

## Population Density and Urbanisation in Kerala : Impact on Environment

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**ABSTRACT** Although Kerala - a highly densely populated state - has achieved lowest levels of fertility and mortality in the country, the population is bound to increase for at least 40 years before attaining stability. As a result, population density and tempo of urbanisation will continue to rise and this will definitely impinge seriously on the environmental problems of the state. The major source of atmospheric pollution will be due to the emission of lethal gases from vehicles. Further, Kerala poses the prospect of a large number of urban slums. Housing in urban areas is yet another problem to reckon with.

### INTRODUCTION

Demographically, Kerala has emerged as an exception in India over the last three decades. It has the lowest birth rate, lowest death rate and lowest infant mortality rate among the major states of India. The crude birth rate is 17 per thousand, death rate 6 per thousand and infant mortality around 13 per thousand live births (SRS, 1995). Consequently, the life expectancy at birth for females is 72 years and for males, it is 69 years. The average annual exponential growth of population is also around 1.14 per cent, the lowest in the country. The fact that these achievements were possible without sufficient gains in the economic front (the so called threshold level) of the Kerala society - which goes against the existing theories of demographic change - makes the Kerala demographic model exceptional.

Despite attaining the replacement level of fertility, the population of Kerala will contin-

ue to grow at least for 40 years before achieving zero population growth. Being a small state with only 1.18 per cent of the total land area of India, the population density is bound to increase tremendously over the next three-four decades. This spatial pressure along with an enhanced tempo of urbanisation is quite likely to manifest as serious problems in the physical environment of Kerala. An analysis of this changing phenomenon at the state as well as district level is the theme of the paper.

### POPULATION GROWTH - TRENDS AND DISTRICTS DIFFERENTIALS

As per 1991 census, the population of Kerala was 29.1 million (Registrar General, India, 1991). In the beginning of this century, the population stood at 6.41 mill, registering a 355 per cent increase during the 90 year period. The growth rate was low during the period 1901-21, mainly due to the high birth as well as death rates. Later on, the growth rate began to increase rapidly until 1961-71 due to a steady decline in death rate while the birth rate remained almost static. Population growth has registered its peak during 1961-71 and afterwards a steadily declining growth trend is visible.

District wise growth pattern is as follows. Currently, three districts *viz.* Malappuram, Kasargod and Wayanad have more than 20 per cent decadal growth rates with Malappuram leading in this category. Pathanamthitta, Alappuzha and Kottayam have relatively low growth rates wherein Pathanamthitta is the leader with decadal growth rate as low as 5.6 per cent.

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Table 1 : Trends in population growth rate in Kerala, 1901-1991

