

GOVERNMENT OF KERALA

ANNUAL REPORT ON RESIDENTIAL VITAL RATES 1987

DEPARTMENT OF
ECONOMICS & STATISTICS
THIRUVANANTHAPURAM
1990

GOVERNMENT OF KERALA

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RESIDENTIAL VITAL RATES IN
CORPORATIONS AND MUNICIPALITIES - 1987

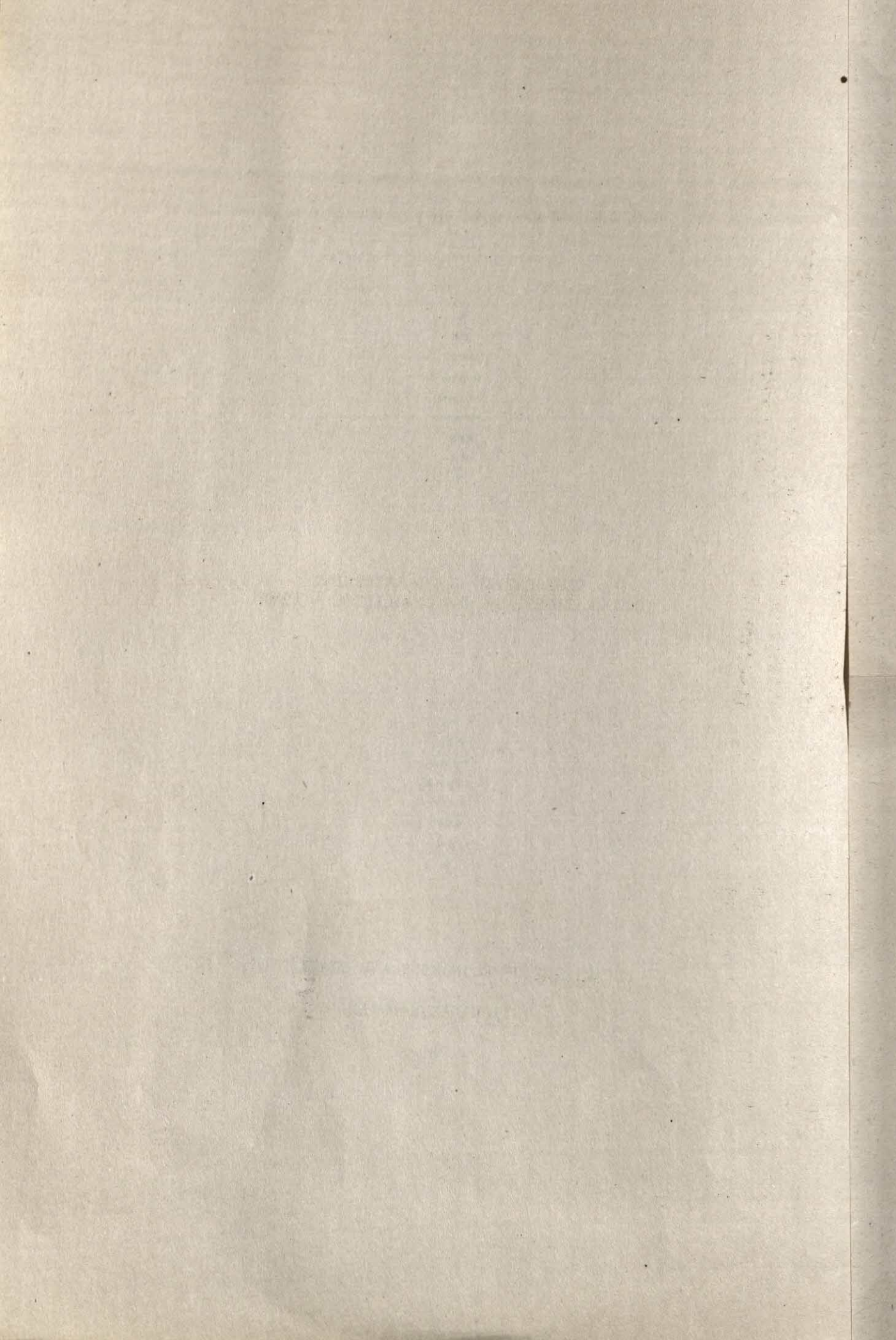
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DEPARTMENT OF ECONOMICS AND STATISTICS

THIRUVANANTHAPURAM

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"	"	16 "	216
16	"	15 22nd	192
"	"	16 "	302
"	"	15 23rd	2230
"	"	16 "	2572
"	"	15 27th	215
"	"	16 "	296
"	"	15 30th	6679
"	"	16 "	7166
"	"	15 32nd	813
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P R E F A C E

This report contains the adjusted residential birth/death rate in Corporations and Municipalities for the year 1987. The residential vital rates are estimated on the basis of the results of the Spot-Check Survey conducted in the selected units in 30 Municipalities, 3 Corporations and one Township during the year under report. In the calculation of the rates adjustments are made for under registration and the events occurring to the normal residents outside the town/city. The report has been prepared in the Vital Statistics unit in the Directorate of Economics and Statistics.

