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Some Aspects of Bangalore's Growth: 1941-1991

Introduction

B ANGALORE is one of the most rapidly growing metropolitan cities in India and ranks as the fifth largest city in the country. Unlike some other large metropolitan cities such as Bombay, Calcutta and Madras which owe their origin and growth to colonialism and favourable coastal location, Bangalore is an inland city which has developed from an indigenous system of settlements.

Historical Background

The origin of the present city of Bangalore can be traced to two nuclei located four miles apart. One nucleus is the fort built in 1537 by a local chieftain Kempe Gowda and the other is the British Barracks established in 1809. As years went by, a township of traders and cotton textile weavers grew around the Fort and was known as Bangalore city. In contrast, the barracks developed into a military cantonment around which a civilian settlement of retail traders and service classes to serve the needs of cantonment population also grew. In official documents, this area was designated as Bangalore civil and military station. Both nuclei expanded horizontally and in course of time coalesced to form a single continuous built up area. The two nucleus settlements were under two independent local administrative authorities until the passage of Bangalore Municipal Corporation Act (1949) by which they were formally merged (Rao and Tewari 1979).

When the old Mysore state came under British Commission in 1831, the government offices in Mysore were shifted to Bangalore and new public offices were established. Even the rendition in 1881 did not affect Bangalore's stature as an administrative centre, as the main offices of the Mysore state continued to function from Bangalore (Hasan 1970). Bangalore began to attract a few industries particularly cotton textiles such as the Mysore Spinning and Manufacturing Mill (1884) and Bangalore Woollen and Cotton Mill (1887). All the same, Bangalore maintained throughout the colonial period a moderate growth and by the turn of the century, the combined population of the twin cities was mere 1.6 lakh. This population rose to about 4 lakh by 1941 at the fag end of the colonial rule.

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The states reorganisation in 1956 made Bangalore, the capital of a much enlarged state which was later renamed Karnataka. In contrast to its sluggish growth during the colonial period, Bangalore witnessed a rapid increase in its population during post-independence period. The 1991 census counted 4 million persons in Bangalore Urban Agglomeration consisting of city proper and adjoining extensions. The ten fold increase in Bangalore's population between 1941 and 1991 is indeed alarming. This is reflected in Government Industrial Policy Resolution (1983) which prohibits the establishment of large industries (except the electronics industries) in and around Bangalore (Government of Karnataka, 1985). It is, therefore, useful to examine the nature of population growth in Bangalore and some of its consequences.

Components of Population Growth in Bangalore: 1941-1991

As the city of Bangalore grew, its population spilled over its statutory boundaries inundating a large number of adjoining villages and towns. Though the statutory boundaries of the corporation area were revised every now and then to accommodate the city's horizontal expansion, the entire urbanised area around Bangalore could not be brought under one local urban administration for various reasons. To present statistical data, relating to this one compact urbanised area, the census authorities have evolved a concept, 'Urban Agglomeration' according to which an urban agglomeration would include not only an inner city but also its suburbs, satellite towns and their out-growths. The number of constituent towns and their out-growths of Bangalore Urban Agglomeration varies from census to census. In 1991, 14.4 lakh population lived outside the city's statutory boundaries but within Bangalore Urban Agglomeration. Many of them, no doubt, could not find any accommodation in the densely populated inner city and, therefore, chose to live as close as possible to the inner city.

It must be noted that the apparently abnormal increase in Bangalore Urban Agglomeration's population (894 per cent) between 1941 and 1991 reflects not only the effect of natural increase and migration but also the effect of annexing other towns and their outgrowths as part of Bangalore urban agglomeration. To facilitate our analysis, it is useful to ascertain how far the observed growth in Bangalore is attributable to: (a) natural increase, namely, excess of births over deaths, (b) net-migration, namely, balance of in-migration over out-migration and (c) annexation of adjoining settlements. We shall assess the contribution of annexation and natural increase first, to avoid spurious inferences about net migration which has played a significant role in the growth of Bangalore.

