagpur on the other. (Figure).

Apart from these, a number of important state highways, spread in different directions from the city. For instance a State highway, connecting Nrdak district, Warangal and Nagarjunasagar, starts from the city. Therefore, all these highways serve as best means of communications for the export of the industrial products. Moreover, they are much help for the industrial location on all sides of the city.

Conclusion:-

According to functional and occupational classifications, the twin cities are primarily administrative centres, with trade and commerce as a second important occupation, especially in Hyderabad (Fig.No.14). But in Secunderabad trade and commerce are dominating functions, which apparently shows in its history and origin, when it established, as a military cantonment in 1797. After the independence in 1947, Secunderabad gained the impetus, as a commercial centre, when a number of large and medium scale industries established their head offices and show-rooms in Secunderabad, e.g. Hylan Limited established their head office at Rashtrapathi road, one of the main thoroughfare of Secunderabad, Allwyn Metal Works, Hindustan Machine Tools, and Praga Tools etc. As a result of this land values are considerably high, particularly in the commercial thoroughfares like Mahathma Gandhi road and Rashtrapathi road in Secunderabad and Bashir Bagh road, Mahathma Gandhi road and Jauarlal Nehru road in Hyderabad.

CHAPTER VIINDUSTRIAL ESTATES IN THE TWIN CITIES

A study of the industrial structure of the twin cities reveals that the establishment of the industrial estates in the suburbs of the cities has increased the urban and industrial growth considerably. There has been a steady shift of population from rural areas of unemployment, in search of employment and living towns. The industrial estates draw a large proportion of their labour force from the surrounding rural villages.

There are three different types and sizes of industrial estates that have been established in the suburbs of Hyderabad- Secunderabad and one industrial estate, viz., Chandulal Baradari in the old city of Hyderabad about a mile from Charminar. Among the suburban industrial estates Sanathnagar is on the western outskirts of the twin cities, on Hyderabad-Bombay road. The second is the Co-operative industrial estate in the same Sanathnagar industrial area. The third is Maula Ali industrial estate near Maula Ali railway station, eight miles from Hyderabad.

1. Origin and Objectives of industrial estates:-

Towards the end of the 19th Century, a method of organising, housing and servicing industry began in some of the economically advanced countries of Western Europe and United States. A few organisations were set up for the

for the purpose of assembling, improving and subdividing the tracts of land and later on erecting factory buildings, according to a comprehensive plan and demand, either for sale or lease to the industrial occupants. Different types of common-services provided by the developing agency. These organisations known today differently, in various parts of the world to denote industrial estates. In the United Kingdom, for instance, they are known as 'trading estates' or 'industrial estates', 'industrial zones' in Italy, 'industrial subdivisions' in Puerto Rico, and 'industrial estates' in India.

The first industrial estate, established in 1896 in the United Kingdom, at Trafford Park, Manchester. In the United States, the Clearing Industrial District, near Chicago, established in 1899. In Italy, the industrial zone of Naples was founded in 1904. During the last decade, the industrial estates have also been established in other advanced countries such as the Netherlands, in Canada near Toronto, Ontario and Vancouver, Belgium, Denmark, Finland, Sweden and Switzerland.

In India, the establishment of industrial estates is one of the most important measures aiming at the promotion of small-scale industries. According to the Industrial Policy Resolution, 1956, one of the features of the industrial policy is to establish the industrial estates throughout the country. The programme of industrial estates, as a tool for the

development of small-scale industries was first adopted in India by Small Scale Industries Board in 1955. The first Industrial Estate established by the former Government of Saurashtra (now in Gujrat State) on a 20 acre plot near Bkaktinagar railway station in Rajkot.¹ Later on, ten more industrial estates were sanctioned by the Government of India, by the end of the First Five Year plan period. But the only one estate, i.e. Okhla, near New Delhi was partly constructed during this plan period.

Greater impetus was given to the industrial estates programme under the Second plan period (1956-61). The initiative for creating industrial estates throughout the country was taken up by the Central Government, which also set forth basic policies and provided financing for their establishment. But the operation and the management of a great number of industrial estates, which are scattered throughout the country was not possible for central authorities, if they were to be carried on efficiently. Therefore, the responsibility of construction and management of industrial estates at later stages, was given to the State government. There were 120 industrial estates of different types and sizes established in India by the end of the Second Five Year plan.²

1. Alexander, P.A., Industrial Estates in India, Asia Publishing House, Bombay, 1963, pp.17

2. Ibid, pp.19

The total expenditure incurred on them was Rs. 11 crores (Rs. 110 million c., £7,860,000). Although a complete report for all the units functioning in the industrial estate has not yet been compiled, the information gathered from different reports and bulletins is that altogether 790 units are working on these industrial estates and employing more than 13,400 workers. So far as the production in these industrial estates is concerned, they covered a very wide range of consumer and simple producer goods, such as radios and radio spare parts, transistors and other electrical goods. A list of the industries and their main production in India is given in Appendix 1.

According to the Third Five Year Plan (1961-66), the Planning Commission has recommended to set up 300 industrial estates during the plan period.³ The new estates will be located, as far as it is possible, in small and medium sized towns and selected rural areas, where such facilities as power, water supply and transport are available.

The main objective for the establishment of the industrial estate is industrial decentralisation. Governmental policies have used industrial estates to provide more employment opportunities. Decentralisation policies have used industrial estates to disseminate

3. Government of India, Planning Commission, Third Five Year Plan, (Summary), New Dehli, 1962, pp. 119

population from large urban centres, in order to provide an economic base for a new industrial township, or a growing suburb of a metropolitan area. The second objective is to remove the small industrial units from crowded urban areas. Industrially developed countries, have been particularly concerned with relieving congestion in metropolitan areas, since the great depression of the 1930's with problems of employment and growth in depressed areas. Therefore, Regional development policies are governing the establishment of industrial estates. Broadly speaking, industrial estates are mainly used in the industrially advanced countries as a device for the planned location of industry, and in the industrially under-developed countries, as an instrument for industrial development.

2. Industrial estates as a means of promoting small-scale industry:-

In a developing economy like India, where the small scale industries form the back-bone of the industrial structure, require special attention, guidance and assistance in every aspect of industrial activity. India's industrial estate programme is in other words, the country's small-industry development plan. The establishment of industrial estates, throughout the country, are a major instrument for encouraging and supporting the expansion and modernisation of small-scale industries,

by providing the essential facilities, such as factory accommodation, supply of power, water, assistance and servicing throughout all stages of establishment and operation.

Small-scale industries in India, as in all developing countries, suffer from several handicaps. The chief among them are inadequate capital resources, lack of knowledge of modern techniques, and shortage of trained personnel. The main objective of the development programme for small scale industries in India is to help small scale industrialists to overcome the handicaps so that in the long run they can develop a self-sustaining unit. Therefore, the development of small-scale industries, together with the medium and large-scale industries will help in maximising the industrial and urban development of the country.

A chief merit of industrial estate is that it groups together a number of small scale industries in a particular tract of land, which facilitates the provision of various measures of technical, financial, managerial and marketing assistance. Finally, the grouping of small-scale industries in an industrial estate, permits the establishment of common servicing centres, the introduction of modern techniques, collective purchases of raw materials and sale of finished goods.⁴

4. United Nations, Industrial Estates: policies, plans & progress, New York, 1966, pp. 7

Thus the establishment of industrial estates, provides an ideal tool for the integrated development of small scale units.

3. Location of Industrial Estates in (Andhra Pradesh)

Relation to Regional and Urban Planning:

In the early stages of the programme, the industrial estates were mostly located in cities and towns. But it is one of the objectives of the scheme of the industrial estates, that they should be located in backward regions, Community Development Blocks and rural areas.

It has been experienced, throughout the world during the last three decades, that population tends to concentrate in large urban centres, which eventually leads to slums, congestion and related social problems. Therefore, decentralisation of industries is one of the favoured measures of reducing the population pressure from the urban and metropolitan areas. The second device of locating an industrial estate in a less developed and rural area, with a population of less than 50,000 persons, has been found quite successful and practical.

The size of the population of an area by itself does not indicate the industrial potential of an area. However, places with population of over 50,000 are

comparatively more developed areas, and one could realize that, further location of industries in this particular area might lead to congestion. There are many techniques, which now have been adopted in order to make it possible for industries not to locate in an urban and metropolitan areas. Provision of the necessary infrastructure, for instance, improved means of financing, the use of ready-built factories, favourable terms of securing equipment and assistance in the training of workers are some of the devices which can attract an industrialist to locate the industries in a rural area: as William Bredo says '... the means for creating economic nuclei for spearheading industrial decentralisation ... whereby the local infrastructure and the external economies demanded by entrepreneurs as a pre-condition for industrial clustering can be deliberately created and used for executing an industrial dispersal programme.'⁵

As one of the positive steps taken for the development and dispersal of small scale industries, Andhra Pradesh launched upon a programme of industrial estates in 1957. The following eight industrial estates in different districts were set up in Andhra Pradesh. (Figure 18)

5. William Bredo, 'Industrial Development and Urban Growth with Particular Reference to Industrial Location', Seminar on Urbanisation in India, University of California, 1960, Paper No. 9.

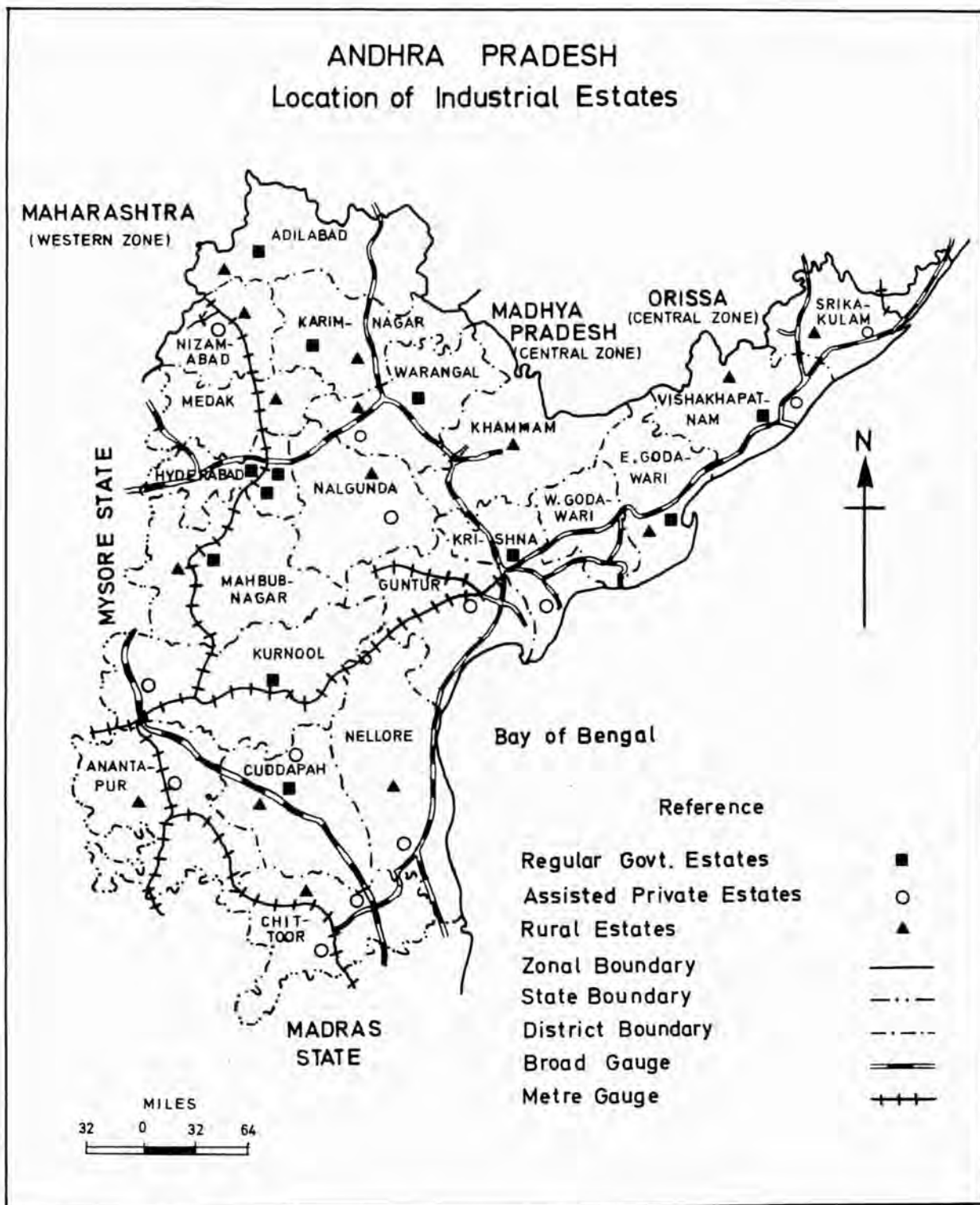


Fig. 18

1. Sanathnagar (Hyderabad)
2. Warangal
3. Vijayawada (Krishna)
4. Samalkot (East Godavari)
5. Visakhapatnam (Visakhapatnam)
6. Naudyal (Kurnool)
7. Cuddapah (Cuddapah)
8. Chandulal Baradari (Hyderabad)

These eight industrial estates have been established at a cost of Rs. 149,00 lakhs (Rs. 14.9 millions c., £106,400) and consist of 202 industrial units have provided employment to 2,100 workers. Further details of each estate consisting of different types and sizes of industrial units is given overleaf in Table No. I

Almost all of the above mentioned estates were established during the Second Five Year Plan (1956-61). At that time the main objective of the location of the industrial estate was to develop the small-scale industries. Therefore, the estates were located in or near the large urban centres, where the best prospects existed for occupying the units as such. But by the beginning of the Third Five Year Plan (1961-66) with the regional and urban planning programmes, the location concept of industrial estate changed considerably. For instance, decentralisation of industry, development of backward areas and rural industrialisation began to

Table No. I

Industrial Estates in Andhra Pradesh,
Size and Types of Industrial Units, 1964 6

Name of Estate	Cost of Scheme (Rs. Lakh)	Types and numbers of Industrial units							Total Units	Acreage of the Estate
		A	B	C	D	E	F	G		
1. Sanathnagar	51.60	3	28	26	-	-	-	-	57	90
2. Warangal	11.18	-	-	2	8	4	8	-	22	31
3. Vijayawada	22.33	2	4	8	8	-	-	-	22	54
4. Samalkot	7.00	-	-	-	-	4	6	14	24	27
5. Visakhapatnam	29.71	3	5	10	15	-	-	-	33	52
6. Nandyal	3.22	-	-	-	-	-	4	6	10	9
7. Cuddapah	10.00	-	-	2	-	8	6	-	16	21
8. Chandulal-Baradari	13.92	-	4	6	8	-	-	-	18	30
TOTAL	148.96								202	314

6. Industrial opportunities in Andhra Pradesh, The Department of Industries and Commerce, Andhra Pradesh, 1964, pp. 2

assume greater importance.

Regional development policies governing the establishment of industrial estates are very significant in industrially developed countries, which have been increasingly concerned with relieving congestion in metropolitan areas, particularly since the great depression of the nine-teen thirties with problems of employment and growth in depressed areas. In Andhra Pradesh, during the Third Five Year Plan with an assumption of regional and urban planning, three regular Government Estates, eighteen Assisted Private Estates and eighteen Rural Industrial Estates have been established, besides the substantial expansion of some of the existing industrial estates.⁷ These are the main types of industrial estates found in Andhra Pradesh.(refer Fig.18) The main criteria for recognising the classification are the type of facilities provided and the location. Out of 18 Assisted Private industrial estates, 14 have been established in different districts of Andhra Pradesh are as given overleaf.