P.L. SREEDEVI AMMA,
DIRECTOR.

Thiruvananthapuram,
18. 5. 1990.

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A P P E N D I X

Method of estimation of adjusted residential vital rates

Residential vital rates can broadly be defined as the rate of occurrence of vital events to the normal residents of an area. For estimation of the residential vital rates, the events occurred to the outsiders are excluded from the total registered events and adjustments are made for, under registration and for the events occurring outside the town/city to the normal residents. For the calculation of the percentage of under registration also the events occurring to persons coming to the town/city for better medical services are excluded and those of normal residents who are going outside the town/city are included.

Notations and formulae used

- pi. - Mid year population of the ith town/city.
- bi. - Number of births occurred to normal residents in the ith town/city.
- di. - Number of deaths occurred to normal residents in the ith town/city.
- ui. - Number of events occurring to the normal residents inside the town/city but not registered.
- oi. - Number of events occurred to the normal residents outside the ith town city registered and unregistered.
- pu. - Proportion of under registration in the ith town/city.
- Po. - Proportion of events occurred outside the ith town/city to normal residents.
- Vi. - Registered birth/death rate to normal residents in the ith town/city.
- Ei. - Residential birth/death rate to normal residents occurred inside the ith town/city (weighted for under registration and outside events.)

(Contd.)

Sr. - State average (urban) of residential birth/death rate.

$$Pu. - \frac{U_i}{P_i}$$

$$Po. - \frac{O_i}{P_i}$$

$$Vi. - \frac{b_i}{p_i} \times 1000 \quad \text{or} \quad \frac{d_i}{p_i} \times 1000$$

$$Ei. - \frac{V_i}{(1 - p_u)(1 - PO)}$$

$$Sx - \frac{p_i E_i}{p_i}$$

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RESIDENTIAL VITAL RATES IN MUNICIPAL AREAS

Introduction

In Kerala 'defacto' approach is adopted for the registration of births and deaths. This means, the events are registered at the place where they occur. As such, the events occurring to the outsiders are also likely to be registered in the place of occurrence. So the events registered in town/city cover those occurring to normal residents and outsiders because of the flow of rural folks to the town/city to avail themselves of better medical facilities. The possibility of movement, of the people from town/city to other areas for expert medical advice and treatment cannot be ruled out in this context. It is a fact that despite the law for compulsory registration of births and deaths, the under registration, though not of a very high degree still persists in Kerala. The urban area is no exception to this. On account of the above, reliable birth and death rates of normal residents of town/city, the importance of which in measuring, the population changes need no emphasis, cannot be arrived at. Considering the above aspects the spot check survey was introduced in the state as a remedial measure. It was introduced under the scheme "strengthening of statistical units in municipalities and corporations for the improvement of vital statistics". The result of the survey is presented in the report.

2. Scheme for improvement of Vital statistics

The registration of birth and death Act and the Rules framed thereunder govern the registration of the vital events in Kerala. During the year 1987 also cent per cent coverage in the registration of the events is not achieved. All the reported events irrespective of whether they pertain to the normal residents or outsiders are registered by the concerned in the town/city.

With a view to avoiding omission in the registration of, vital events educational efforts are made by the corporation/municipal authorities

to create awareness among the public on the importance of registration of vital events. Publication of pamphlets, leaflets, display of boards, exhibition of slides in theatres etc. are a few among them. The defaulters are also suitably dealt with in accordance with the provisions contained in the act and rules.

The spot check survey introduced in municipalities/corporations aims at estimating the adjusted residential birth/death rate of a town/city and the extent of under registration.