The population growth indices presented in Table 1 are not adjusted for changes in the boundaries of the city or agglomeration. Table 2 reports the population of both Bangalore inner city and Bangalore urban agglomeration adjusted for boundary changes. The changes over time in the number of localities forming part of the city and the agglomeration are discussed in Appendix I. The constituent localities of Bangalore city and Bangalore urban agglomeration existing in 1991 were kept constant and the population of the city and agglomeration were adjusted to correspond to 1991 jurisdiction. It can be observed from Table 2 that in Bangalore inner city and also the extensions, population growth was unusually high during 1941-51, declined sharply during 1951-61 and began to rise steadily since then. It can also

be seen that except for the forties and fifties the population growth of extensions is higher than that of the inner city and the gap in growth between the city and the extensions is ever widening (Table 2). This would indicate that Bangalore's rapidly growing population settles mostly in new extensions outside the Corporation limit. It also suggests that the ability of the inner city to absorb population growth has reached near saturation point.

TABLE 1 : INDEX OF POPULATION GROWTH: BANGALORE CITY AND AGGLOMERATION
(UNADJUSTED DATA)

Year B.D.A)	Bangalore Inner City (Corporation & B.D.A)		Bangalore Urban Agglomeration	
	Population	Index of population growth	Population	Index of population growth
1941	406,760	100	410,967	100
1951	778,977	192	786,343	191
1961	1141,107	281	1206,961	294
1971	1540,741	379	1664,208	405
1981	2476,355	609	2921,751	711
1991	2650,659	652	4086,548	994

SOURCE: 1. Census of India, 1981, Karnataka, *General Population Tables*, Pt. H A, pp.293-94.

2. Census of India, 1991, India, *Provisional Population Totals: Rural-Urban Distribution* - Paper 2 of 1991, pp. 218-222.

TABLE 2 : INDEX OF POPULATION GROWTH IN BANGALORE CITY, EXTENSIONS AND BAN-
GALORE AGGLOMERATION (BOUNDARIES COTERMINOUS AS WAS IN 1991 CENSUS)

Year	Bangalore Inner City (Corporation & B.D.A)		Extensions		Bangalore Urban Agglomeration	
	Population	Index of population growth	Population	Index of population growth	Population	Index of population growth
1941	428,916	100	74,856	100	503,772	100
1951	835,481	195	136,199	182	971,680	193
1961	1013,510	236	165,390	221	1178,900	234
1971	1541,248	359	267,635	358	1808,883	359
1981	2476,355	577	494,271	660	2970,626	590
1991	2650,659	618	1435,889	1918	4086,548	811

SOURCE : 1. *District Census Hand Books* for 1951,1961,1971 and 1981.

2. Census of India, 1961, Mysore, *General Population Tables*, Part n A.

3. Census of India, 1971, Mysore, *General Population Tables*, Part n A.

4. Census of India, 1981, Karnataka, *General Population Tables*.Part E A.

5. Census of India, 1991, India, *Provisional Population Totals*, Paper 2 of 1991.

More importantly, the boundaries remaining constant, the population of Bangalore urban agglomeration has grown from 5.0 lakh to 40.9 lakh indicating a growth of 711 per cent only between 1941 and 1991. The difference between the unadjusted and adjusted indices would indicate that (894 - 711) 183 per cent growth in Bangalore's population is the result of boundary changes. Thus merger of settlements with Bangalore urban agglomeration at successive censuses can account for 21 per cent of the observed growth of Bangalore.