The regular Government estate is also known as 'conventional' Government estate, applies to such estates

7. Andhra Pradesh Industries Bulletin, The Director of Industries and Commerce, Andhra Pradesh, Hyderabad, 1965, pp. 4

Table No. II Location and Number of Plots in Assisted
Private Industrial Estates, Andhra Pradesh.

Location	Number of Plots Allotted.
1. Jangaon (Warangal Dist.)	48
2. Guntur (Guntur Dist.)	41
3. Eluru (W.Godawari Dist.)	38
4. Masulipatnam (Krishna Dist.)	32
5. Adoni (Kurnool Dist.)	44
6. Amadalabalasa (Srikakulam Dist.)	40
7. Nellore (Nellore Dist.)	43
8. Anathapur (Ananthapur Dist.)	38
9. Palakole	28
10. Rajahmundry (E.Godawari Dist.)	49
11. Vijayanagram (Vishakhapatnam Dist.)	30
12. Chittoor (Chittoor Dist.)	43
13. Tirupati (Chittoor Dist.)	22
14. Proddatur (Cuddapah Dist.)	46

where apart from providing the common service facilities and the development of infrastructures, the factory building is also constructed by the Government. The Industries Department has evolved a modified scheme known as Assisted Private Industrial estates. Under this scheme the common service facilities and the developed plots are provided by the Government and the industrialists are supposed to construct their own units. It is more or less a joint venture between the Government and the industrial occupant. Thus, fully developed factory sites are made available on long term leases to occupants. The industrialist has to construct the factory building according to approved type design, instal machinery and equipment required for his enterprises. He can avail liberalised loan up to 60 per cent towards the cost of building and 75 per cent towards the cost of machinery, offered by the Department of Industries and Andhra Pradesh Financial Corporation. The third type is rural industrial estate, more or less like the conventional type, but smaller in size, in accordance with the requirements of the rural communities.

The main purpose for recognising the above mentioned three types of industrial estate is to achieve two basic objectives, i.e. industrial development and decentralisation. Andhra Pradesh being industrially an underdeveloped State,

it is one of the vital governmental policies to use the industrial estates as an instrument to maximize the process of industrialisation, but at the same time equal emphasis is also given to the decentralisation of industries, i.e. by locating the industrial estates in rural and backward regions. Therefore, by adopting different types of industrial estate the concept of regional and urban planning can be achieved, which consequently leads to the balanced growth and development of the State.

4. Planning and Organisation of Industrial Estate;

The planning of an industrial estate, primarily involves the investigation and planning of the site for an industrial estate and its physical features like water level, availability of power and proximity to rail, road and other means of transport. One of the main objectives of the location of industrial estates is to accelerate the rate of industrialisation and the development of a particular area. The scheme of industrial estates for the development cannot be treated as an isolated scheme, as the success of the particular scheme depends, to a great extent, with other schemes of development.

Obviously, a mere collection of factories cannot set in motion the process of industrialisation, but they have to be served with roads, railways, power and water supplies, hospitals, residential neighbourhoods, schools and other

service facilities in order to enable them to function as instruments of development. Therefore, the establishment of an industrial estate is related phenomenon, and should fit into a carefully thought out frame-work of area planning and land uses.

The scheme of establishing the industrial estates, have been sponsored by a number of agencies in different countries. In the industrial countries, the earliest estates motivated limited companies. After 1930, the direct government sponsorship began for the first time in the United Kingdom. The major developments of the estates, since the 1950s have been largely sponsored by the Government. Although in some countries, for instance, Australia, Canada, South Africa and the United States private sponsorship continues to play an important role.

In India and in other developing countries, the initiative and responsibility for setting up the first industrial estates was taken by the Government. As in India, the private institutions and community organisations lack the means and experience to organise and particularly to finance the industrial activities. It is only the Government that is able to provide the financial assistance, the incentives of promotion and the measures to stimulate, guide and support the private entrepreneurial efforts. Now in India, industrial estates are sponsored by the

State governments, but the technical co-ordination and financing being provided by the central government. In Canada, Netherlands, South Africa and the United States, the industrial estates are sponsored by municipalities and local authorities, often in co-operation with the Chambers of Commerce.

Most of the industrial estates functioning in India to-day have been set up by the state governments. The directors of industries of the state governments, plan and organise the location and construction of industrial estates with the help of the State Public Works Department and are responsible for the collection of rent and hire purchase instalments.

So far as the size of the industrial estates is concerned, the Planning Commission has adopted few norms for the sizes of the industrial estates, i.e. utilisation of space in the estate. In the planning of an estate, emphasis is laid on the most economical utilisation of land available. Therefore, estates are planned and classified according to the sizes given below:

1. Large estate - over 30 acres
2. Medium estate - 30 acres
3. Small and rural estates - under 10 acres
4. Workshed - under 2 acres

The norms of land utilisation in the above mentioned

sizes of industrial estates, suggested by the Planning Commission is given below in Table No. III

Table No. III

Land Utilisation in Industrial Estates.

Facility	Large	Medium	Small
	P e r c e n t a g e		
1. Factory Plots	55	50	40
2. Roads and Open Spaces	35	35	40
3. Administrative and other buildings	10	15	20

The norms pattern facilitates the adoption of standard design, ensures the economy of land and speeds in construction. In order to facilitate smooth flows of raw materials and finished goods, liberal provision has been made for roads.

5. The Structure and Character of Sanathnagar and Chandulal Baradari Industrial Estates: 8

a) Sanathnagar is the largest industrial estate in the State of Andhra Pradesh. It is located on the western outskirts of the twin cities, in an area earmarked for the industrial development of Hyderabad-Secunderabad. This well-planned industrial suburb of Sanathnagar is just outside the Municipal limits, developed during the Second World War on Hyderabad, Bombay trunk road.

The estate has been planned to facilitate a considerable industrial expansion. At the original stage, the estate acquired 50 acres of land with 30 factory buildings during 1957. As there has been an increasing demand for industrial accommodation on this estate, further land to an extent of 178 acres to the north, has been incorporated with existing estates. Out of this a portion of about 50 acres has been allocated for the establishment of a co-operative industrial estate which is the first of its kind in Andhra Pradesh. Now all the plots under this expansion programme have been allotted.

8. The analysis of both the industrial estates is based on the field work of author. A total 85 units of Sanathnagar and 30 units of Chandulal Baradari industrial estate were personally visited, the Directors and managers of the units co-operated in furnishing the necessary information according to questionnaire provided by the author. The questionnaire is given in Appendix II

Sanathnagar industrial estate, one of the large estates of India, covering an area of 90 acres. There are 95 factory buildings consisting 7 'A' type units, 48 'B' type units and 40 'C' type units. The accommodation and the rent are shown below in Table No. IV and Figure No. shows an outlay of the industrial estate.

Table IV Size and types of factory buildings in Sanathnagar industrial estate.

Type of factory	Size of workshop portion	Total plinth area	Economic rent per month	Subsidised rent per month
'A'	80 x 80	9187 Sq.ft.	Rs.1,530/-	Rs.735/-
'B'	80 x 40	9756 Sq.ft.	Rs. 797/-	Rs.381/-
'C'	50 x 40	3164 Sq.ft.	Rs. 530/-	Rs.254/-

There is a variety of industries occupying land on this Estate, such as, Light Engineering, Sheet Metal works, Metallurgical industries, Electronic and Electrical Industries, chemical industries etc. A list of all types of industries and their main products is given in Appendix III. The main products are razor blades, plastic products including plastic foam, steel furniture, bicycles and their spare parts, survey equipment including precision levels, electric motor grinders, radios and spare parts, tape recorders, inter-communication sets,

HYDERABAD — SECUNDERABAD LAYOUT OF INDUSTRIAL ESTATE AT SANATHNAGAR

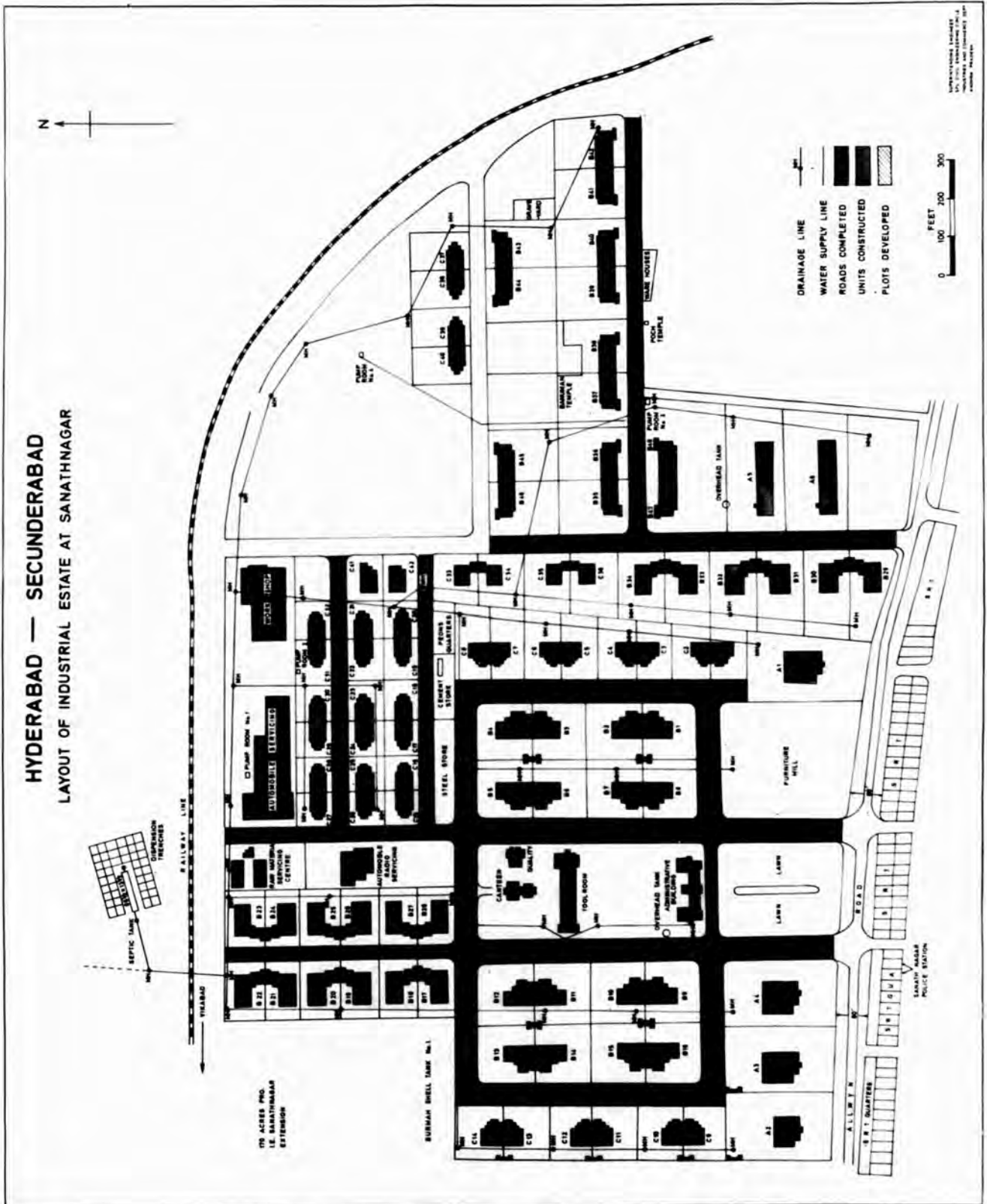


Fig. 19

HYDERABAD PROJECT
BY THE HYDERABAD MUNICIPAL CORPORATION
HYDERABAD, INDIA

microphones, P.H. meters, oscillators, P.V.C. coated fabrics, surgical instruments, different types of electrical accessories, and air cooler sets. The industrial estate provides servicing facilities to the industrialists by the establishment of Tool Room Servicing Workshop and Raw material supply depots.

Some of the industries located in this industrial estate require particular mention and are, first of their kind in the twin cities of Hyderabad-Secunderabad. For instance, U-Foam Private Ltd., manufactures Polyurethane flexible foams, second is Electric Transformer and Equipment Company, manufacturing different types of transformers, such as Distribution Transformers, Three phase to single phase Transformers, Meeting sets, High Voltage and High current testing transformers, Frequency Triplers, Moving Coil regulators. Third is Electronic and Industrial Instruments Equipment Company (Private) Ltd., manufacturing P.H. Meters, million Megohm Meters, Dicillators and Transformers. The Commercial Chemical Co. (India) Private Ltd., manufacturing fine chemicals for pharmaceuticals and industries is Synthopharm, Krishna Engines Private Ltd., is also one of the biggest firms in the State manufacturing Kerosene engines, power tillers, Auto-trollies and pumps, etc. Dasaratha Raj (Private) Ltd., is the only factory in

the State, prints the bus tickets, Bank cheques and some other security matters. The federal Sports, which manufacture bicycle chains and spokes, Radio Spare Parts and Receivers Unit (owned by Andhra Pradesh Small Scale Industrial Development Corporation) and Mahomed Ebrahim and Company are the **biggest** factories of the estate manufacturing radio spare parts and receivers, car radios, Intercom sets, Hi-Fi Gramaphones, and tape recorders respectively. U-Foam Private Ltd., has made tremendous progress in the manufacture of plastic articles, since it established in 1960, U-Foam is the trade name for Polyurethene Foam. It is made by the accurate reaction between three or four chemical components which inter-react and cross-link with each other to form a permanent foamy mass, consisting of millions of air cells, which provides cushioning comfort. The development of the polyurethene foams date back to the discovery of the disocyanate polyurethene **process** by Otto Bayer and others at Leverkusen in 1937. This process underwent further research and changes in the following years which resulted in new possibilities being opened up for the manufacture of high quality **plastics**. This type of foam is used in furniture cushioning, all types of vehicles seating, Acoustical insulation, mattresses and pillows, carpet underlay, antivibration padding and domestic clearing.

The firm preferred the choice of location in Hyderabad city, for its central position and an easy access to the other big marketing centres like Bombay, Madras and Bangalore. The main raw materials are resin and disocynites, which the import from the U.K. and West Germany, 62 and 120 tons per annum respectively. The other materials like pigments (200 kilos) textile /36,000 metres) and adhesives (48,000 litres) are imported mainly from Bombay. The foam industry employs 6 skilled 12 semi-skilled and 70 unskilled operatives. So far as the secretarial staff is concerned, it includes 4 Executive officers and 20 other staff members. They do not employ any women. The product being in a great demand, not only in the State, but all over in the country, they work in two shifts. The foam articles have a wide market, as it is obvious by their exports of 2,000 kilos to local market which includes the twin cities and the whole States of Indian Union and 77 kilos weight of foam articals to Malayeshia. All produce is sold at F.O.B. being favoured by rail and road freight rates.

General assessment can be that the firm is at a flourishing stage. The total annual turnover is Rs. 3,200,000 c., £160,000/-.

Electric Transformer and Equipment Co., is one of its kind in the twin cities. Different types of

transformers such as power and distribution transformers, Furnace transformers, high voltage high current testing transformers etc., are manufactured under ideal conditions in a modern well-equipped factory specially laid out for the product, ETE selected Hyderabad for its location, mainly for its dry and non-humid climate. Its altitude of 1,750 ft. above mean sea level on the Deccan plateau ensures the ideal conditions for the manufacture of high voltage electrical equipments. All transformers manufactured by ETE are normally designed and tested to comply with the latest British and Indian Standard Specifications. A special feature of ETE transformers tanks is the provision of cooling radiators with incorporation of elliptical tubes, this design minimising the oil requirement of the transformer and at the same time substantially reducing the floor space requirements for a given capacity of transformer. The basic raw materials used in the manufacture of the transformer are copper, mild steel plates, steel, silican, lamination, transformers oil and cooling tubes. Hardwares constitute only 2% of the raw material, available locally, the rest of the materials are imported. Bombay and Madras are the sole suppliers of copper i.e., 80 tons per annum. Steel required, is 100 tons per year, imported from Tata Iron and Steel Co., and Hindustan Steel Ltd.,

Electric Transformer and Equipment Co., employs 15 skilled, 50 semiskilled and 20 unskilled labourers. Other staff is of 35 people, which includes the salesmen also. It is only 5% of the finished product sold within the State of Andhra Pradesh and the rest of 95% is exported to all other States of the Indian Union. The firm manufactures 300 units of 30,000 K.V.A. annually.