| State and Districts | Percentage decadal variation in population |         |         |         |         |         |         |         |         |
|---------------------|--------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
|                     | 1901-11                                    | 1911-21 | 1921-31 | 1931-41 | 1941-51 | 1951-61 | 1961-71 | 1971-81 | 1981-91 |
| Kerala              | 11.75                                      | 9.16    | 21.85   | 16.04   | 22.82   | 24.76   | 26.29   | 19.24   | 14.32   |
| Kasargod            | 7.00                                       | 3.82    | 17.56   | 13.33   | 20.08   | 24.60   | 33.36   | 27.78   | 22.78   |
| Kannur              | 6.73                                       | 2.37    | 14.52   | 12.16   | 21.68   | 30.24   | 31.82   | 24.34   | 16.63   |
| Wayanad             | 9.85                                       | 2.69    | 8.26    | 15.89   | 59.17   | 62.60   | 50.35   | 33.87   | 21.32   |
| Kozhikode           | 7.34                                       | 3.55    | 17.51   | 11.95   | 25.14   | 25.71   | 29.81   | 23.25   | 16.69   |
| Malappuram          | 9.64                                       | 2.17    | 14.44   | 11.73   | 17.67   | 20.67   | 33.80   | 29.43   | 28.87   |
| Palakkad            | 7.31                                       | 4.18    | 10.22   | 8.90    | 18.45   | 12.79   | 23.06   | 21.30   | 16.52   |
| Thrissur            | 12.65                                      | 5.72    | 22.14   | 16.17   | 21.53   | 20.32   | 26.09   | 14.60   | 12.20   |
| Ernakulam           | 13.78                                      | 7.35    | 24.50   | 19.29   | 18.88   | 21.37   | 27.38   | 17.18   | 11.12   |
| Idukki              | 108.88                                     | 9.32    | 72.58   | 30.17   | 35.66   | 74.72   | 32.18   | 26.64   | 11.22   |
| Kottayam            | 8.31                                       | 19.97   | 32.38   | 21.65   | 20.11   | 16.03   | 17.13   | 10.29   | 7.71    |
| Alappuzha           | 14.83                                      | 18.53   | 24.75   | 13.63   | 18.58   | 20.45   | 19.01   | 11.62   | 7.28    |
| Pathanamthitta      | 14.78                                      | 18.56   | 27.24   | 20.51   | 24.78   | 23.50   | 15.75   | 9.45    | 5.60    |
| Kollam              | 14.70                                      | 18.61   | 26.38   | 22.71   | 29.63   | 31.59   | 25.88   | 18.27   | 10.68   |
| Thiruvananthapuram  | 17.54                                      | 17.02   | 28.58   | 18.46   | 30.81   | 31.38   | 26.03   | 18.08   | 13.50   |

### POPULATION DENSITY

Trends in the population density in Kerala from 1951 onwards are shown in table 2. Up to 1991, the census figures are given and for the later period up to 2051, a linear projection is made.

The overall population density in Kerala has increased more than double (115 per cent) since independence from 349 in 1951 to 749 per sq. km in 1991. The density is likely to increase to 856 in 2001 and 915 in 2031.

The district pattern of current density is as

follows. Alappuzha has the highest density followed by Trivandrum, Ernakulam and Kozhikode. Idukky and Wayanad - the two hilly districts - have obviously the lowest population density in Kerala.

The projected figures show that in 2001, Alappuzha will have a density of 1617 and 1729 in 2031, while Trivandrum, Ernakulam and Kozhikode will have 1642, 1429 and 1366, respectively. However, the pace of growth of density will be comparatively lower in the coming years due to slow growth of population. Nonetheless, the population and density

Table 2 : Density of population - Kerala, 1951-1991

| State and Districts | 1951 | 1961 | 1971 | 1981 | 1991 | 2001 | 2011 | 2021 | 2031 |
|---------------------|------|------|------|------|------|------|------|------|------|
| Kerala              | 349  | 435  | 549  | 655  | 749  | 856  | 868  | 879  | 915  |
| Kasargod            | 206  | 257  | 343  | 438  | 538  | 615  | 623  | 631  | 657  |
| Kannur              | 305  | 397  | 524  | 651  | 759  | 867  | 880  | 891  | 927  |
| Wayanad             | 79   | 129  | 194  | 260  | 315  | 360  | 365  | 370  | 385  |
| Kozhikode           | 476  | 599  | 777  | 958  | 1118 | 1278 | 1296 | 1312 | 1366 |
| Malappuram          | 324  | 391  | 523  | 677  | 872  | 997  | 1011 | 1023 | 1065 |
| Palakkad            | 271  | 306  | 376  | 456  | 532  | 608  | 617  | 624  | 650  |
| Thrissur            | 463  | 557  | 702  | 805  | 903  | 1032 | 1046 | 1060 | 1103 |
| Ernakulam           | 579  | 706  | 899  | 1053 | 1170 | 1337 | 1356 | 1373 | 1429 |
| Idukki              | 66   | 115  | 152  | 193  | 215  | 246  | 249  | 252  | 263  |
| Kottayam            | 514  | 596  | 699  | 771  | 830  | 949  | 962  | 974  | 1014 |
| Alappuzha           | 825  | 993  | 1182 | 1319 | 1415 | 1617 | 1640 | 1661 | 1729 |
| Pathanamthitta      | 272  | 336  | 389  | 426  | 450  | 514  | 521  | 528  | 550  |
| Kollam              | 446  | 587  | 738  | 873  | 967  | 1105 | 1121 | 1135 | 1181 |
| Thiruvananthapuram  | 606  | 796  | 1003 | 1184 | 1344 | 1536 | 1558 | 1577 | 1642 |