To estimate the contribution of natural increase to Bangalore's growth, we need reliable data on vital events, namely, births and deaths. Unfortunately, Bangalore does not have a good civil registration system which can produce usable estimates of birth and death rates. So we have assumed that Bangalore would have had the same rate of natural increase as Indian population during the corresponding period. The rationale for taking national population growth is that it is for all practical purposes a closed population less affected by migration and, therefore, is a good indicator of natural increase. The deficit of married women in Bangalore can probably imply a lower birth rate for Bangalore than All India rate. However, a compensating difference in death rate resulting from greater access to medical care in Bangalore would ensure a broad similarity of the rate of natural increase between Bangalore and India. The population of India increased by 165 per cent during the period. Assuming that the natural increase of population in Bangalore was also of the same magnitude, we estimated the relative contribution of natural increase to the observed growth of Bangalore. It is about 18 per cent of the total 894 per cent increase in population between 1941 and 1991.

After allowing for boundary changes and natural increase, there is still a residual of 546 per cent increase in population. The residual can be attributed to net migration. In relative terms, net migration alone is responsible for 61 per cent of the observed growth of Bangalore. This 61 per cent is composed of net migrants during the fifty year period and the children born to these migrants during the period. It is now clear that migration has contributed to Bangalore growth much more than natural increase or boundary changes (Table 3).

TABLE 3 : COMPONENTS OF THE GROWTH OF BANGALORE URBAN AGGLOMERATION

Description	Population (in lakhs)		Per cent increase between 1941 and 1991
	1941	1991	
Unadjusted for boundary changes ^a	4.11	40.87	894
Adjusted to 1991 boundary	5.04	40.87	711
Total per cent increase	Absolute share		Relative share
	894		100
Increase due to annexation of adjoining places (894 - 711)	183		21
Natural Increase	165		18
Net Migration	546		61

* Assumed growth in keeping with Natural Increase in India's Population during the corresponding period,

a: See Table 1.

b: See Table 2.

Migrants in the City

According to data from 1981 census, there were 11 lakh migrants in Bangalore urban agglomeration accounting for 38 per cent of the total population. More than one third of these migrants were from neighbouring states of Tamil Nadu (21 per cent), Andhra Pradesh (7 per cent) and Kerala (6 per cent). The remaining migrants were from other parts of the state of Kamataka and their share in Bangalore's population is steadily on the increase. Nearly half of the migrants in the city have rural background. They have come to the city directly from their villages.

Employment was the prime motive for moving into the city accounting for 51 per cent among male migrants and 6 per cent among female migrants. Some others— 8 per cent of male migrants and 4 per cent of female migrants came to the city in pursuit of education. Almost three-fourths of the female migrants cited marriage or family obligations as a reason for settling down in the city.

Changes in the Structure of Labour Force

There have been significant changes in the structure of Bangalore's economy over the years. Characteristic of colonial times, the major area of employment in Bangalore in 1941 was broadly defined service sector, where 49 per cent of the city's non-primary work force found employment. Manufacturing industries and handicrafts could provide employment for another 23 per cent which is rather low. Historically, Bangalore has been the collection and distribution centre for a variety of agricultural produce grown in the surrounding region and cotton arriving from far away places. Trade and commerce, therefore, flourished accounting for some 19 per cent of the labour force. The remaining 9 per cent of the labour force consisted mainly of construction workers or transport workers.

By 1981, distinct shifts have occurred in the distribution of labour force. Service sector gave way to manufacturing sector as the dominant sector of Bangalore's economy. While the service employment declined to 30 per cent, manufacturing employment rose to 40 per cent in Bangalore urban district. As one would expect in a rapidly expanding city, there was substantial increase in workers engaged in construction and transport sectors accounting for 15 per cent of the labour force. However, trade and commerce lost their importance with only 15 per cent of the labour force engaged in that sector.

As manufacturing began to assert its dominance in Bangalore's economy, it also went through significant diversification. Modern industries such as electrical and non-electrical machinery and transport vehicle manufacturing industries accounted for 12 per cent of the work force in 1981. These modern industries were non-existent in 1941. The dramatic appearance and growth of these industries is largely due to huge public sector investment in these industries. Some of the public sector undertakings that went into steam during the period are Indian Telephone Industries (1948), Hindustan Machine Tools (1953) and Bharat Electronics (1954) employing in all about 25 thousand workers. Hindustan Aeronautics Ltd. emerged as a public sector enterprise in 1956 and provided employment for another 21 thousand workers (Government of Kamataka 1975). Traditional industries, particularly textiles and leather goods, show signs of deceleration as their combined work force has declined from 14 per cent in 1941 to 8 per cent in 1981.