Scientific Engineering House, (Private) Ltd., in industrial estate is one of the big firms, established in 1949. The main products are Surveying and drawing instruments, such as, Theodolites, Microscopes, Dumpylevels, Prismatic compass, and other drafting instruments. Since the factory being metal oriented, such as Brass rods, required 3-4 tons yearly, sell 2 tons and other types of screws and pinewood is supplied by Bombay. Plastic sheets, microscopes lenses, and other accessories for theodolites are imported from England, Japan and Hungary. Teak-wood, wooden screws, paints and electroplating material is available locally and the factory buys 3,000 cubic feet. The firm employs 100 skilled, 60 semi-skilled and 60 un-skilled labourers, other employees are 23. The finished product has a wide market all over in the country, therefore 75% of the produce is exported. It is only 20% sold within the

State, but the factory is gaining confidence in overseas, e.g. Malaysia and set-squares.

b) CHANDULAL BARADARI INDUSTRIAL ESTATE:-

The estate is located in the historic Chandulal Baradari (The Palace of Maharaja Chandulal, Primeminister of Hyderabad State, during the period of Afzaluddaula, Nizam V) in the old city of Hyderabad, about a mile from Charminar. The main objective of locating an estate in this area is to relieve the acute pressure of un-employment in the Twin-cities and more particularly in the old city. Fig.20 The estate covers an area of 30 acres. There are seven 'b' types, 12 'c' types, 18 'd' types and 4 'f' types of factory buildings in this estate. Table No. III given below shows the particulars of factory units.

Table No. V Size and types of factory buildings in Chandulal Baradari industrial estate.

Type of Unit	Size of Work-shop	Built-up Area in Sq. ft.		Total
'B'	80 x 40	3,537	1,219	4,756
'C'	50 x 40	2,273	720	2,993
'D'	58.6 x 27.9	1,880	538	2,418
'F'	38.6 x 27.9	1,281	327	1,608

The industrial estate being on a small scale, there

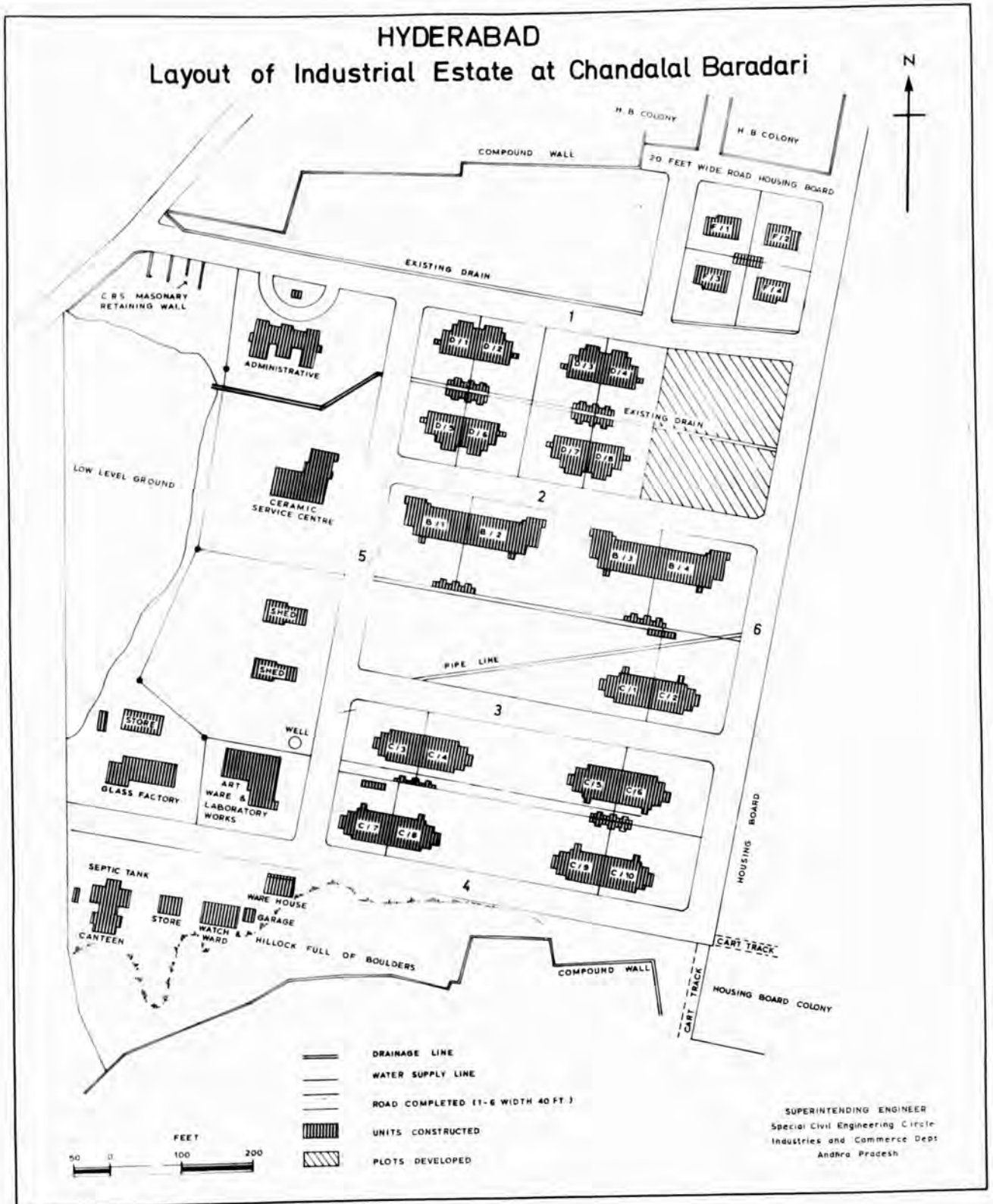


Fig.20

is not much scope of having a variety of industries. Nevertheless a list of industries and their line of manufacture is given in Appendix IV. The main products are centrifugal pumps, casting of diesel and Kerosene engines, sanitary wares, conduit pipes, stainless steel articles, aluminium containers and steel furniture. So far as the service facilities are concerned, except the bare necessities, such as water supply by the Hyderabad Water Works Department, power by State Electricity Department and drainage system was completed by Hyderabad Municipal department, are available.

Some of the industries located in this industrial estate are making a positive contribution towards the rate of growth of that particular product. Fitwell Industries, for instance, manufactures steel furniture (hospital and office furniture) is the third in its kind, the first being Allwyn Metal Works, second Utility Metal Works. Though the pioneer of steel furniture is Godfrey Steel Furniture Co., in Hyderabad Fitwell Industry is the first industry manufacturing the folding steel furniture in the old city of Hyderabad. The main raw material is mild steel sheets, aluminium tubes and hard-ware paints. Bhilai and Tata Iron and Steel Companies are the sole suppliers of steel. The annual production is 1,000 pieces of different types. Total annual turnover is Rs.300,000 c. £1,500. The

firm has a good local market of finished products, as they sell 60% locally and 20% of the finished product is exported mainly to Nizamabad and Warangal.

Bharat Steel and Sheet Metal works is also one of the main firms of the industrial estate, Chandulal Baradari. The main products are stainless steel surgical instruments, such as Kidney trays and operation trays, stainless steel domestic utensils, Hexagonal wire netting, which is mainly used for fencing and other building purposes and plastic toys, 90 different types of pressed dolls and plastic buttons. The main raw materials are polythene and polystrene, supplied by I.C.I., stainless steel sheets are imported from the U.S.A. and steel from Japan for wire-netting. The firms employs 40 labourers including 7 secretarial staff. 50% of the finished product is sold locally and within the State of Nizamabad, Warangal, Guntur Nellore, Mahboobnagar and Kurnool. The other 50% is exported mainly to Bombay, Puna, Nasik, Sholapur Gulburga, Aurangabad and Adoni.

Foam Rubber Factory is the first of its kind in the old city of Hyderabad, after U-Foam Industry, Sanathnagar industrial estate. The main products of Foam Rubber Factory are bus seats, cycle rikshaw seats, mattresses, This is the first factory in Andhra Pradesh, which manufactures the rubber cavity sheets on a particular compound of 60% rubber (Latex all imported from Kerala)

and 40% of Amonia and Water. One interesting thing about the finished product is only 5% of the total is sold locally within Hyderabad-Secunderabad, and 95% is exported to Bombay, at F.O.B. frieght rates.

The general assessment of the industries in all the industrial estates of the twin cities can be summarised as follows. There is a general lack of skilled labourers in both the cities. The second drawback is the scarcity of raw materials, particularly in the case of those industries using iron and steel, stainless steel, copper and aluminium. The rate of automation in the industries is very low (about 5-10% only) and in most of the industries the entrie process is done by the labourers. Therefore the labour unions are quite strong and more that 90% of the labourers are members of the INTUC (Indian National Trade Union Congress) and APSTUC (Andhra Pradesh State Union Congress).

6. Moula Ali and Co-operative Industrial Estates:

During the Third Five Year Plan (1961-66), under the programme of establishing industrial estates in Andhra Pradesh, the two more industrial estates, namely, Co-operative industrial estate, Balanagar and Moula Ali industrial estates have been established in the twin cities. Co-operative industrial estate, at a cost of Rs.6.2 lakhs

c., (£48,000) has been taken up, on the pattern of Assisted Private industrial estate, the first of its kind. This scheme has been adopted, because of its pilot nature and the beneficial impact on implementation of such a venture is likely to have on the development of the Co-operation in the industrial field.

Co-operative industrial estate occupies a land of 50 acres in the north of Sanathnagar industrial estate. There are 15'A', 14'B', and 14'C' types of factory units provided with the common facilities in the Co-operative industrial estate. Fig. 21. Being planned on the pattern of Assisted private industrial estate all the plots have not been occupied yet, still the scheme is in progress.

The second industrial estate which has been established during the Third Five Year Plan is at Moula Ali, on the eastern outskirts of Hyderabad-Secunderabad. Moula Ali industrial area is one of the five major industrial areas of the twin cities, it is favourably located on Central Railway, (Meter guageline) which joins Vijayawada via Kaxiptt and Khammam. About 35 acres of land has been acquired by the Government, to establish a conventional type of industrial estate (Fig. 22). As the land was available at cheaper rates of the eastern outskirts of the twin cities, and it is expected that the development of the industries and their townships will take place on this direction within a few years.



Fig.2 1

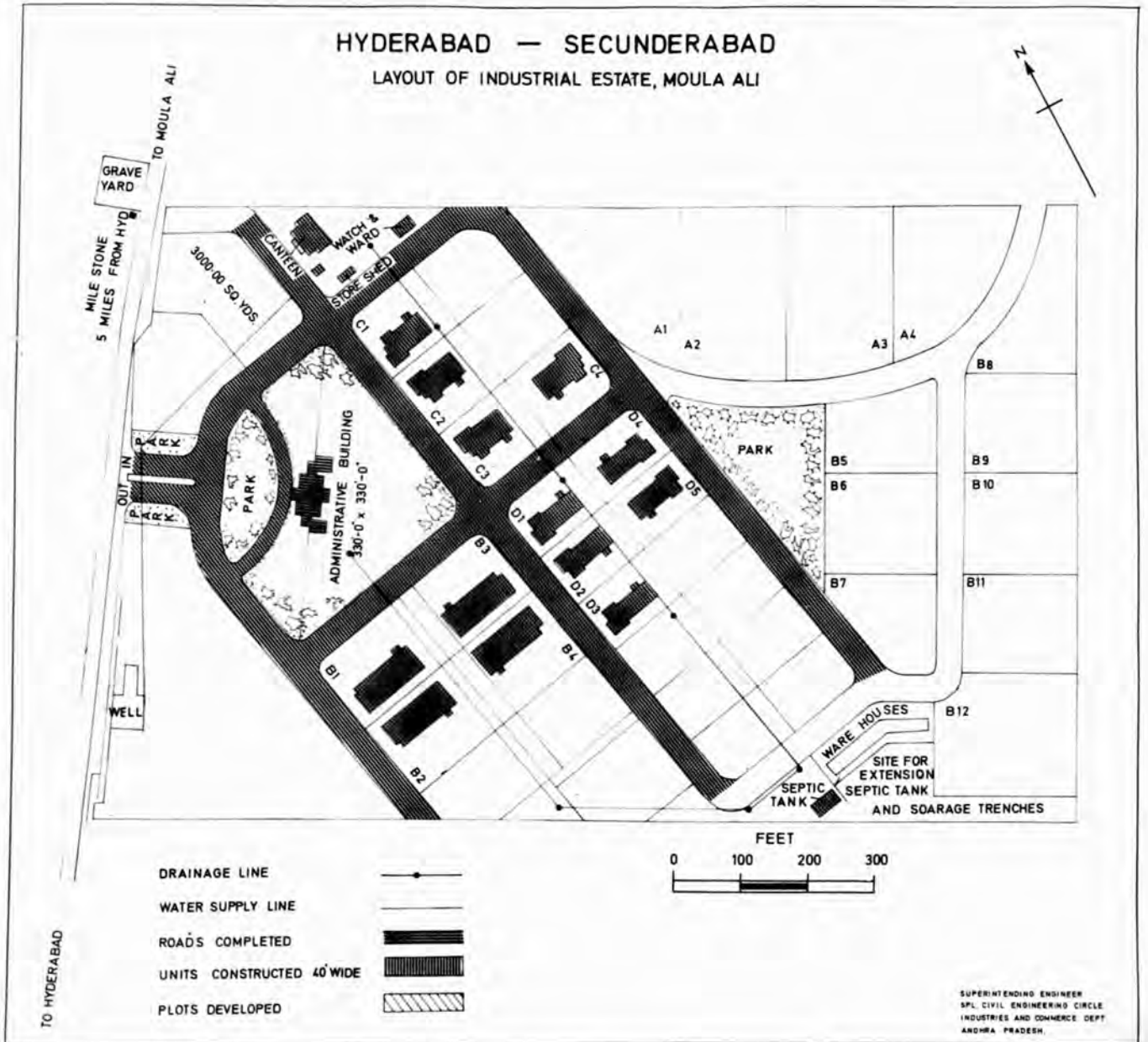


Fig.22

The industrial estate, Moula Ali consists of 4'A' 12'B' and 6'C', 12'D' type developed plots. Out of a total of 34 units, 13 factory units have been constructed (4'B', 4'C' and 5'D'). An overall layout of the industrial estate reveals that a 40' wide metal road, water main and drainage mains have been completed. The water supply is arranged by excavating open wells and an overhead tank of 20,000 gallons capacity constructed to feed all the units by a network of supply pipe lines. Drainage system has been laid out with a common septic tank, connecting all the individual latrins of each unit. However, the scheme is in progress. According to the resources available in Andhra Pradesh, the scheme of establishing industrial estates, achieved a great success.

7. Integration of Urbanisation and Industrialisation through the Industrial Estates Policy:

The industrial estates policy has been widely used, throughout the country, as a tool to increase the rate of industrialisation, to provide employment opportunities, to modernise the small and medium size firms and to relieve unemployment and hardships in rural and backward areas by expanding and diversifying the industrial base. So, by the establishment of an industrial estate two main objectives, namely, industrial development and decentralisation can be achieved, thereby, providing the scopes for urban development.