During the year 1987 also, the survey was conducted in selected samples. It covered 3 city corporations, 30 municipalities and Guruvayoor Township. The random sampling technique was adopted for the survey. In 3 city corporations and municipalities other than Kollam & Alappuzha 15 wards each were selected by random sampling. In Kollam and Alappuzha municipalities 18 wards each were selected as samples. All the ten wards in Guruvayoor township were selected for the survey. The statistical staff for whom the spot-check work is assigned visited all the households in the selected wards and collected the required details on vital events from each household. The vital events occurring to the normal residents enumerated through spot check survey are categorized as:

- i. events occurring inside the town registered
- ii. events occurring inside the town but not registered
- iii. events occurring outside the town registered or unregistered.

For calculation of the percentage of under registration, the events occurring to the persons coming into town/city for getting better medical services and the like are excluded. Only the events occurring to the normal residents are taken into consideration.

For estimation of adjusted residential vital rates, the events occurring to the outsiders are excluded from the total registered events. To arrive at the residential vital rate of a town/city the registered vital events to the normal residents are weighted for under registration and outside events.

A scheme on "medical certification of causes of death" was also introduced in city corporations and selected major municipalities to develop statistics.

3. General findings of the survey in the Towns/Cities

Table 1 represents the area and population in municipalities/corporations covered by the spot check survey during the year 1987. The density of population was highest in Kollam municipality (7977) followed by Thiruvananthapuram corporation (7157). The density of population in 7 towns was more than 5000 as in the previous year.

Table 2 shows the availability of medical institutions with beds in the municipalities/corporations. As regards the number of hospitals in the public sector Thiruvananthapuram corporation ranks, first. The private hospitals were maximum in number in Cochin corporation. The medical institutions were, comparatively large in number in all the municipalities and corporations. The three city corporations, though with large number of medical institutions with beds were lagging behind in respect of bed population ratio which is an indicator in ascertaining the extent of medical facilities in an area. The bed-population ratio (number of beds per 100 population) is estimated as 3.06 in Aluva municipality which was the highest. The lowest was recorded in Chittur-thathamangalam (0.31). There were a few other municipalities (viz. Thiruvalla, Pala, Perumbavoor and Thrissur) with a bed population ratio of 2 and above. The ratio of medical institutions per 100 population ranged from 0.03 to 0.86 in the municipalities/corporations covered for the survey in the year 1987.

Table 3 presents the number of burial/cremation ground and registration units. The burial and cremation grounds were high in number in the towns/cities in the private sector during the year under report.

Table 4 provides the comparative position of various municipalities/corporations in respect of registration units with its area and population.

The number of registration units in Thiruvananthapuram corporation was 15, in Kozhikode 14 and in Cochi 2. The area for each registration unit in those corporations was about 5 sq.km., 6 sq.km. and 47 sq.km respectively. Among all other municipalities, the highest area per registration unit was seen in Punalur municipality (34.6) and the lowest in Thrissur (2.10).

Table 5, representing the town/city-wise details of vital events registered shows that the maximum number of events (live births) to normal residents (13646) was in Thiruvananthapuram corporation and the minimum (87) in Guruvayoor township and Kunnankulam municipality. Considering the still births to the normal residents in the three city corporations it was seen comparatively high in Kozhikode (146). It was 63 and 57 in Cochi and Thiruvananthapuram respectively. In Palakkad municipality also there were 73 still births to the normal residents. The number of infant deaths occurring to normal residents registered in Kozhikode Corporation was the maximum (246). This was followed by Thiruvananthapuram (209) and Cochi² (180). There were a few municipalities (viz. Attingal, Perumbavoor, Guruvayoor and Kunnankulam) from where no infant deaths, were reported to have occurred to the normal residents during the year 1987. Only 2 maternal deaths in respect of normal residents were registered in 1987 in Punalur Municipality.

Table 6, presents the distribution of deaths according to causes. The total number of deaths due to all causes was highest in Kozhikode corporation (7156) followed by Thiruvananthapuram corporation (7031). Out of the total deaths registered in the municipalities and corporations, covered by the survey, the deaths due to heart disease constituted above 8 per cent and due to cancer about 3 per cent. The percentage increase in deaths due to cancer during the year under report over the previous year was 76%. In Thiruvananthapuram corporation Heart diseases took toll of 1821 persons. The lowest number of deaths due to all causes was found in Guruvayoor township during the year.

Table 7, representing the details of the results of spot checks survey for the year 1987, shows that the live births to normal residents enumerated were highest in Cochi corporation (1988) and that those registered were maximum in Thiruvananthapuram corporation (1453) as in the previous year.