Bangalore still has a large proportion of its population dependent on government service at central, state and local bodies. Their share in the work force has been around 7 per cent

TABLE 4 : PER CENT DISTRIBUTION OF NON-PRIMARY WORKERS BY INDUSTRY,
BANGALORE, 1941-1981

<i>Industry self supporting persons in Bangalore Corpn. area</i>	<i>1941 Main workers as self supporting persons in Bangalore Corpn. area</i>	<i>1951 Main workers as self supporting persons in Bangalore Corpn. area</i>	<i>1961 workers Bangalore urban district</i>	<i>1971 Main workers Bangalore urban district</i>	<i>mi Main workers Bangalore urban district</i>
(1)	(2)	(3)	(4)	(5)	(6)
A. Manufacturing Industries	23.0	32.2	37.6	37.2	39.6
1 Textile & Garments	12.9	14.6	13.7	10.5	8.0
2 Leather goods	0.8	0.6	0.6	0.4	0.3
3 Food, beverages, tobacco etc.	2.2	2.7	2.5	2.1	5.9
4 Metal	2.4	0.9	1.1	0.9	2.0
5 Electrical machinery	0.0	1.0	2.8	6.0	6.3
6 Machinery other than electrical	0.0	2.0	1.2	3.5	2.4
7 Transport vehicles & equipment	0.2	4.5	5.5	5.3	3.6
8 Chemical	0.7	1.1	1.6	1.6	2.4
9 Ceramic	0.5*	0.5	2.9	1.0	1.1
10 Wood & Furniture	2.1	2.0	2.1	1.7	1.9
11 Paper & printing	0.9	1.1	1.0	1.2	1.3
12 Miscellaneous industries	0.3	1.1	2.5	3.0	4.4
B. Construction	4.6	5.8	5.8	4.7	6.0
1 Building	4.2	5.5	5.7	4.5	4.9
2 Roads, railways etc.	0.4	0.3	0.1	0.2	1.1
C. Trade & Commerce	19.0	17.7	14.2	19.1	15.4
D. Transport & Communication	4.6	5.5	5.2	12.3	9.5
E. Services	48.7	38.8	37.2	26.6	29.5
1 Domestic servants	6.0	4.2	2.7	1.6	1.9
2 Employees of central and state governments and local bodies	6.7	8.1	5.9	5.7	7.4
3 Total non-primary workers	100.0	100.0	100.0	100.0	100.0

Table 4 (contd. on page 59)

Table 4 (contd. frontpage 58)

<i>Industry</i>	<i>1941 Main workers as self supporting persons in Bangalore Corpn. area</i>	<i>1951 Main workers as self supporting persons in Bangalore Corpn. area</i>	<i>1961 workers Bangalore urban district</i>	<i>1971 Main workers Bangalore urban district</i>	<i>1981 Main waiters Bangalore iffvan district</i>
Absolute Number	103,370	191,939	395,704	523,341	915,184

Note : Marginal Workers are excluded for lack of data on their detailed industrial distribution.

In the census reports for 1961, 1971 and 1981, detailed industrial classification of workers is not given at city or urban agglomeration level. It is, however, given for Bangalore Urban District as a whole which includes a few more towns not located within the urban agglomeration. In 1981, the Bangalore Urban Agglomeration alone accounted for more than 92% of the population and workers living in Bangalore urban district.