Sanathnagar industrial estate and the adjacent industrial area and its industrial colony is one of the largest and compact colonies of Andhra Pradesh. Nearly 200 acres of land is covered by the well-planned neighbourhoods. The houses are furnished with basic amenities, parks, and play grounds with the neighbourhoods. More than 30 per cent of the factory workers live in the colony, and the rest come from nearby rural villages, within a radius of 3-4 miles, as well as from both the cities.

Just the clustering of a number of industries at a particular place does not bring about the phenomenal increase in the level of industrialisation and urbanisation of the city. It requires a comprehensive planning and control of land use, which can only be possible by the well-thought master plans for cities and towns and suitable location of industries and industrial estates in terms of national and regional requirement. Moreover, the industries, should be served with National Highways and other communications, power, water, sewerage and fire protection, etc. Thus transport and communication is of prime importance. As it has been experienced that industrial estates, often generate secondary growth, i.e., related industries spring up to take advantage of higher facilities or railway stations and utility lines. In the respect the estate serves as a magnet for other firms, for instance the development of light industries at Moula Ali industrial area.

8. The Impact of the Establishment of Industrial Estates on Urban and Industrial Growth of the Twin Cities:

The establishment of industrial estates in the twin cities are responsible, to a certain extent, for the urban and industrial developments. The industrial estates have been a major feature of the industrialisation programme throughout the country. Three out of four industrial estates in the twin cities are located on the outskirts of Hyderabad-Secunderabad. It is only Chandulal Baradari industrial estate that is located in the old historic city of Hyderabad. The outskirt location of industrial estate, to a great extent, relieved the pressure of population on the central city and encouraged the policy of decentralisation of industry, which on the other hand provides the valuable land in the centre of the city for the whole sale and retail markets, for the establishment of educational, technical and administrative institutions.

In 1957, the first industrial estate was established at Sanathnagar, a western outskirt of the twin cities. Subsequently, the development of the city in this direction was quite significant by the commutation of workers. The construction of roads and residential colonies, for instance, Punjagutta and Erram Manzill colonies, Premnagar and other sites have been allocated for the labour housing colonies like Bapunagar etc. at Erragudda and Ameerpet area, by the

Housing Board, paved the way to the heavy flow of traffic. There is lack of data and statistics to show the frequency of bus and train services to and from Hyderabad to Sanathnagar and other industrial estates and industrial areas. But it can be said by the observation during rush hours (9.00-10.50 am. and 4.50-6.50 p.m.) there is a bus after every 10-15 minutes interval from the main stations, viz., Residency and Nampally in Hyderabad and Ranigunj in Secunderabad, during off rush hours the buses run after every 25-30 minutes interval. The journey to work from home to workplace is a primary determinant of the spatial extent and internal structure of the city region.

Thus it can be summarised, that the establishment of industrial estates in the outskirts of the twin cities, as recommended by the Planning Commission, not only has relieved the pressure of population in the centre of the city but also developed strong physical and economic links between the city and its suburbs with the provision of the necessary transport services. These interlinkages also define the range of influence of an urban nucleus.

CHAPTER VIIPOPULATION PATTERN: GROWTH AND DISTRIBUTION

Hyderabad, the fifth largest city of India, with the population of 1,251,119 in 1961, is the only urban nucleus of the Deccan Plateau. The twin cities along with their suburban satellite towns, form the Town-Group,¹ is the capital and the main industrial and commercial centre of Andhra Pradesh. The second city of the State is Vijayawada, population 230,397 in the 1961 census.

The population of the twin cities during the last sixty years (1901-61) increased by 150 per cent. This dynamic growth of population is probably due to concentration of economic activities at some pivotal areas of the city. The city of Hyderabad has been the seat of the Government since it was laid out in 1589 by Mohammad Quli Qutub Shah, the 5th Qutub Shahi King. The decennial growth of population was influenced, to a great extent, by the concentration of economic, industrial and commercial activities in the twin cities. Increasing size of the city, concentration of specialised activities

1. The incorporated towns of Hyderabad Town-Group are Hyderabad Municipal Corporation (Hyderabad⁴Secunderabad Division), Osmania University, Alwal, Secunderabad Cantonment, Malkajgin, Fatehnagar, Macha Bolaram, Lalaguda, Attapur, Zamistanpur, Bowenpalli and Kandikal. Further details and population figures are given in Appendix V.

such as manufacturing, commercial, recreational, educational and governmental (administrative) are the main indices for bringing about urban and economic change in the city.

Andhra Pradesh has a population of 36 million, according to the 1961 census and it is the fourth most populous state in India having 8.24 per cent of the country's population. Density of population is 339 persons per sq. mile in 1961. But the highest density is 690 persons per sq. mile in Hyderabad district. Other districts are West Godawari and Krishna and East Godawari having a density of 664, 615 and 624 persons per sq. mile respectively. The highest concentration in Hyderabad district is obviously, due to the capital city; East Godawari and West Godawari being deltaic, the most fertile districts and Krishna is due to Vijayawada, which is the main harbour of Masulipatnam. On the other hand the lowest density of population in Andhra region is 200-240 persons per sq. mile in Kurnool, Nellore and Anaparthi districts. In Telangana region Adilabad has the lowest density of 160 persons per sq. mile.

Andhra Pradesh is primarily an agricultural state, Five out of every six persons live in villages. According to the 1961 census 82.5 per cent (29.7 million) of the states total is a rural population. They live in its

27,084 villages of different sizes from less than 500 to above 5,000 inhabitants. The size of villages in Andhra Pradesh is bigger than in all India. The average rural unit has 976 inhabitants, whereas it is 530 inhabitants in all India. The relatively bigger size of the villages may accelerate the process of urbanisation in Andhra Pradesh. In 1961 the urban population was only 17.44 per cent, numbering 6.2 million compared to 5.5 million in 1951. But there is a general tendency towards the urbanisation and industrialisation in Andhra Pradesh. The increasing rate of urban population is shown in Table No. I. During 1921-61 the growth of urban population has been progressive in Andhra Pradesh.

Table No. I Trends of Urbanisation in Andhra Pradesh and India, 1921-61

Census Years	% of Urban Population to total Population	
	Andhra Pradesh	India
1921	10.6	11.4
1931	11.1	12.1
1941	13.4	13.9
1951	17.4	17.3
1961	17.4	18.0

There were 223 towns of different sizes in 1961, in Andhra Pradesh. One-fifth of the urban population lives in the metropolis of Hyderabad-Secunderabad and the rest of the population lives in the towns of less than 20,000 persons. There has been a gradual increase in the number of towns and cities of different types and sizes from 1901-61 in Andhra Pradesh, which is an indication of the population structure being conducive towards the urban development. All the cities and towns have been divided into six groups. According to Census of India, the main criteria for the classification of cities and towns has been the size of the population. It is shown below in Table No. II.

Table No. II Number of Cities and Towns of each class
in Andhra Pradesh, 1901-1961 ²

Class Limits of Population	Number of Cities and Towns in Census Years						
	1961	1951	1941	1931	1921	1911	1901
I 100,000 & Over	11	6	1	1	1	1	1
II 50,000 - 99,999	8	10	10	8	2	1	-
III 20,000 - 49,999	51	34	21	11	13	12	11
IV 10,000 - 19,999	71	82	55	57	46	45	44
V 5,000 - 9,999	70	116	121	78	76	70	60
VI Less than 5,000	1	43	4	21	15	4	-

2. Census of India, 1961

There has been a considerable increase in the number of towns and cities of different classes in Andhra Pradesh, since 1901-61. An increase of five Class I Cities within a decade from 1951-61 is a **positive** indication towards the urban development. The main reason is, the annexing of Rayalaseema and Coastal regions of Andhra with Telanga region of Hyderabad State, in order to form Andhra Pradesh, (1st November, 1956) which apparently included the Class I cities like Vijayawada, Guntur, Vishakhapatnam and Rajahmundry.

Out of 223 towns and cities of Andhra Pradesh in 1961, twelve towns have been included under Hyderabad Town-Group, which has been classified as one Class I City. Therefore Hyderabad City is the only Town-Group recognised in the 1961 census for Andhra Pradesh. The main incentive of recognising the Town-Group is to join together all those suburban units, located within a radius of 2-5 miles of the periphery of the main city, in order to form a compact unit and well connected with roads and railways. So Hyderabad City is made up of different adjacent urban units and now called Town-Group (Figure 23). Most of the constituent units or towns of Hyderabad Town-Group perform an independent activity, such as industry, education and military which directly contribute towards the urban and economic development of

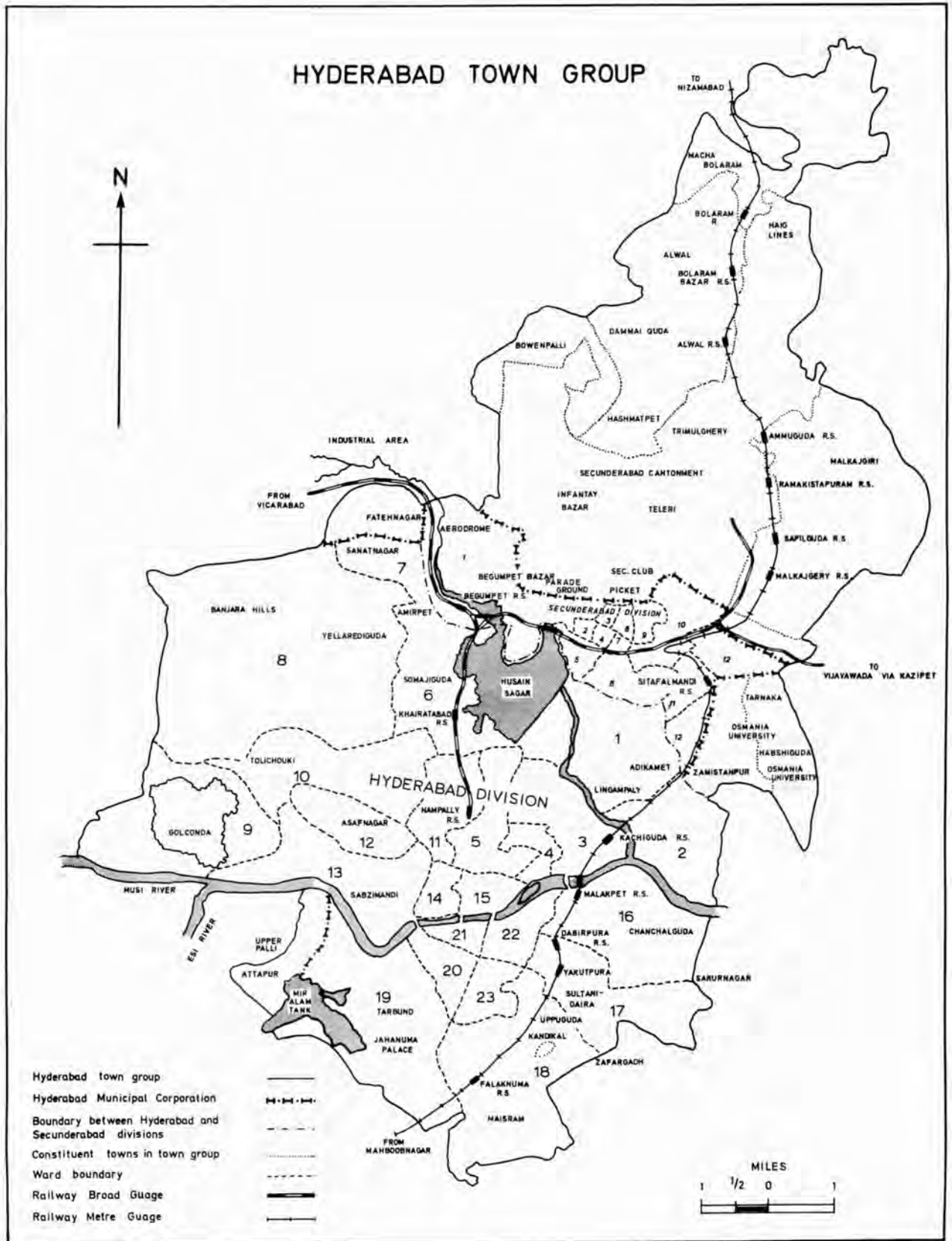


Fig. 23

the city.

2. Population Growth and Variation from 1901-1961 in Hyderabad and Secunderabad

A study of the population of the twin cities primarily involves the growth and the spatial distribution of population during the life span of the cities. The estimation of population in Hyderabad city seems to be reliable only after 1901, although efforts to estimate the population of Hyderabad had been attempted since 1881.

In 1901 there was an increase of 8.05 per cent over the 1891 population. But, by the end of the decade 1911-1921 there was a sharp decline in the population growth, (Figure) due to certain natural calamities. The famine of 1898 and the Musi flood of 1908 caused this decline in population. In 1908, due to high tides the river Musi flooded and about 15,000 people died in a day. In the decade 1911-1921, the city's population declined by 30 per cent due to major epidemics, such as plague and cholera, which used to spread all over the city, as a consequence of unhygienic conditions of the city and with high population density of 10,042 persons per sq. mile in 1911. In 1918-19 the epidemic of influenza affected population growth adversely all over India, but the worst affected areas were the Deccan Plateau districts, i.e., the three districts of Rayalaseema, viz., Cuddapah

Anantapur and Kurnool and all the districts of Telangana, except Adilabad and Khammam. The deltaic districts of West Godavari, Krishna, Guntur and Nellore showed better resistance to the epidemic of influenza and consequently were not so heavily affected and they managed to show a slight increase ranging from 4.34 per cent to 6.92 per cent.