will continue to grow at least for 30-40 years which will definitely impinge seriously on the environmental problems of Kerala in the beginning of the Twenty first century.

### URBANISATION

India is, of course, a less urbanised nation in international standards with only about 26 per cent of the population living in urban areas (Tables 3 and 4). Until 1981, Kerala was lagging behind the Indian average in this regard.

**Table 3 : Urbanisation in India and Kerala, 1901-1991**

| Year | India            |                             | Kerala           |                             |
|------|------------------|-----------------------------|------------------|-----------------------------|
|      | % Urban to total | % Decadal Urban Growth Rate | % Urban to total | % Decadal Urban Growth Rate |
| 1901 | 10.84            |                             | 7.11             |                             |
| 1911 | 10.29            | 0.35                        | 7.34             | 15.44                       |
| 1921 | 11.18            | 8.27                        | 8.73             | 29.78                       |
| 1931 | 11.99            | 19.12                       | 9.64             | 34.58                       |
| 1941 | 13.36            | 31.94                       | 10.84            | 30.47                       |
| 1951 | 17.29            | 41.42                       | 13.48            | 52.72                       |
| 1961 | 17.97            | 26.41                       | 15.11            | 39.89                       |
| 1971 | 19.91            | 38.23                       | 16.24            | 35.72                       |
| 1981 | 23.34            | 46.39                       | 18.74            | 37.64                       |
| 1991 | 25.72            | 35.91                       | 26.40            | 60.97                       |

**Table 4 : Levels of urbanisation - Kerala and Districts, 1961-1991**

| State and District | Percentage of Urban Population to Total |       |       |       |
|--------------------|-----------------------------------------|-------|-------|-------|
|                    | 1961                                    | 1971  | 1981  | 1991  |
| Kerala             | 15.11                                   | 16.24 | 18.74 | 26.40 |
| Kasargod           | -                                       | -     | 4.94  | 16.45 |
| Kannur             | 17.76                                   | 14.53 | 31.73 | 51.87 |
| Wayanad            | -                                       | -     | 0.00  | 3.41  |
| Kozhikode          | 28.44                                   | 30.83 | 27.18 | 38.34 |
| Malappuram         | 3.58                                    | 6.73  | 7.40  | 9.12  |
| Palakkad           | 10.87                                   | 12.70 | 10.11 | 15.72 |
| Thrissur           | 11.00                                   | 11.74 | 21.10 | 26.31 |
| Ernakulam          | 23.27                                   | 29.39 | 39.56 | 48.74 |
| Idukki             | -                                       | 2.74  | 4.59  | 4.72  |
| Kottayam           | 12.59                                   | 13.81 | 9.37  | 17.55 |
| Alappuzha          | 17.19                                   | 16.92 | 18.46 | 30.46 |
| Pathanamthitta     | -                                       | -     | -     | 13.05 |
| Kollam             | 7.41                                    | 7.87  | 15.50 | 18.53 |
| Thiruvananthapuram | 25.71                                   | 26.00 | 25.26 | 33.88 |

However, 1991 Census witnessed a higher proportion of urban population in Kerala compared to India's average. Further, an all-time

high rate of decadal urban growth was seen in Kerala *i.e.* 61 per cent during 1981-91. As regards the district differentials, Kottayam, Palakkad and Kannur have registered very high urban growth while Idukki and Kollam have shown lower growth comparatively.