SOURCE : Census of India 1941, Mysore Table I, Means of Livelihood. Census of India 1951, Mysore Table B-I, Livelihood Classes. Census of India 1961, Mysore Table B-IV, Industrial Classification of Workers. Census of India 1971, Mysore Table B-IV, Industrial Classification of Workers. Census of India 1981, Karnataka, General Economic Table B-12.

throughout the period. Domestic servants constitute another important segment of service sector. This is the only informal sector which can be easily identified from census tables. Typical of British Raj, its share was quite high in 1941 accounting for about 6 per cent of the labour force. Not surprisingly, when Bangalore was going through rapid industrialisation in the forties and sixties, not only its share in the labour force but also its absolute number declined very steeply. As the deceleration in industries set in the seventies, its size and share has again gone up accounting for about 2 per cent in the labour force in 1981 (Table 4).

Growing Primacy of Bangalore Urban Agglomeration within Karnataka

While Bangalore Urban Agglomeration has shown high growth rates, such is not the case for secondary cities located within its own hinterland. Bangalore registered an absolute growth of 894 per cent between 1941 and 1991 whereas during the same period the urban population of the entire Karnataka state excluding Bangalore Urban Agglomeration increased from 23.5 lakh to 97.6 lakh recording just 315 per cent growth. Individually, the second and the third largest cities in the state registered a far lower growth than Bangalore. The degree of primacy of Bangalore within the state increased from 2.8 to 6.3 with regard to Hubli Dharwad and from 2.7 to 6.3 with regard to Mysore, thus seriously distorting the rank-size distribution of urban centres (Table 5). Growing up like a monster, the primate city of Bangalore gobbled up much that was vital for the growth of other towns and cities in the state.

Concentration of Population and Economic Activities

The rapid growth of Bangalore has led to concentration of population and economic activities within a relatively small geographical space in a short span of time. In 1941, hardly 3 per cent of Karnataka's population lived in Bangalore city. In 1991, as much as 9 per cent of Karnataka's

population lived in what is known as Bangalore Urban Agglomeration (Table 5). If we consider urban population alone, 30 per cent lived in Bangalore Urban Agglomeration in 1991.

The share of Bangalore in manufacturing employment in Karnataka has increased from 13 per cent in 1951 to 20 per cent in 1981. Similarly, Bangalore's share in trade, service and construction employment also has increased from 15 per cent in 1951 to 21 per cent in 1981. Thus in 1981, every-fifth worker in secondary or tertiary sector in Karnataka lived in Bangalore Urban Agglomeration (Table 5). While the increasing concentration of population in Bangalore Urban Agglomeration has created serious strain on the city's infrastructure, the increasing concentration of secondary and tertiary sector employment has accentuated regional disparities within the space economy of Karnataka.

TABLE 5 : GROWING DOMINANCE OF BANGALORE URBAN AGGLOMERATION IN KARNATAKA 1941-1991

Year	Degree of Primacy ^a with regard to		Per cent share of Bangalore Urban Agglomeration in Karnataka State's		
	Hubli-Dharwad	Mysore Urban Agglomeration	Total Population	Manufacturing workers*	Trade, service and construction workers*
1941	2.8	2.7	3	N.A.	N.A.
1951	4.0	3.1	4	13	15
1961	4.4	4.3	5	13	12
1971	4.4	4.6	6	17	16
1981	5.5	6.1	8	20	21
1991	6.3	6.3	9	N.A.	N.A.

Note: a- Degree of primacy is defined as the ratio of the population of the largest city (Bangalore) to that of the secondary city. *- Changes in the definition of worker between 1951 and 1961 have been taken care of. For 1971 and 1981, the data refer to main workers only. N.A.- Work force data were not published for districts under the direct British Rule because of war time economy in 1941.

SOURCE: 1) Census of India, Primary Census Abstract, Mysore (Karnataka), 1941, 1951, 1961, 1971 and 1981. 2) Census of India 1991, India — *Provisional Population Totals*, Paper 2 of 1991.