In 1931 an increase of 10.3 per cent in the population of Hyderabad City has been recorded, which was due to the incorporation of Muhammadnagar Municipality and Chadarghat Municipality into Hyderabad Municipal Corporation. These two Municipalities before 1931 were separate entities, Muhammadnagar Municipality with the population of 11,443 in 1921, 1,481 in 1911 and Chadarghat Municipality with a population of 149,348 in 1921, 161,600 in 1911 and 142,263 persons in 1901.³ This rate of increase of population in the city is also reflected in the district of Hyderabad, as a whole, as the population of Hyderabad City accounts for more than 50 per cent of the total population of the district. In the two subsequent decades of 1941 and 1951, the population growth shot up to 60.94 per cent and 42.5 per cent respectively. The main reason was the rapid industrial development and the improved sanitation and other facilities provided in the city. The flood of the Musi river was controlled by constructing the

3. Ibid., pp. 125

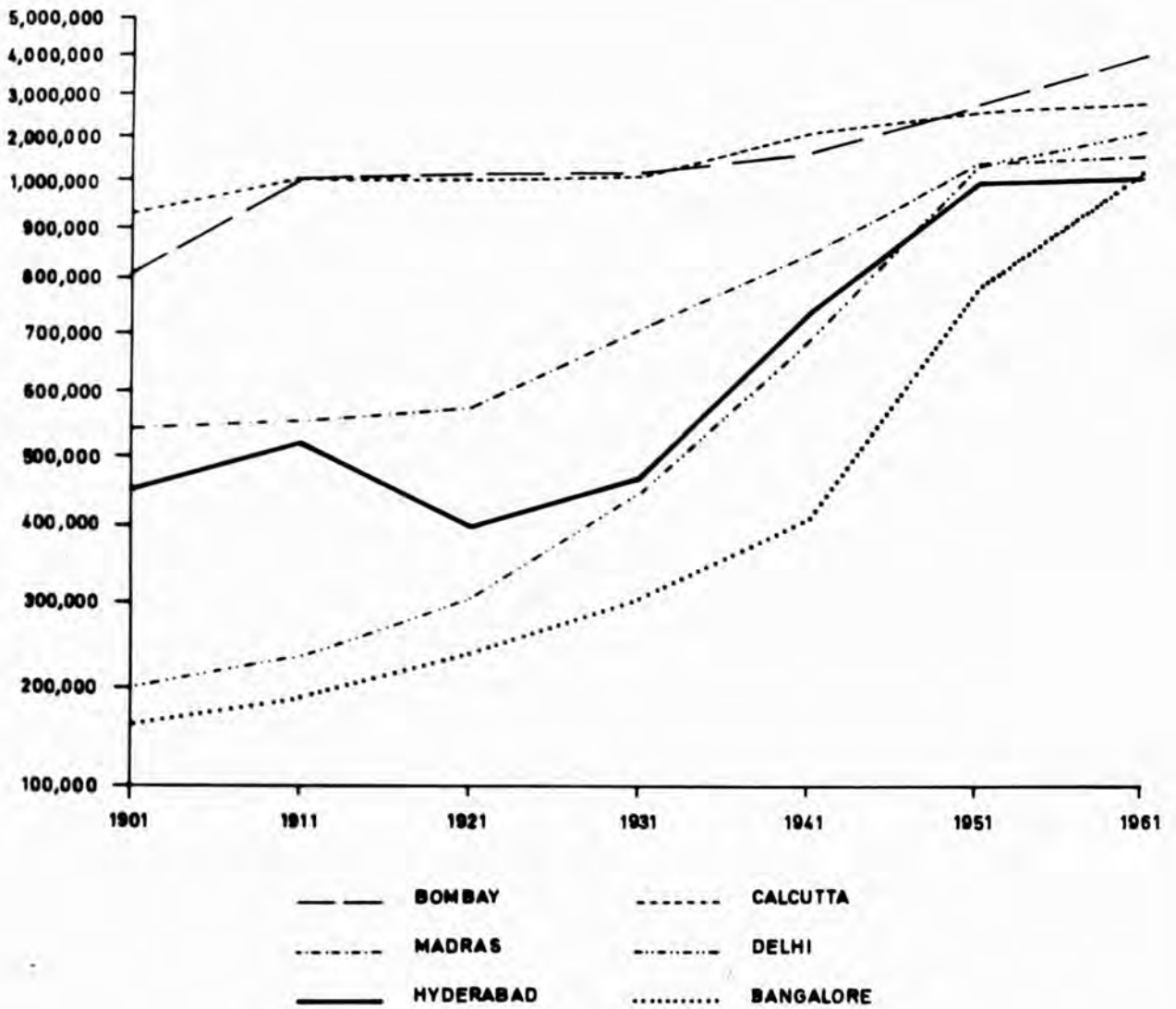
reservoirs of Osmansagar, and Himayathsagar by the recommendation of City Improvement Board in 1917 and 1927 respectively. These reservoirs also supply the water to the city. Moreover better means of communications facilitated the development of trade and commerce in the capital city of Hyderabad. Therefore from 1931 onwards a conscious effort seems to have been made, by providing better sanitation, housing, hospital and educational facilities to attract the population to, and the investment of capital in the city. Owing to this rapid rate of growth of population, Hyderabad and Secunderabad's built up areas have also expanded considerably. The radical expansion of roads in all the directions of the city and the development of the settlement in the north of the city of Hyderabad, (Chadarghat Municipality) in order to relieve the congestion in the walled city, south of the river Musi, while in Secunderabad the settlement growth was mainly in General Bazaar, which is the core of the city and towards north-east in Lalaguda. Moreover the actual area of the city has also expanded, compared to the municipal area of 26 sq. miles in 1901 than that of 72 sq. miles in 1961 of the city of Hyderabad.

The decade of 1951-61 was a period of extensive changes in political and administrative boundaries. It

can also be regarded as a decade of integration and re-organisation. There has been great changes in the boundaries of all Class I Cities of India by incorporating and merging the suburban units with the main city and given a new name of Town-Groups. Growth of population of Hyderabad Town Group with other five main town groups of India during the last sixty years are shown in Figure 24 . Calcutta and Bombay being the biggest cities of India, the growth curves of both the cities run almost parallel, each alternatively dominating the other after every two decades. On the other hand Delhi and Bangalore population growth was more gradual as were Hyderabad and Madras town groups population growth, where the rates of growth are nearly equal.

Hyderabad Town-Group consists of 13 different types of towns, and each town performs a distinct function. The functional differentiation depends, to a great extent, upon the occupational structure. As the constituent units of Hyderabad Town-Group have functional differences, they also differ in size of the population Figure 25 . The size of the population of Hyderabad Town-Group, according to 1961 census, suggests that excluding Hyderabad Municipal Corporation, Secunderabad Cantonment is the next in numerical order because it is by far the most important suburban town of the twin cities.

GROWTH OF POPULATION MAIN TOWN GROUPS OF INDIA 1901 - 1961



SOURCE : CENSUS OF INDIA, 1961.

Plotted on Log 1 Cycle x 1"

Fig.24

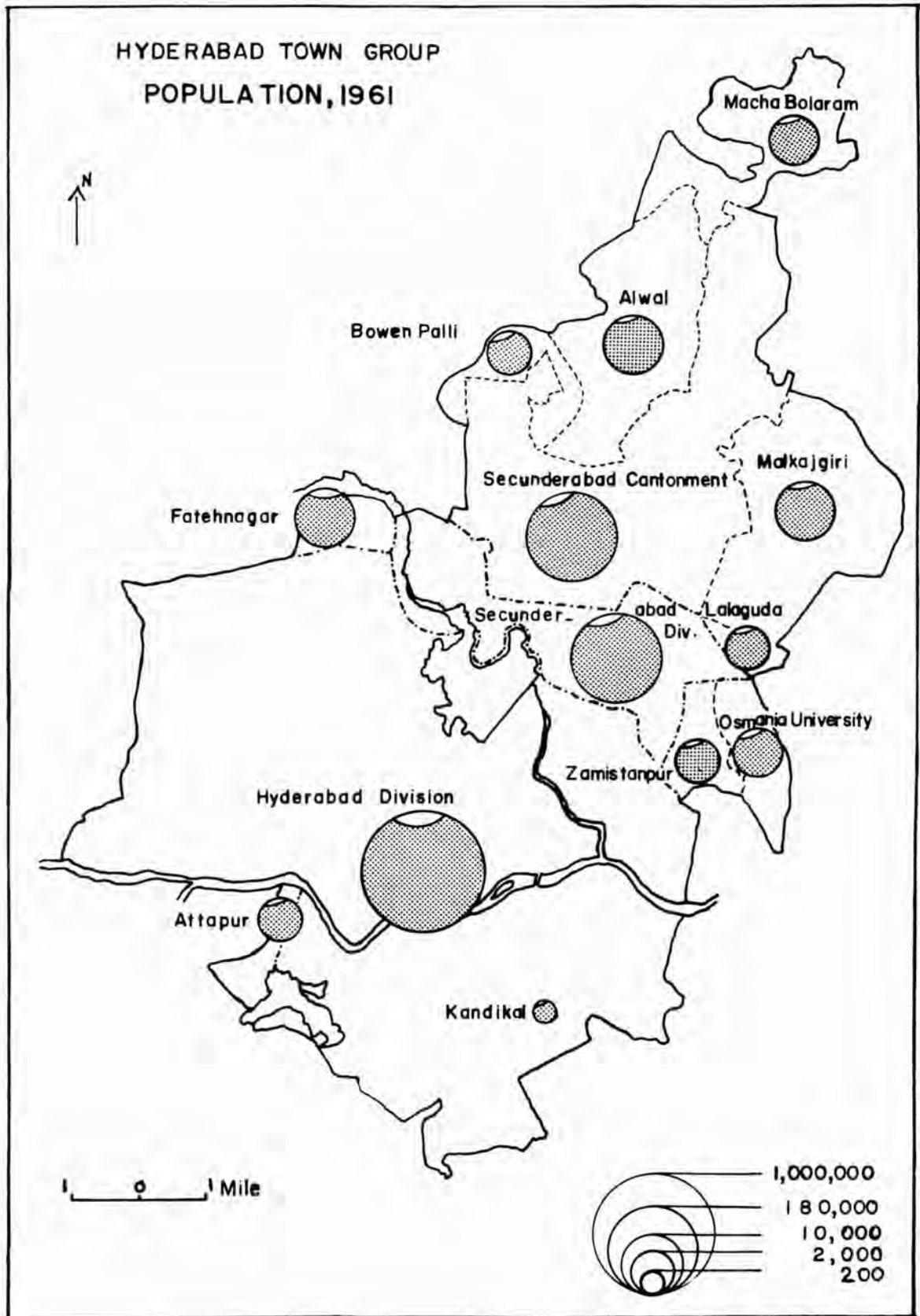


Fig.25

During the census decade of 1951-61, the rate of growth in the twin cities came down to the normal rate of 9.01 per cent and the same phenomenon is noticed in the case of the district of Hyderabad, as a whole, i.e., 33.64 per cent in 1951 to 13.24 per cent in 1961. The main reason is the re-organisation of states in 1956, assured the political and economic stability to a great extent. Therefore, a large number of people returned back to rural areas, who had been drawn to the city in 1947 and 1951 mainly for their safety and security.

3. Population Structure, Age, Sex, Religion and Languages

Total population of the twin cities have been divided into four broad age groups for 1961 census. The age-groups recognised for the year 1951 were 0-14, 15-35, 35-55, 55 and above, which is slightly different than that of 1961. The age group 15-34 being the most active part of the age accounts for the working population of the cities. This economically active age group constitutes 35 per cent of the total population of Hyderabad Division, 31 per cent of Secunderabad Division and 32 per cent of the total population of the State of Andhra Pradesh. Other age groups like 0-14 and above 60 can be regarded as non-productive age groups constitute 41 per cent and 5 per cent of the total population of Hyderabad, 42 per cent and 5 per cent of Secunderabad respectively. Age

group of 35-59 can be said as a less productive age group, which accounts for 19 per cent and 22 per cent in Hyderabad-Secunderabad respectively. Thus it can be summarised that the economically active age group's percentage being comparatively low, leads to the slow rate of the growth in the twin cities.

So far as the sex composition of the twin cities is concerned, Hyderabad's female ratio is 941 per 1,000 males and Secunderabad's 940 per 1,000 males in 1961. The State of Andhra Pradesh's female ratio is 981 per 1,000 males. The population composition by sex and age group Fig. 26 shows that there is not much difference in both the cities, except the percentage of population in the age group 35-59 which is higher in Secunderabad than in Hyderabad. Almost in all age groups the percentage of male population dominates except in the age group 0-14 of Secunderabad Division, the female population percentage is 21.8, whereas the male is 20.2 per cent of the total population.

Andhra Pradesh, being an agricultural state, the sex ratio in rural areas is 900-1,200 females per 1,000 males, whereas the sex ratio in urban areas is 800-1,100 females per 1,000 males. For the highest female ratio, the main criteria is the occupation. In rural areas agriculture and the allied activities, being the main

TWIN CITIES
AGE AND SEX RATIOS, 1961

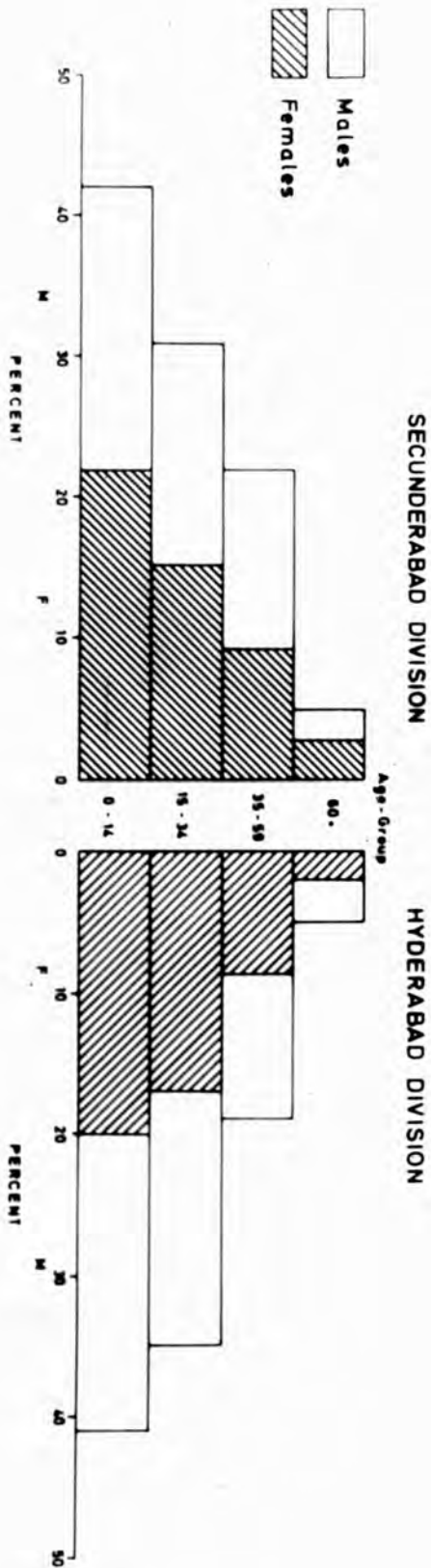
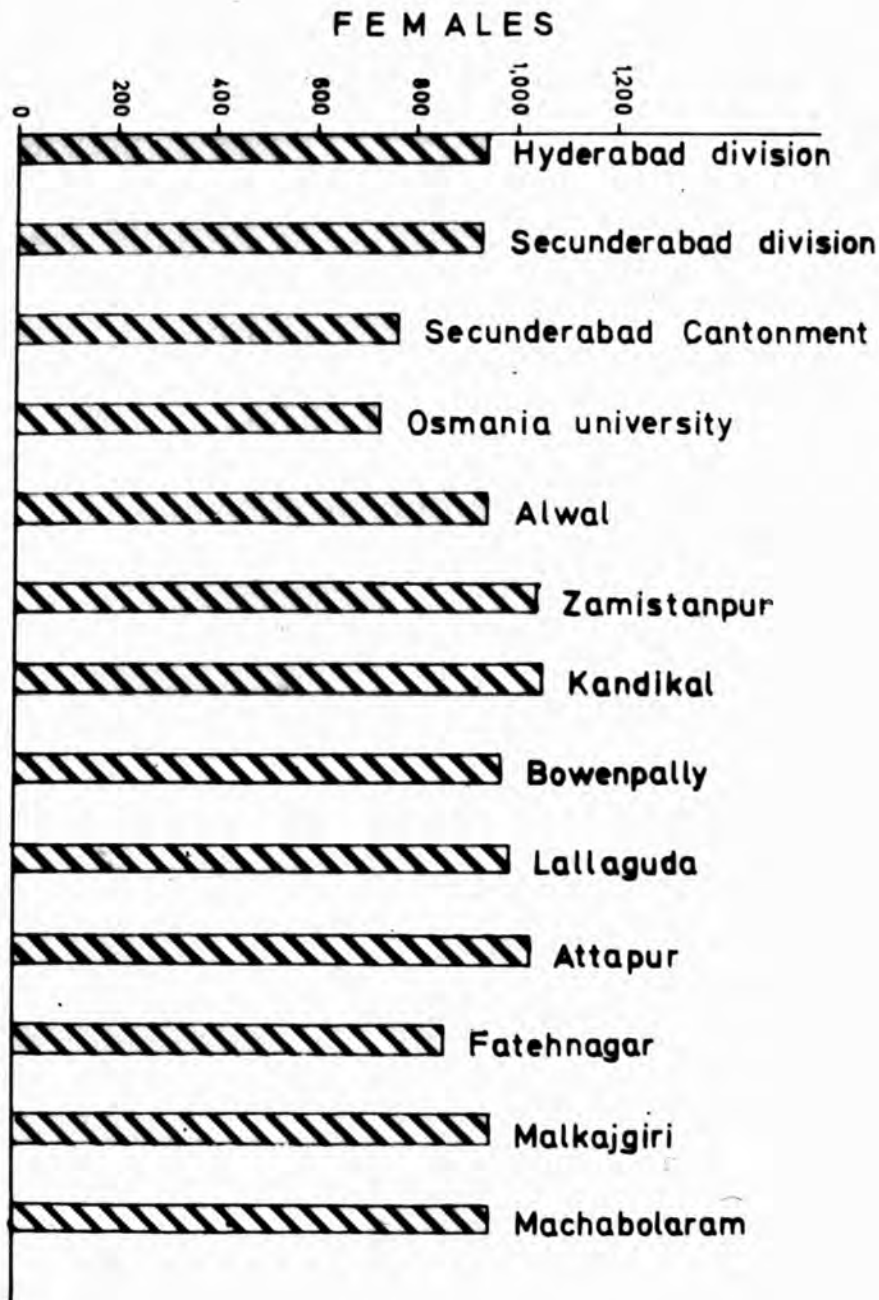


Fig. 26

source of sustenance, where generally women folk are employed. On the other hand, in urban areas the concentration of industrial, commercial, trade and transport and other services, where men folk prefer to work in.