Among various districts, Kannur appears to have the highest proportion of urban population (52 per cent) followed closely by Ernakulam (49 per cent). Kozhikode and Thiruvananthapuram also have higher proportions of urban population in the state. Wayanad, Idukki and Malapuram have lowest proportions of urban population in our state.

### URBAN GROWTH

Table 5 shows the decadal urban population growth over the last three decades. The latest decade 1981-91 witnessed an unprecedented high growth of about 61 per cent in Kerala.

**Table 5 : Urban Growth rate in Kerala by districts 1961-1991, Kerala**

| State and Districts | Decadal Urban Growth Rate (Percentage) |         |         |
|---------------------|----------------------------------------|---------|---------|
|                     | 1961-71                                | 1971-81 | 1981-91 |
| Kerala              | 35.72                                  | 37.64   | 60.97   |
| Kasargod            | -                                      | -       | -       |
| Kannur              | 8.26                                   | 101.84  | 74.67   |
| Wayanad             | -                                      | -       | -       |
| Kozhikode           | 38.03                                  | 8.67    | 64.61   |
| Malappuram          | 156.63                                 | 42.39   | 58.88   |
| Palakkad            | 43.80                                  | 3.46    | 81.24   |
| Thrissur            | 34.58                                  | 106.04  | 39.91   |
| Ernakulam           | 60.89                                  | 57.68   | 36.92   |
| Idukki              | -                                      | 76.66   | 14.01   |
| Kottayam            | 28.81                                  | 23.79   | 101.70  |
| Alappuzha           | 15.87                                  | 3.84    | 63.18   |
| Pathanamthitta      | -                                      | -       | -       |
| Kollam              | 31.66                                  | 94.90   | 20.51   |
| Thiruvananthapuram  | 26.42                                  | 14.73   | 52.23   |

Concerning district differentials, Kottayam has registered the highest growth of about 102 per cent while Idukki had the lowest growth rate.

### ENVIRONMENTAL ISSUES

The impact of population pressure on land

has been studied mainly through the analysis of the relationship between density and urbanisation in order to understand the environmental issues in Kerala in the coming years.

Population density has always been a serious problem of a small state like Kerala. This is, perhaps, a major reason for the grossly insufficient production of agricultural commodities in the state. The available arable land is not being utilised exclusively for cultivation. As a result, Kerala has become an importer of agricultural products in a large scale for its consumption. The availability of vacant landscapes will become a rarity in future which has bearing on healthy living.

In the absence of any industrialisation worth mentioning, the major source of air pollution in Kerala is the emission of hydrocarbons, carbon monoxide and other lethal gases from automobiles in Kerala. There has been a spectacular increase in the number of vehicles, especially two-wheelers, three wheelers and cars, during the last 10 year period in Kerala. This buying tendency is bound to sustain also. The population density affects this in two ways. i). when density is very high, the dangerous effect of pollutants is spread very fast and for large populations. ii). the high population density of the state acts as a barrier for further expansion of the road network in terms of widening and enlarging.

Rapid urbanisation along with high population density exerts tremendous pressure on urban living and environment. Our cities and towns are not planned ones as in some parts of India or abroad. Until now, the slums in Kerala have not reached the nauseating levels as in

Bombay or Madras. But, if the present trend continues, Kerala poses the prospect of having quite a large number of urban slums. The urban population density will be very high in the next 30-40 years time *i.e.*, above 1000 people per sq km. Its impact on air pollution, water pollution and housing is likely to be extremely unbearable. In the context of housing, the multistoreyed flat system may become a necessity in urban areas.

In conclusion, I argue for a pragmatic approach for solving or containing the environmental degradation in the coming years by giving due consideration for the increasing population density, especially urban density, in Kerala. The ad-hocism we follow in the planning and development efforts will no longer suffice. We have succeeded now only in reducing population growth by achieving replacement level of fertility not in achieving zero population growth. Therefore, the population density is bound to increase at least for 30-40 years to come.

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