Deteriorating Environmental Conditions

The rapid growth of the city, in its wake, has brought about great pressure on civic amenities. For example, the problem of supplying water to the metropolitan city built at an altitude of 3000 feet has not yet been solved satisfactorily (Ananda Krishna 1976). The internationally accepted minimum requirement of water for domestic use is about 200 litres per day per person. In 1941, the city could supply about 99 litres per day per person. With the execution of very ambitious Cauvery Water Supply Scheme, total water supply to the city has been considerably augmented. Yet it has not matched the increase in population.

The per capita availability of water for domestic consumption has, in fact, dwindled to an all time low of 45 litres per day in 1988.

The city is now generating more sewage than ever. Without adequate treatment, the sewage is let out into Arkavathi and South Pennar river valleys abutting the city (Subramanya 1976). There is no plant yet to recycle the sewage or to reduce the volume of toxic effluents discharged into the sewage by the numerous industries located in and around Bangalore. The quantum of solid waste generated by the city has doubled from 800 tonnes in 1976 to 1600 tonnes a day in 1988. But the facilities for collecting, conveying and disposing of the refuse are woefully inadequate (Gopal 1976). As against the standard requirement of one sweeper for every 1500 persons and one lorry for every 15,000 persons, the City Corporation has only one sweeper for 6,000 persons and one lorry for 28,000 persons.

There is an acute shortage of housing and hence high proliferation of slums. The present deficiency in the housing stock of the city is put at a staggering 71 thousand dwelling units. In 1976, there were 161 slums which accommodated about 2 lakh population. There are now 400 slums inhabited by 4 lakh population. Every sixth person lives in a slum in the State capital which, not long ago, was described as the garden city of India (Govindappa 1990).

There is indeed scarcity of suitable sites to build new houses; so undulating is the terrain. This has kept Bangalore as an ever sprawling city. The City's Corporation area was only 70 sq km in 1941. The urban sprawl now covers an area of 366 sq km. The colonization of suitable scraps of level land in distant suburbs has often taken place in advance of the development of local facilities such as shopping centres, schools and adequate bus services.

Even in the inner city, the transport arteries built decades ago are no longer able to cope with increased vehicular traffic. In 1986, Bangalore has had 3,29,300 registered vehicles, one of the highest concentrations in India. In 1967, there were 807 road accidents (Deshpande 1976). In 1981, Bangalore witnessed 4729 road accidents which resulted in 366 deaths and injuries to 3581 persons (Vagale 1989). This has earned the city the dubious distinction of having one of the highest rates of vehicular accidents among Indian cities.

The automobiles and the industries vie with each other in creating atmospheric pollution and noise pollution. While the tolerance limit for noise is 40 to 45 decibels, some of the built up areas in the city such as Avenue Road, Kempegowda Road and Kalasipalyam have registered 70 to 80 decibels on normal working days. Noise induces stress, creates tension and triggers off mental illness. It is reported that in 1984, there were 1447 cases of suicides and the number is increasing at an alarming rate (Vagale 1989).

Conclusion

As the administrative capital of an enlarged state, Bangalore grew in importance. The setting up of several large scale public sector undertakings in the city stimulated the local economy and provided employment for a vast number of locals and outsiders. Once a base for industrialisation was created in Bangalore, several ancillary industries and many new industries flocked to the city to reap the benefits of economies of agglomeration. There was boom in construction and transport sectors. Professionals and skilled workers moved in to fill the jobs generated in the organised sectors. They and their families were in need of

various types of services and consumer goods. To meet their demand, unskilled workers and indigent villagers migrated into the city from the surrounding country side which in any case was not prospering. They created jobs for themselves in the informal sector. In other words, industrialisation and population growth have been mutually reinforcing each other, resulting in the rapid expansion of the city into an agglomeration.

This has caused serious strain on the city's infrastructure and urban environment. Unless a number of ambitious large scale infrastructural projects are implemented in the city immediately, life for the citizens of the city would become unbearable when they enter the twenty-first century.