In Andhra Pradesh, generally the coastal districts, except in a large commercial city of Vijayawada and the port industrial and educational city of Visakhapatnam have a sex ratio higher than the state average of 981 females per 1,000 males. The coastal districts include Srikakulam, Visakhapatnam, East Godavari, West Godavari, Guntur and Nellore have the highest sex ratio of 1,050-1,220 females per 1,000 males, recorded in the whole State. The main reason for the high sex ratio is the emigration of male population to industrial and urban areas. For instance Srikakulam district contributes male emigrants to the industrial areas of Bengal and Bihar and to the tea plantations of Assam.

The sex ratio of the constituent towns of Hyderabad town group differs greatly from one another, because of their functional and occupational differentiation. Out of 13 constituent units, Zamistanpur has the highest sex ratio of 1,049 females per 1,000 males, whereas Osmania University unit has the lowest sex ratio of 733 females per 1,000 males. Fig. 27. Osmania University



HYDERABAD TOWN GROUP
SEX RATIO - FEMALES PER 1000 MALES 1961

Fig. 27

unit has the lowest sex ratio of 733 females per 1,000 males. Fig. 27 . Osmania University unit consists of mainly the University campus and its affiliated colleges, Regional Research Laboratories, and hostels, where a large population is of male residential students, which naturally leads to the low female ratio. The same phenomenon is found in Fatehnagar, the sex ratio being 886 females per 1,000 males, due to its large proportion of population consists of male industrial workers.

The population composition of Hyderabad town group is based on seven religions and eleven languages. After the re-organisation of the States of India Union on linguistic basis in 1956, Andhra Pradesh formed as a Telugu speaking state. Therefore, 86 per cent of the total population in Andhra Pradesh speak Telugu as their mother-tongues and only 7% of the population of the State have Urdu as their mother-tongue. The linguistic composition of Hyderabad town group shows that 36 per cent of the total population's mother tongue is Urdu, which shows that the city of Hyderabad was under the domination of Muslim rulers during past centuries. Urdu, until 1948 was the official state language and a medium of instruction up to University level. Other main languages are Telugu and Hindi, which constitute 46.7 per cent and 5.8 per cent of the total population

respectively, according to 1961 census. In 1951, the percentage of population, having Telugu as their mother-tongue was only 34.3. The increase of 12.4 per cent in 1961 is mainly due to Andhra immigrants, numbering 283,696, in the twin cities. Apart from these three major languages, the linguistic composition of Hyderabad town group consists of Tamil (3.4%), Marathi (2.6%), Kannada (1.1%), Gujrathi (0.9%), Malyalam (0.6%), Punjabi (0.5%), Marwari (0.5%) and others constitute 1.9% of the total population. Despite the heterogeneity of the linguistic composition of Hyderabad town group, Telugu and Urdu in Hyderabad and Telugu and English in Secunderabad are the only dominating languages. Secunderabad Division and Secunderabad Cantonment, due to their long association with the British, have large Anglo-Indian population and made English as an important language. Therefore the intermingling results of these three languages are clearly reflected in the social and cultural setting of the twin cities.

4. Distribution and Density: Municipal Ward Population

Analysis:-

An analysis of the population distribution in the twin cities, mainly on the municipal ward basis, reveals the shift of the concentration of population from south to north of the river Musi. This is a resultant feature of the changing centre of economic and industrial activities

in the city. During the early sixteenth century A.D., the city of Hyderabad, as its incipient growth, its habitation was mostly confined to Golconda fort. When it spread and settled down along both sides of the road (still known as Golconda-Karwan road), the main trade and commerce route, leading to the chief port of Masulipatnam. In 1591, Chaminar, the historic land mark of Qutub Shahi dynasty, was constructed on the south of the Musi, with an objective of relieving the congestion of civilian and military population within Golconda fort walls. Thus the city of Hyderabad came into existence as a civil capital of the Kingdom of Golconda. Apart from this, Karawan area of about two square miles, between Golconda and Hyderabad was also a thickly populated settlement.

The construction of British Residency in 1806, north bank of the river Musi followed by a cluster of shops and Bazaars in the Chadarghat area, stimulated a considerably large percentage of the population to make a move from the south towards the north of the river. The development of the settlement was taking place very rapidly and was called Chadarghat Municipality and Residency Bazaar and was treated as a separate entity.

In 1901, the city of Hyderabad covered an area of 26 sq. miles and was divided into 13 municipal wards.

The density of population was 17,249 persons per sq. mile. During the last sixty years (1901-1961) the area of Hyderabad Municipal Corporation increased by 177 per cent (72 sq. miles, 1961) and it has been divided into 23 municipal wards of Hyderabad Division and 12 municipal wards of Secunderabad Division. There has been a significant shift of population from south towards the northern Hyderabad, due to the development of railway communications and the establishment of Kachiguda and **Nampally** railway stations. In 1901, 54.8 per cent of its population was occupying 35.6 per cent of the city's southern municipal wards while in 1961 the situation is exactly opposite, i.e. 68.4 per cent of the total population lives north of the river. The main reason being the concentration of administrative and educational institutions, business firms, wholesale and retail markets, large, medium and small scale industries etc. in the north made it more dynamic.

So far as the density of population in the twin cities (Fig. 28) is concerned, the highest density of population is 330 persons per acre in Ward 4 of Secunderabad Division, which covers the whole General Bazaar area which is CBD of Secunderabad, surrounded by the commercial thoroughfares, such as Mahathma Gandhi road in the east, Rashtrapathi road in the west, Sarojini Devi road in the

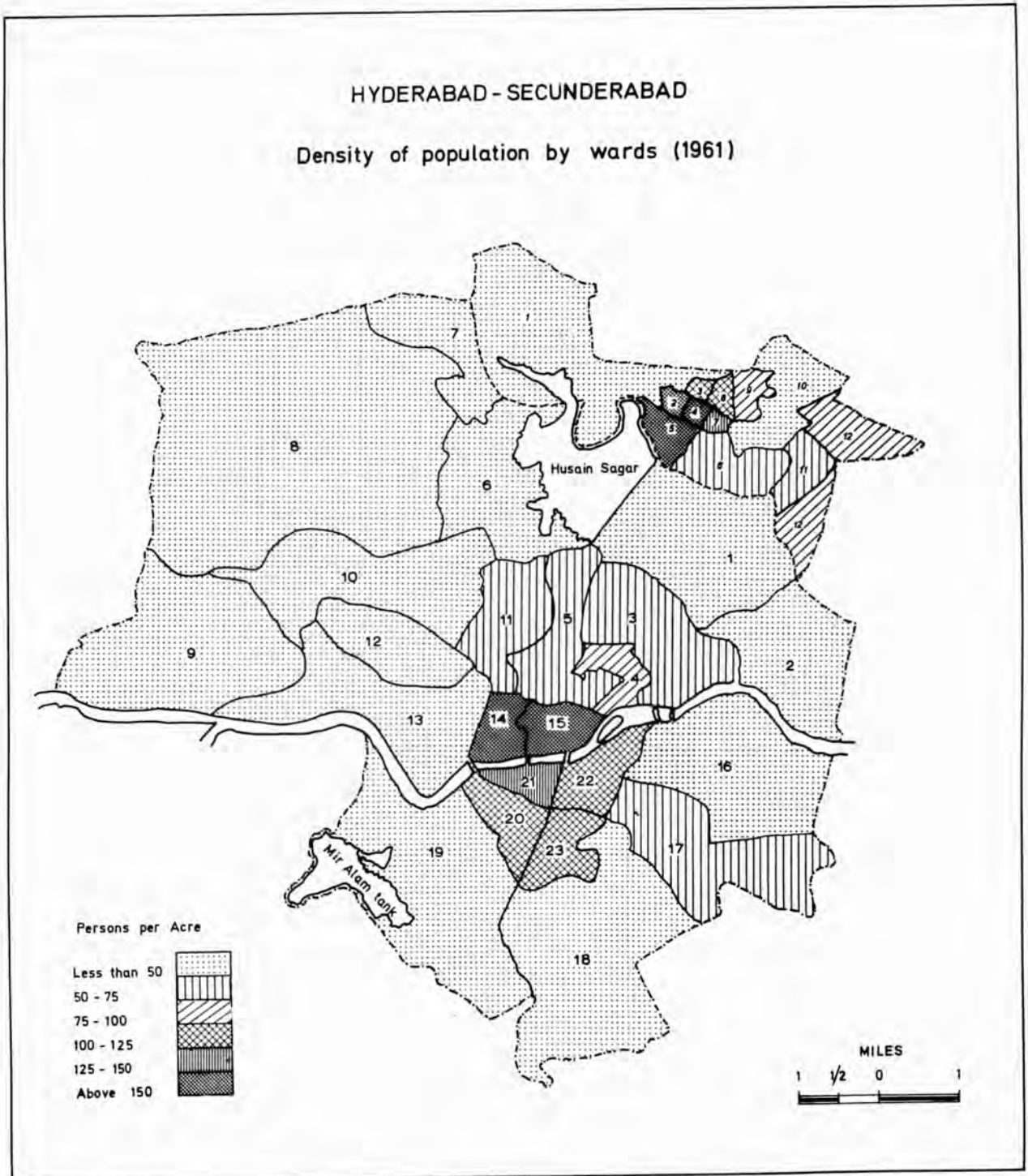


Fig.28

north and Minister road in the south. The lowest density of population is 5 persons per acre, found in Ward 8 of Hyderabad Division, which covers the entire Husain Sagar drainage area, which consists of barren lands with boulders and a group of hills separated by narrow vales, called the Banjara Hills and Jubilee hills, now entirely an upper-class residential neighbourhood.

A general pattern of the population density of the twin cities shows that the high density of 100-150 and more per acre is found in the core areas of business and commercial activities of both the cities. Ward numbers 20, 21, 22 and 23 of southern Hyderabad are the earliest settled wards, with very high densities of population till 1931. As there has been a shift of the centre of the city and the industrial development of the north made these wards stagnant and the declining trends of population is quite significant. Ward number 17's trend towards increase of population is worth mentioning. It is due to the construction of Government quarters and residential colonies at the Malakpit area on Masulipatnam road, It is one of the proposals of the Housing Board to develop Malakpet area up to Sayadabad into one of the best residential colonies of the city.

Of the fifteen wards of northern Hyderabad, ward number 14 and 15 have 165 and 195 persons per acre

respectively and they also represent the central business district of Hyderabad. The adjacent wards (3, 4, 5 and 11) have the density of 50-100 persons per acre. They mainly consist of educational and administrative instilations, Banks and Insurance companies, etc. The same density of population is found in ward numbers 6, 11 and 12 of Secunderabad Division, as the result of the concentration of all types of industries, trade, transport and communication activities respectibely.

5. Functional Classification of Urban Units of the Town Group.

Most of the constituent units of the town group have a distinct functional entity, which directly contributes towards the urban and economic development of the city. They are industrial, agricultural, educational and military development of the city. The function of the unit is mainly decided upon the percentage of population engaged in a particular occupation, Fig. 19 The functional classification consists of four broad categories, viz., agriculture, manufacturing, trade and commerce and other services.

The occupational structure of Fatehnagar and Zanistanpur units show the dominance of non-agricultural and manufacturing activities. Less than 2 per cent of the total working population of Fatehnagar, consists of

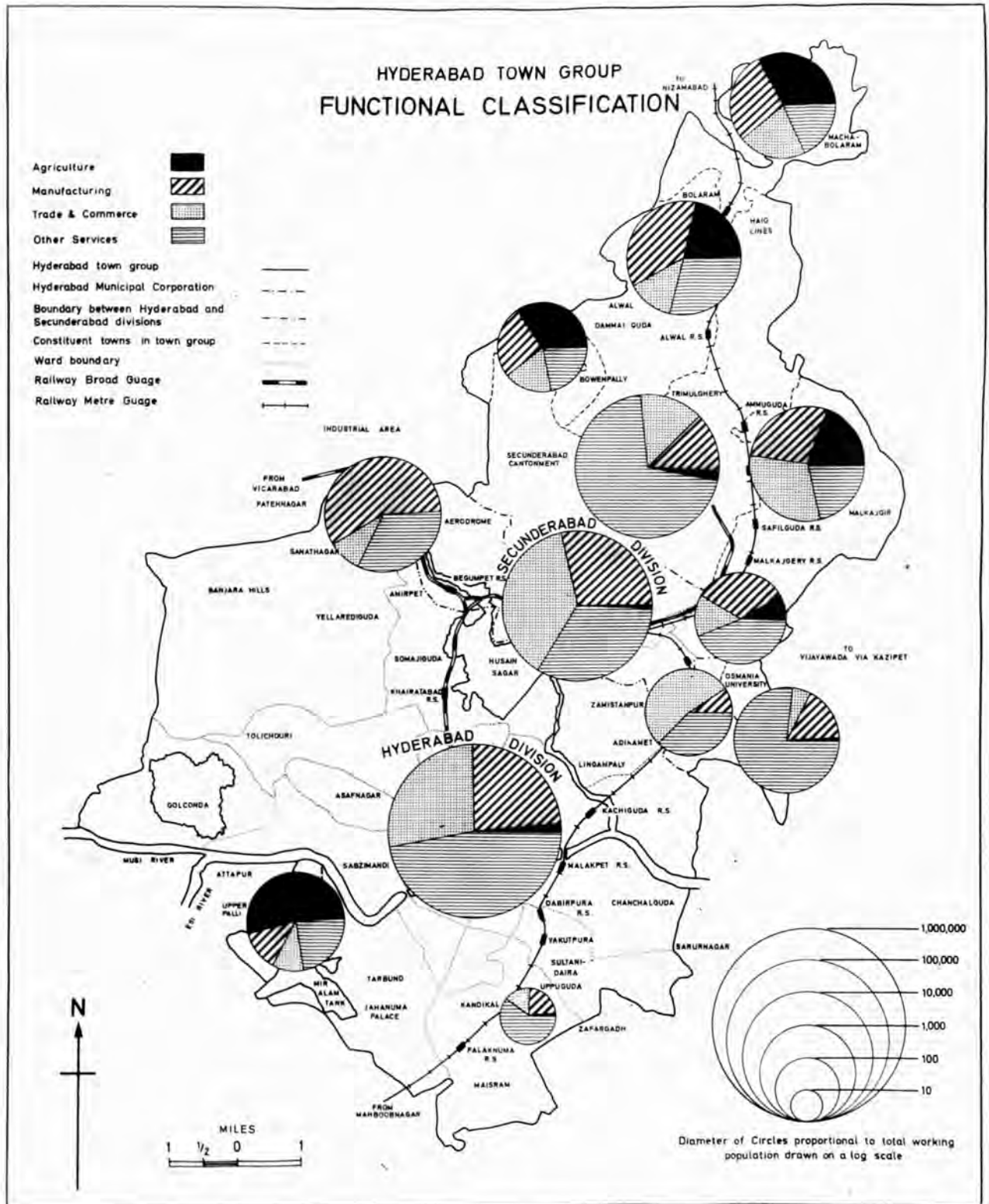


Fig.29

Sanathnagar industrial estate and depend upon agriculture, whereas in Zamistanpur the percentage of agricultural population is nil. Kukatpally industrial area is the unit of Hyderabad town group which entirely performs the industrial activities. Sanathnagar is a well-planned industrial suburb, on the Hyderabad-Bombay trunk road, a National Highway No. 9. The establishment of Sanathnagar Industrial Estate, during the First plan period, and the large scale and heavy industries at Kukatpally and on the Nansapur road, such as Synthetic Drugs, Heavy Electricals, Hindustan Machine Tools, Indian Detonators, Jay Engineering, Praga Tools Extension, and Republic Forge etc., during the Third Five Year Plan, made the north western suburb an important industrial complex of the twin cities. The impact of this industrial suburb has been significant on the surrounding rural areas, where it draws the large proportion of its labour force. On the other hand the development of the settlement and residential neighbourhoods in its direction.