Table 8, presents the details of under registration and occurrence of outside events. The percentage of under registration in respect of both births and deaths was 'nil' during the year 1987, in Changanacherry and Tirur municipalities. This indicates that all the live births and deaths occurred to the normal residents in the above towns have been registered during the year. Attingal, Kollam, Mavelikkara, Cherthala, Kottayam, Pala, Vaikom, Aluva, Parur, Irinjalakuda, Kodungallur, Chalakudy, Guruvayoor and Kunnamkulam were a few other towns where there was no under registration in respect of births during the year under review. The maximum rate of under registration of births was recorded in Neyyattinkara town (27.14%) and of deaths in Cochi corporation (29.91%). The percentage of outside registration of births was highest in Irinjalakuda - municipality and of deaths in Neyyattinkara town. The rate of outside registration in respect of both births and deaths was found to be lowest in Thiruvananthapuram corporation.

4. Adjusted residential vital rates and registered vital rates 1987

The registered and adjusted residential vital rates worked out for the year 1987 in respect of various municipalities and corporations are presented in table-9. The registered birth rate was highest in Kasarkode (38.90) as in the previous year. Kunnamkulam had the lowest rate (4.32). The registered death rate was lowest in Tirur (2.81) and highest in Tiruvalla (8.69) as well.

The adjusted residential birth rate was highest in Kasarkode municipality (45.95) and lowest in Pala municipality (10.40) during the year 1987.

The highest residential death rate was seen in Cannoor municipality (10.75) and lowest in Thirur (2.81). The State average of the residential birth and death rate estimated on the basis of the rates for various towns/ cities was 23.10 and 5.91 respectively for the year 1987. The method of estimation of the adjusted residential rates is shown in the appendix.

Table 10 presents the estimated residential vital rates for the period from 1982-87. Considering the adjusted residential birth rate for various years, there was a fluctuating trend in almost all municipalities. But as an exception to this, the rate in Cochi, Alappuzha, Cherthala, Changanassery, Thirur and Kozhikode maintained a decreasing trend with respect to the year 1983. There was an increasing tendency in the adjusted residential birth rate of Kasarkode municipality as well. The fluctuating movement in the adjusted residential death rate in various municipalities/corporations was also discernable. There was gradual fall in the adjusted residential death rate of certain municipalities/corporations (viz. Thiruvananthapuram, Mavelikkara, Alappuzha, Changanassery, Thrissur and Thirur) with respect to the year 1985.

5. Conclusion:

The spot check survey was successfully implemented during the year 1987. Effort is made to minimise the unregistered events. In the calculation of residential birth/death rate of town/city outside events are also taken into consideration.

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Table 1 - Area and Population

Sl. No.	Municipality/ Corporation	Area in sq.km. as per 1981 Census	Mid year population	Density of population per sq.km.
1	2	3	4	5
1.	Neyyattinkara	9.70	30873	3183
2.	Thiruvananthapuram	74.93	536298	7157
3.	Attingal	14.18	31414	2215
4.	Kollam	18.48	147417	7977
5.	Punalur	34.60	46426	1342
6.	Kayamkulam	21.79	66395	3047
7.	Mavelikara	12.65	27217	2152
8.	Alappuzha	46.77	176437	3772
9.	Cherthala	16.19	43055	2659
10.	Thiruvalla	14.47	30958	2139
11.	Changanassery	13.50	54237	4018
12.	Kottayam	15.55	67609	4348
13.	Pala	15.93	22526	1414
14.	Vaikom	8.73	21812	2499
15.	Muvattupuzha	13.18	27556	2091
16.	Cochi corporation	94.88	566602	5972
17.	Aluva	7.18	26075	3632
18.	Parur	9.03	27563	3052
19.	Perumbavoor	13.59	24558	1807
20.	Irinjalakuda	11.24	26542	2361
21.	Kodungallur	17.30	30158	1743
22.	Chalakydy	25.23	44892	1779
23.	Thrissur	12.65	79007	6246
24.	Guruvayoor	6.49	19251	2966
25.	Kunnamkulam	6.96	20151	2895
26.	Palakkad	26.60	122303	4598
27.	Chittoor-thathamangalam	14.71	31673	2153
28.	Thirur	16.59	47340	2834
29.	Malappuram	33.60	45670	1359
30.	Kozhikode	82.67	438300	5302
31.	Vadakara	21.34	71642	3357
32.	Thalassery	15.35	80213	5226
33.	Kannur	11.03	64846	5879
34.	Kasarkode	16.68	49259	2953