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APPENDIX: I

Changes in the Jurisdiction of Bangalore

For the sake of analytical convenience, Bangalore Agglomeration can be divided into (i) Bangalore Inner City consisting of Bangalore Corporation and B.D.A. (Bangalore Development Authority), earlier known as C.I.T.B. (City Improvement Trust Board) area or T.B.A. (Trust Board Area); and (ii) Extensions, which are part of Bangalore Agglomeration but outside the city.

Bangalore inner city has undergone some territorial changes since 1951. In that year the civil and military areas were merged with the city and became part of the Corporation. "In the 1961 census, all the villages situated within a radius of 5 miles of the limits of the Municipal Corporation of Bangalore were considered as falling within the jurisdiction of the City Improvement Trust Board, Bangalore, and were, therefore, included as part of the urban area called Bangalore Metropolitan Area of which the City Improvement Trust Board Area was a part" (General Population Tables, 1971, Mysore, p.14). In the 1971 census, however, an arbitrary radius of five miles was not accepted as a criterion for treating villages as part of City Improvement Trust Board Area. Hence 171 localities included in C.I.T.B. in 1961 were transferred to rural areas. As against this, some villages were added to Bangalore city in 1971: (a) Jodi Kempapura, (b) Kethmaranahalli, (c) Yeswanthapur and (d) "some areas of C.I.T.B. which had been classified as urban in 1961" (General Population Tables, 1971, Mysore, p.76). In 1981 three more localities—Matadahalli, Dyvasandra and Chikmaranahalli—listed as villages in 1971 were merged with Bangalore City.

The extensions have also expanded over time. In 1961, the extensions consisted of 8 localities: H.A.L. Sanitary Board, Kethmaranahalli, Jodi Kempapura, Jalahalli, Devarajeevanhalli, Yeswanthpura, Yelahanka and Kadugondanahalli. These extensions, along with the Bangalore City (Corporation and Trust Board Area) formed part of the "Bangalore Metropolitan Area Town Group". In 1971, as mentioned earlier, some of the 1961 extensions—Jodi Kempapura, Kethmaranahalli and Yeswanthpura—were formally merged with the city. All the remaining extensions of 1961 except Yelahanka continued to remain in the extensions in 1971. In addition, four new townships—H.A.L. township, H.M.T. township, L.T.I. Notified Area (Doorvaninagar) and B.E.L. township—became part of the extensions in 1971. These extensions along with the city constituted the "Bangalore Urban Agglomeration" in 1971. In 1981, 8 more localities were added to the extensions: B.M. Kaval, Hebbal, H.M.T. Watch Factory Township, Kadenahalli, Kengeri, Krishnarajapuram, Lingarajapura and Yelahanka. Further 47 localities called out-growths adjoining Bangalore city and also the out-growths adjoining B.E.L., B.M. Kaval, H.A.L., I.T.I., Kengeri, Krishnarajapura and Yelahanka became part of the extensions. A scrutiny of the list of constituent units of Bangalore Urban Agglomeration in 1991 reveals that 16 localities which did not exist in earlier censuses have been added to the urban agglomeration in 1991. Most of them are new layouts that have come up in the vicinity of the city. Another 32 localities which were treated as villages in earlier censuses have become part of the agglomeration for the first time in 1991. It must also be noted that for 14 localities

forming part of extensions, separate population figures are not available for certain periods:

- (1) Karisandra : 1961,1971 and 1991;
- (2) Gerahalli: 1941 to 1971 and 1991;
- (3) Kodigehalli Plantation : 1961 and 1971;
- (4) Lingarajapura : 1961 and 1971;
- (5) Byappanahalli: 1961;
- (6) Manavarthekaval: 1961;
- (7) Cholanayakanahalli: 1991;
- (8) Avalahalli: 1991;
- (9) Marenahalli: 1991;
- (10) Guddadahalli: 1991;
- (11) Nyanappasettipalya: 1991;
- (12) Sarakki Agrahara: 1991;
- (13) Govinayakanahalli: 1991;
- (14) Dyavasandra: 1991.