In Zamistanpur, although the agricultural activities do not exist at all, but more than 50 per cent of the working population's main occupation is trade and commerce, which also includes transport and communication. The main sources of employment are the two large railway workshops located in the vicinity, at Lallaguda and the new

(A.P.S.R.T.C.) Andhra Pradesh State Road Transport Corporation and its workshop in the west at Mushirabad.

The constituent units of Hyderabad town group performing the educational activities are Osmania University and Agricultural University and Research Farm at Rajendarnagar in the south-west of the twin cities (not included in Hyderabad Town Group). The catchment areas of these two educational suburbs extend far beyond the twin cities.

Since 1798, Secunderabad Cantonment (including Trimulghery and Bolaram) and the present Secunderabad Division had been the military base for the British East India company's forces. After independence in 1948, the same function of the area has been continued and new Secunderabad Cantonment is a regional headquarter of the Indian Army and a centre of Advanced Training for Air Force officers. It has been facilitated by Begumpet Airport being close by. Therefore the occupational structure of Secunderabad Cantonment shows the domination of non-agricultural activities at first instance and about 70 per cent of the population is engaged in services. Other occupations like trade and commerce and manufacturing are quite significant in Secunderabad Cantonment.

Other constituent units of Hyderabad town group like Bowerpalli, Alwal, Macha Bolaram and Malkajgiri, with

their equal distribution of working population in all the occupational categories represent more or less the same type of function. The growth of these towns is, to a great extent, due to the increasing influence of Secunderabad Cantonment.

Thus it can be summarised, that the population composition, functional and occupational structure of the twin cities have been strongly influenced by the past historical and social conditions. As it is evidenced by a slow rate of growth of economic and industrial activities, due to the non-entrepreneurship of the capitalists, a relic of the feudal system prevailed in Hyderabad. However, after the formation of Andhra Pradesh, the population composition has radically changed due to the influx of Andhra immigrants. These are educated intellectuals, entrepreneurs and industrialists, who have stimulated the economic and industrial developments of the twin cities.

CONCLUSION

A study of the different phases of industrial, urban and economic developments of the twin cities reveals that there is a general trend towards a rapid rate of industrial and economic development. Hyderabad city, a civil capital; Secunderabad, a British Cantonment, demonstrating two entirely different cultural and social backgrounds, have now developed into a metropolis.

Throughout the life span of 376 years, (1591-1967) the city of Hyderabad had been the capital of the Muslim feudal rulers. It holds a rich cultural and social heritage. It is one of the five metropolises of India, its morphological development, ecological distribution and linguistic composition are reflections of India's social and economic conditions. Moreover, the occupational and functional structure of the twin cities shows a comparatively higher percentage of population employed in administrative and other services, one of the common features of almost all Indian cities.

On account of the re-organisation of the state of the Indian Union, Hyderabad city became the capital of the new linguistic state of Andhra Pradesh. This gave an impetus to the development of the city region, demonstrated in the construction of new residential colonies and neighbourhoods, new multi-storied buildings

for offices equipped with modern facilities, slum clearance, and a general encouragement and facilities have been provided by advancing the loans and ready-built factory buildings for the industrial and urban development of the cities.

In Andhra Pradesh, an industrially under-developed state, the establishment of industrial estates for the promotion of small scale industries has been of prime importance. Under the aegis of regional and urban planning, the industrial estates have been located outside the incorporated areas of the cities; this has the benefit of preventing the city centre from congestion, slums and their associated social problems. Therefore, the new trends of peripheral industrial development in the twin cities, first suggests the decentralisation of industries. This in turn leads to the settlement and growth of the peripheral area. For instance, the establishment of Moula Ali industrial estate and the industrial area of light and medium industries is responsible, to a great extent, of the development of settlement and residential neighbourhoods along Moula Ali road. ~~Therefore,~~ The rapid rate of growth of industrialisation has considerably altered the cultural landscape of the twin cities.

The occupational structure of Hyderabad, suggests primarily, that it is an administrative centre, whereas

Secunderabad is a centre of transport and commercial activities. The second feature of the occupational structure of the twin cities is the existence of primary population, (population engaged in agriculture and cultivation) which was 1.3 per cent of the total working population in 1961, which is a considerable decrease compared to 2.0 per cent of 1951. The economic and industrial situation in the twin cities has improved greatly since the formation of Andhra Pradesh. The economically productive activities are fast replacing the non-productive activities.

The twin cities possess a well-developed network of roads and railways, joining the suburbs as well as all other big cities of the State. Due to its central location, Hyderabad is well connected by air, road and rail to all other metropolitan cities of India. Two National Highways, a broad gauge and a metre gauge railway pass through the city. In addition, buses are by far the most important public transport in the twin cities. Therefore, the location of industries in and around the cities of Hyderabad and Secunderabad, has been favoured in the case of almost 90 per cent of the industries, as they found the economic transportation of the finished goods to important markets of the country, by their low freight rates.

The suburban towns of the twin cities have their functional and occupational entity, as is revealed by

their occupational structure, which directly contributes towards the economic and industrial development of the centre. In addition, the twin cities draw a large number of employees from these suburban towns. They have now been joined together and form Hyderabad Town Group. The settlement pattern of the twin cities suggests that the highest density of population (maximum density 365 persons per acre) is to be found in the core of both the cities.

Thus it can be seen that the twin cities have benefitted by a range of physical and economic attributes that have been expanded their economic and industrial functions, until they have become the largest metropolitan centre of the Deccan Plateau.

APPENDIX I

Industries and the products manufactured in the Industrial Estates.

1. Electrical Engineering Industries:-

Radios and radio parts, transistors, amplifiers, tape recorders, projectors and other cinema accessories, refrigerators, air-coolers, electric fans, rubber insulated electric wire, cable, copper wire, copper conductors, electric motors, storage batteries, transformers, switches, automobile electric parts, circuit.

2. Mechanical Engineering Industries:-

Printing machines, expellers and parts, sugar plant, textile machinery parts, power looms, hosiery machines, auto-machine tools, furnaces, hosiery machine needles, tractor parts, motor radiators, mining equipments, foundries casting, diesel oil engines and parts, oil engines and parts, hand pumps, centrifugal pumps, conduit pipes, pressure die casting, industrial bolts, measuring instruments, survey equipments, water meters, surgical instruments, typewriter parts, panel pins, barbed wire, metric weights, collapsible gates, sockets, iron cabinet safes, steel furniture, sewing machines and parts, bicycle and bicycle parts, clocks, cycle dynamos, automobile springs, scooter and lambretta parts, signalling equipment, lorry and bus body building, railway coach fittings, jeep trolleys, stoves, domestic utensils, dustbins, umbrella ribs, vibrators, agricultural equipment, zip fasteners, press buttons, etc.

3. Chemical and Plastic Industries:-

Pharmaceuticals, vaccines, zinc oxide, nitric acid, soda silicate, dyes, paints and varnishes, phenyle, chemical solutions, soap, shark Liver oil, plastic paper and bags, plastic and celluloid bangles, spectacle frames, polythene bags, graphite crucibles, sanitary fittings, rubber goods, fountain pen ink, cosmetics, castor oil, linseed oil, etc.

4. Others

Fruit canning, furniture, sports goods, tiles,

marbles, packing cases, footwear and other leather products, sanitary wares, glass beads, artificial jewellery, glassware, mirrors, rubber goods, hosiery, paper bags, amlar charkhas, card board boxes, optical lenses, name boards, processing of starch, stationery items, and measuring tapes.

APPENDIX IISURVEY OF INDUSTRIAL ESTABLISHMENTS QUESTIONNAIRE

1. Name of the factory.
2. When was the factory established.
3. Main products of Main plant.
4. Location of the factory. Ward Block
5. Reasons for choice of location.
 - i. Raw materials available.
 - ii. Market for the end products.
 - iii. Labour availability.
 - iv. Availability of suitable services. Water Power Transport
 - v. Government assistance.
 - vi. Other reasons
6. Total Area (in Sq. Meters) of
 - i. Factory Estate
 - ii. Factory Building
7. Nature of end products.
8. Total annual turnover.
9. Source of Basic Raw materials.

Hyderabad	Telangana excluding Hyd. Dist.	Andhra Pradesh excluding Telangana	Out side A.P.	Out Side India.
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Material

Quantity

Means of Transport.

10. Particulars regarding the power used in the factory:

a) Electricity Consumption.

	Purchased	Produced in own Plant	Total
1	2	3	4

K.W.H.

Value (Rs.)

b) Water Consumption

	Purchased	Own supply	Total
Gallons			
Value (Rs.)			

11. Particulars regarding the number of labourers employed and the working hours.

	Men	Women	Children
	No. Working hours.	No. Working hours	No. Working hours
i. Skilled			
ii. Semi-skilled			
iii. Unskilled			

12. Particulars regarding wages paid to workers.

	(Wages in Rupees)			
	Men	Women	Children	Total
i. Skilled				
ii. Semi-skilled				
iii. Unskilled				

 13. Particulars regarding othe employees.

	Number	Salaries
i. Men		
ii. Women		
Total		

 14. Factory Operations:-

- i. Number of working days during a year.
 - ii. Number of shifts per day and workers in each.
15. If there are any seasonal variations in supply of labour in your industry, give details below.

	Season	Month(s)	Average No. of daily workers.
	1.	2.	3.

- i. Peak-Season
- ii. Slack Season

16. Does the factory provides accommodation to employees;

If yes give particulars below:

- i. Total number of employed labours provided with a factory accommodation.
 - ii. Total numbers of employees other than labours provided with factory accommodation.
17. Does the factory provide transport facilities (bus etc.) to employees?

- i. Number of vehicles.
 - ii. Number of round trip per day per vehicle.
18. Please indicate the extent of automation in the factory.

(Strike off whichever is not applicable)

- | | | | | |
|---------------|-----|--------|---|--|
| i. Less than | 25% | | } | The processes performed automatically. |
| ii. " | 25% | to 50% | | |
| iii. " | 50% | to 75% | | |
| iv. More than | 75% | | | |

19. To Labour Union Membership necessary:
20. Markets for finished products:

Catogeries	Quantity	Means of Transport
i. Local		
ii. Within the State		
iii. Outside the State		
iv. Overseas		

21. What is the range of finished products.
22. Is it sold at F.O.B. (Free on Board) or C.I.T.
23. Is location favoured by freight rates:
- i. Rail
 - ii. Road
24. On account of Re-organisation of State did you lose/gain.
25. General Assessment.

APPENDIX III

List of Names of Industries on Industrial Estate,
Sanatnagar, Hyderabad-18

S.No.	Name of Concern	Unit No.	Line of Manufacture
1.	M/s Electro-plating & Heat Treatment Centre, Small Industries Service Institute. (Govt. of India concern).	A-1	Electroplating & Heat Treatment Servicing Centre.
2.	The Federal Sports.	A-2	Bicycle chains & spokes.
3.	" Radio Spare Parts & Receivers Unit (APSSIDC Ltd.)	A-3	Radio Spare Parts.
4.	" Indo-Swing Private Ltd.	A-4	Razor Blades.
5.	" Saw-Mill-Timber Seasoning Plant-cum-Mechanised Wood Workshop. (APSSIDC Ltd.)	A-5	Wooden Furniture.
6.	" Small Gauge Insulated Copper Wire Unit. (APSSIDC Ltd.)	A-6	Small Gauge Insulated Copper Wire.
7.	" Krishi Engines (P) Ltd.	A-7	Kerosene Oil Engines.
8.	" Speed-Well Electricals (P) Ltd.	B-1	Electric Motors & Bench Grinders.
9.	" Radiant Engineering Co. (P) Ltd.	B-2	Copper Wire Drawing and P.V.C. Wires.
10.	" Bharat Tubes & Tin Printers.	B-3	Conduit Pipes, Tin Containers & Paint Kegs.
11.	" Synthopharm	B-4	Methyl Salicylate, Aluminium Hydroxide Gel. Magnesium Carbonate, Yara-Yara.

S.No.	M/s	Name of Concern	Unit No.	Line of Manufacture
12.	"	Utility Metal Works.	B-5) B-6)	Office & Hospital Furniture, Folding Steel Furniture.
13.	"	Deccan Metal Works	B-7	Sprayers & Dusters, Industrial equipment & Machine parts & spares thereof.
14.	"	Bio-Pharma Laboratories (P) Ltd.	B-8	Yara-Yara.
15.	"	X-Coat Company	B-9) B-10)	Foam Slabs conversion & Thermo-plastic coatings on Paper, Cloth, Hessian, Board, etc.
16.	"	Dr. Karanth's Pharmaceutical Industry.	B-11	Vitamins, Drugs & Fine Chemicals.
17.	"	Andhra Light Industries	B-12	Sewing Machines & Parts.
18.	"	Swadeshi Type Foundry.	B-13	Printing Types of different languages.
19.	"	The Commercial Chemical Co. (India) Private Ltd.	B-14	Chloral Hydrate & Chloroform.
20.	"	U-Foam Private Ltd.	B-15) B-16)	Polyurethane foam.
21.	"	Electronic & Industrial Instruments Equipment Co. (P) Ltd.	B-17	Electronic & Industrial Instruments such as P. H. Meters, VTVMS, Megometers, Oscillators & Transformers.
22.	"	Metalika Industries.	B-18	Surgical Instruments, Railway Requisites & Stainless Steel Utensils, Gammelas.
23.	"	Ellora Industries.	B-19) B-20)	P.V.C. Coated Fabrics & Book-binding Cloth.

S.No.	M/s	Name of Concern	Unit No.	Line of Manufacture
24.	"	Jubilee Industries Corporation	B-21	Surgical Instruments, Railway equipment, Hospital-ware, Builders' Hardware, Plastic & Sheet Metal Products.
25.	"	Parsram & Co.	B-22	Panel & Switch Board Meters.
26.	"	Eskay Industries	B-23	Transistors & Paper Condensers.
27.	"	Saraswati Engineering Works.	B-24	Saw Blades & Spring Washers.
28.	"	Andhra Expanded Metal Mfg. Co.	B-25	Expanded Metal & Wire Netting.
29.	"	Indo-Swiss Agencies.	B-26	Bicycle Dynamos.
30.	"	Eastern Machinery Corporation.	B-27	Steel Balls.
31.	"	Bridgestone Private Ltd.	B-28	Moped Chains.
32.	"	Electric Transformer & Equipment Co.	B-29) B-30)	Distribution & Special type Transformers.
33.	"	Krishi Foundry (P) Ltd.	B-31) B-32)	Foundry, Castings for Engines, Pumps and other Engineering Industries.
34.	"	India Leaf Spring Mfg. Co. Pvt. Ltd.	B-33	Railway & Automobile Leaf Springs.
35.	"	Bharath Industries.	B-34	Valve & Transistor Radios.
36.	"	Sunderdas & Company.	B-35) B-36)	Venetian Blinds.
37.	"	Varicon Private Ltd.	B-37	Gang Condensers.

S.No.	M/s	Name of Concern	Unit No.	Line of Manufacture
38.	"	Mahomed Ebrahim & Co.	B-38	Car Radios. Intercom sets, Hi-Fi Gramaphones & Tape recorders.
39.	"	Model Metal Industries	B-39	Aluminium A.C.S.R. Conductors, M.S. & G.I. Wire ropes & Stranded Wire.
40.	"	Dasaratha Raj (P) Ltd.	B-40	Bus Tickets, Bank Cheques & other security matter.
41.	"	Krishi Engines (P) Ltd.	B-41	Power Tillers.
42.	"	Progressive Packaging Private Ltd.	B-42	Corrugated Papers, Containers, Boards & High Quality Cartons & Card Board Boxes, Paper Bags, water-proof Packing Materials, Ice-cream cups & Wrapping Materials.
43.	"	A.P. Industrial Corp.	B-43	Automobile Parts, like Clutch Plates, King Pin Sets, Water Pump Kits, universal joint crosses.
44.	"	Andhra Metal Industries	B-44	Stainless Steel Utensils, Hospital Ware, Railway equipment & Builders' Hardware.
45.	"	Indecor Private Ltd.	B-45) B-46)	Plastic Laminated Products.
46.	"	Frizair Corporation.	B-47) B-48)	1½ & 2 Tons Air Conditioners.
47.	"	Time Engineers.	C-1	Auto Parts & accessories, Electro-plating Paper Mill parts, Hospital & Surgical equipment (other than Stainless Steel).

S.No.	M/s	Name of Concern	Unit No.	Line of Manufacture
48.	"	Industrial Engineering Corporation.	C-2	Galvanizing, Buckets, water boilers, Iron Buckets, Tubular poles, Barbed wire.
49.	"	Sanatnagar Wire Products	C-3	Wire Nails & Panel pins, Stainless Steel Utensils.
50.	"	Surana Industries.	C-4	Wire Nails & Panel Pins.
51.	"	Switch Gear Mfg. Co.	C-5	A.B. Switches & H.G. Fuses.
52.	"	Deccan Moulding & Iron Works.	C-6	Foundry & General Engg. Workshop.
53.	"	Scientific Engineering House Private Ltd.	C-7)) C-8)	Surveying & Drawing Equipment, Mathematical & Scientific instruments.
54.	"	Fractional & Engineering Instruments Mfg. Corp.	C-9) C-10)	Fractional H.P. Motors & Radio Transformers.
55.	"	Electronic & Engineering Instruments Mfg. Corp.	C-11	Radios, Radio Charging cabinets.
56.	"	Liberty Industries	C-12	Polythene & P.V.C. Tubes and sheeting, and Photo-flash Equipment.
57.	"	Delco Electrical Industries.	C-13	Conduit Pipes.
58.	"	Sanatnagar Polythene Industries.	C-14	Polythene Sheets, Bags, Toys & other Plastic Items.
59.	"	Popular Industries.	C-15	Oil Bath Gearcases for Bicycle.

S.No.	M/s Name of Concern	Unit No.	Line of Manufacture
60.	" Allied Mfg. Industries	C-16	Automobile Parts, Tools Bits, Non-Ferrous alloy castings, Light engg. products.
61.	" Elektra Products.	C-17	Electrical High Tension Goods, Porcelain base 15 Amp Switches, Rotary Switches, Etc.
62.	" Primer Industries.	C-18	Copper and Aluminium Conductors and Electrical Line Materials.
63.	" Telex Corporation.	C-19) C-20)	Valve & Transistor Radios, Car Radios, Amplifiers.
64.	" Purco Industries.	C-21	Stranded Wire, Copper Rivets & Shoe Tacks.
65.	" Wipers India.	C-22	Automobile Wind Screen Wipers.
66.	" Andhra Vidyut Industries.	C-23	Bakelite Electrical Accessories.
67.	" Swarnakara Batteries Y.C.S.	C-24	Batteries.
68.	" Mahalakshmi Electronics	C-25) C-26)	Tape recorders & Allied Electronic equipment.
69.	" Rockson Springs (P) Ltd.	C-27	Automobile Leaf Springs.
70.	" Jupiter Rolling Shutters & Engineering Works.	C.28	Rolling Shutters & Collapsible Gates.
71.	" Venkataramana Industries.	C.29	Machine Screws of Precision type & other Machine Parts.
72.	" Engineering Laboratories & Works Pvt. Ltd.	C-30	Engineering Meters.

S.No.	M/s	Name of Concern	Unit No.	Line of Manufacture
73.	"	Jyothi Industries.	C-31	Stainless Steel Hospital ware, Surgical Instruments & Industrial equipment, Mild Steel round drums, Utensils.
74.	"	Cenco Electrical Appliances.	C-32	Electrical accessories and Appliances.
75.	"	Scientific Engineering House Pvt. Ltd.	C-33	Microscopes.
76.	"	Harvin Optical & Glass Industries.	C-34	Lenses, Prisms, Special Tools.
77.	"	S.R. Engineering Works.	C-35	Packaging Cases.
78.	"	Ramakrishna Industries.	C-36	Drill Sleeves, Extension Sockets, Drill Chuck Keys, Lathe Chuck Keys, Lathe chuck T/bare, Drill chuck T/bare, Drill chuck Arbors, (Ancillary Industry to M/s Praga Tools Corp. Ltd.)
79.	"	The Oxygen Equipment Engineering Co. Pvt. Ltd.	C-37) C-38)	Oxygen.
80.	"	Radha Madhava Engineering Enterprises.	C-39	Machine vices, Job work, (Ancillary Industry to M/s Praga Tools Corp. Ltd.)
81.	"	Standard Printers Providers.	C-40	Printing machinery & Equipment.

S.No.	M/s	Name of Concern	Unit No.	Line of Manufacture
82.	"	Harvin Optical & Glass Industries.	C-41	Shaping machine vices, Angle Plates, Lenses, Grinding.
83.	"	Mecano Enterprises.	C-42	Shaping machine vices, Angle plates, Multipump on Single Plates, Drill chucks Arbors for Surface Grinders.(APSSIDC Ltd.)
84.	"	Raw Material Servicing Centre.		
85.	"	Centre for short term Training Course in Automobile Servicing.		(Department of Industries and Commerce).
86.	"	Workshop for manufacture of Machine Tools & Components for Automobile.		(Department of Industries and Commerce).
87.	"	Centre for short term Training Course in Radio Servicing.		(Department of Industries and Commerce).
88.	"	Composite Tool Room & Servicing Workshop.		(Department of Industries and Commerce).

APPENDIX IV

List of Names of Industries on Industrial Estate,
Chandulal Baradari, Hyderabad-2.

S.No.	Name of Concern	Unit No.	Line of Manufacture
1.	M/s Suri Industries.	A-1 Plot	Centrifugal pumps, Diesel Engines and Castings.
2.	" Ceramic Services Centre APSSIDC	Spl.B-1	Sanitary ware pressed porcelain insulators.
3.	Laboratory & Artware Centre APSSIDC	Spl.B-2	Acid Jars.
4.	Scientific Glass Apparatus Ampules Unit, APSSIDC	Spl.B-3	Scientific Glass Apparatus and glass ampules.
5.	" Andhra Chemicals and Pigments.	B-1	Zinc oxide, cadmium sulphide selenium oxide and cobalt acetate.
6.	" National Industrial Corporation.	B-2	Brass cocks, wheel valves and water taps.
7.	" Modern Nutrition Co.	B-3	Whole meal atta.
8.	" Displaced Goldsmiths Handmade Paper Indl. Coop. Society Ltd.	B-4	Handmade Paper.
9.	" Reliable Sheet Metal Industries.	C-1	Paint drums, Kegs, tin containers and liquid measures.
10.	" Universal Industries.	C-2	Auto spares.

S.No.	M/s Name of Concern	Unit No.	Line of Manufacture
11.	" Narendra Industries.	C-3	Pressed stainless steel articles and non-ferrous metals.
12.	" United Metal Products	C-4	Aluminium products.
13.	" Foam Rubber Factory.	C-5&6	Foam cushions.
14.	" J. Pharma.	C-7&8	Surgical cotton, Gauge cloth and Bandage cloth.
15.	" P.V.C. Apasara Foot wear.	C-9	P.V.C. Foot wear.
16.	" Suri Industries.	C-10	Centrifugal pumps, Agricultural Implements, Castings of Diesel and Kerosene Engines & Card Board Boxes.
17.	" Ram Industires.	C-11 Plot	Conduit pipes, Ferrous and non-ferrous castings.
18.	" Prasad Engineering Works.	C-12 Plot	Textile and paper machinery parts.
19.	" Utility Industrial Corporation.	D-1	Polythene Bags.
20.	" Supreme Electricals.	D-2	Stainless steel pressed articles & conduit pipes, Blue tack shoe nails, Gamalas.
21.	" K.R. Industries.	D-3&4	Assembly of Radios, transistors & tape recorders.
22.	" Aswani Industries.	D-5	Stainless steel pressed articles & Builders hardware.

S.No.	M/s	Name of Concern	Unit No.	Line of Manufacture
23.	"	Allied Research Laboratories.	D-6	Water meters.
24.	"	Bharat Steel & Sheet and Metal Works.	D-7&8	Stainless steel pressed articles Hexagonal wire netting plastic dolls and cane.
25.	"	D.R.S. Venkatadri Naidu Son.	D-9	Mosaic Tiles.
26.	"	Optical Traders.	D-10&11 Plot	Ophthalmic Lenses.
27.	"	Fitwell Industries.	D-12 Plot	Alluminium anodized articles.
28.	"	Kakati Karshak Industries.	D-14 Plot & 15	Diesel Engines.
29.	"	Calcutta Floor Tiles.	D-18 Plot	Mosaic & Terrazo Tiles.
30.	"	Steelwell Surgicals.	F-1	Hospital equipment & furniture.
31.	"	Fitwell Industries.	F-2	Alluminium containers, Steel furniture & Hospital furniture Aluminium anodized articles.
32.	"	Diljeet Industries.	F-3	Porcelain bleats, Fine carriers and other porcelain electrical appliances.
33.	"	Sree Venkateshwara Swarnakara Industrial Cooperative Society.	F-4	Agricultural implements and sheet metal works.

APPENDIX V

Hyderabad City is the only Town-Group recognised in the 1961 census for Andhra Pradesh. There are 113 cities and town-groups, with population over a lakh (100,000) each formed in India in 1961. It is one of the innovations attempted in the 1961 census, for the presentation of urban statistics by certain physical clusters to denote 'town group'. It was noticed, quite often, all over the country that the urban area is not really limited, only to the notified boundary of any one or two places, but it embraces satellite towns and cities, industrial townships and the settlements close to the urban area. Therefore, such well-formed clusters are treated as town groups. The main determining factors being the inter-linkage of road and railway transport and the interchange of population on account of business and employment. There are two types of town groups given below.

1. Town groups which are made up of a cluster of neighbouring municipalities only.
2. Town groups which are made up of a cluster of municipal and non-municipal areas.

Hyderabad town group is, therefore, made up of the Municipal Corporation and eleven suburban towns (Fig. 23). The second consideration for the formation of town groups is that any town situated within the radius of 2-5 miles

of the periphery of the main city is regarded in respect of continuity of urban characteristics, such as commutations and the interdependence of economic functions. Moreover, a town group also suggests the spatial direction of further urban and economic development. The table given below shows the constituent units of Hyderabad town group and their population, 1961.

Hyderabad Town Group, population 1951-1961

Constituent Units of Town Group	Population	
	1951	1961
1. Hyderabad Division	860,366	931,082
2. Secunderabad Division	161,307	187,471
3. Secunderabad Cantonment	63,549	78,412
4. Osmania University	5,055	5,755
5. Alwal	7,909	9,886
6. Zamistanpur	1,068	1,877
7. Kandikal	244	182
8. Bowenpalli	1,523	1,696
9. Lalaguda	1,694	2,109
10. Attapur	1,642	1,968
11. Fatehnagar	4,418	11,813
12. Malkajgiri	12,376	13,910
13. Macha. Bolaram	3,927	4,958



Plate I - Charminar, (built in 1594) centre of the historic city.



Plate II - Machlikaman, relic of Qutub Shahi period.



Plate III - Ladbazar, remnant of 16th century A.D.,
centre of handicrafts and costume jewellery
of old city.



Plate IV - Pathargatti road, main thoroughfare, south
of the river Musi.

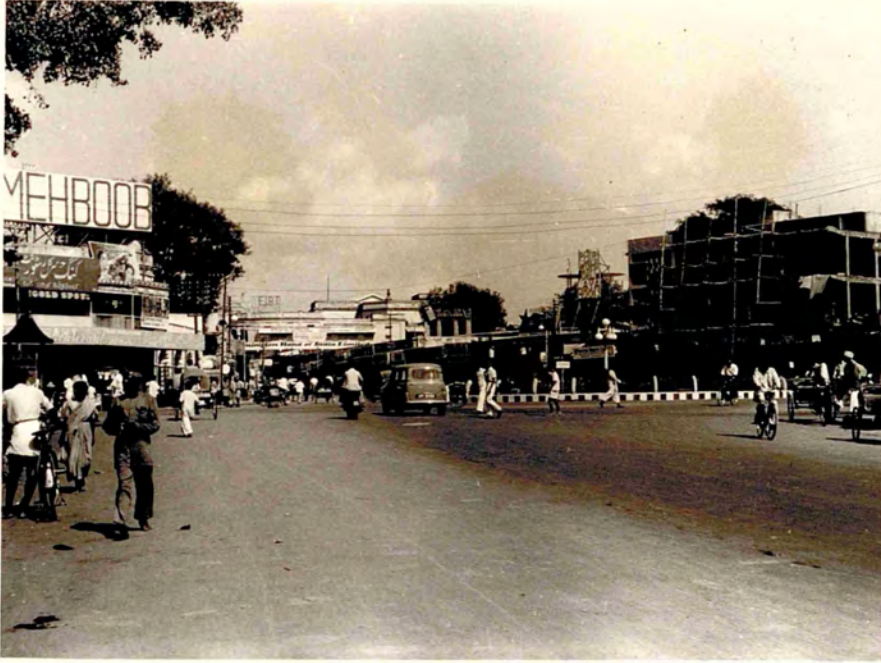


Plate V - Mahathma Gandhi road, the principal
'thoroughfare, Hyderabad.



Plate VI - Administrative Building.



Plate VII - Sanathnagar Industrial Estate,
'B' type factory units.



Plate VIII - 'B' Type Units.



Plate IX - 'C' Type factory units.



Plate X - State Bank of India and Raw Material
Servicing Centre, industrial estate, Sanathnagar.



Plate XI - Main cement road leading to all factory
units, Sanathnagar.



Plate XII - Backyard of the factory units for the finished goods.



Plate XIII - Factory-floor of Electric Transformer, Sanathnagar.



Plate XIV - Azamabad Industrial Area.



Plate XV - Bakaram Industrial Area.

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