TABLE - 2 Number of hospitals and other institutions 1987

Sl. No.	Municipality/ Corporation	Hospitals						Dispensaries & other Institutions						Maternity and child health centre					
		Public		Private		Total Beds	Total No. Beds	Public		Private		Total No. Beds	Public		Private		Total No. Beds		
		No.	Beds	No.	Beds			No.	Beds	No.	Beds		No.	Beds	No.	Beds		No.	Beds
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1.	Neyyattinkara	3	305	2	26	5	331	-	-	9	-	9	-	2	-	-	-	2	-
2.	Thiruvananthapuram Corporation	24	6556	39	1600	63	8156	11	10	30	-	41	10	36	-	-	-	36	-
3.	Attingal	-	-	7	285	7	285	2	45	9	-	11	45	4	-	-	-	4	-
4.	Kollam	6	950	20	1106	26	2056	5	-	69	-	74	-	15	-	-	-	15	-
5.	Punalur	1	100	9	195	10	295	2	-	3	-	5	-	4	-	-	-	4	-
6.	Kayamkulam	3	140	13	265	16	405	-	-	6	-	6	-	6	-	-	-	6	-
7.	Mavelikara	2	220	2	140	4	360	-	-	6	60	6	60	-	-	-	-	-	-
8.	Alapuzha	6	1527	6	94	12	1621	3	-	132	-	135	-	6	-	-	-	6	-
9.	Sherthala	3	167	4	431	7	598	2	-	13	-	15	-	4	-	-	-	4	-
10.	Thiruvalla	2	200	7	470	9	670	-	-	10	-	10	-	-	-	-	-	-	-
11.	Changanacherry	2	174	14	175	16	349	-	-	23	-	23	-	4	-	-	-	4	-
12.	Kottayam	3	315	15	200	18	515	3	-	54	-	57	-	3	-	-	-	3	-
13.	Pala	3	240	9	360	12	600	-	-	19	-	19	-	4	-	-	-	4	-
14.	Vaikom	2	260	2	50	4	310	-	-	34	-	34	-	-	-	-	-	-	-
15.	Muvattupuzha	3	180	10	361	13	541	1	-	29	-	30	-	2	-	-	-	2	-
16.	Cochi Corporation	14	1962	57	2062	71	4024	6	-	74	-	80	-	8	-	-	-	8	-
17.	Aluva	2	237	13	560	15	797	1	-	27	-	28	-	2	-	-	-	2	-

(Table - 2 contd.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
18.	Parur	2	163	6	103	8	266	-	-	12	-	12	-	2	-	-	-	-	2
19.	Perumbavoor	3	181	9	399	12	580	1	-	4	-	5	-	4	-	-	-	-	4
20.	Irinjalakuda	2	189	4	59	6	248	1	-	-	-	1	-	2	-	-	-	-	2
21.	Kodungalloor	2	200	4	150	6	350	-	-	10	-	10	-	-	-	-	-	-	-
22.	Chalakudy	1	144	9	295	10	439	2	-	24	-	26	-	3	-	-	-	-	3
23.	Thrissur	5	1240	13	760	18	2000	1	-	12	-	13	-	-	-	4	-	4	-
24.	Guruvayoor	1	30	6	233	7	263	-	-	-	-	-	-	1	-	-	-	-	1
25.	Kunnamkulam	1	104	6	193	7	297	2	-	-	-	2	-	1	-	-	-	-	1
26.	Palakkad	4	508	15	169	19	677	2	-	11	-	13	-	3	-	-	-	-	3
27.	Chittur-Thathamangalam	2	88	1	-	3	88	-	-	6	11	6	11	2	-	-	-	-	2
28.	Tirur	4	145	3	215	7	360	2	-	6	-	8	-	3	-	-	-	-	3
29.	Malappuram	4	156	2	100	6	256	1	-	10	-	11	-	2	-	-	-	-	2
30.	Kozhikode Corporation	9	3805	29	919	38	4724	12	-	88	-	100	-	7	-	-	-	-	7
31.	Vadagara	2	240	-	-	2	240	1	-	37	248	38	248	5	-	1	11	6	11
32.	Thalasserry	2	555	16	240	18	795	2	-	44	-	46	-	-	-	-	-	-	-
33.	Kannur	2	55	17	390	19	445	2	-	16	42	18	42	1	9	-	-	-	1
34.	Kasarkode	2	200	9	700	11	900	1	-	21	-	22	-	-	-	-	-	-	-

Table - 3 Number of burial grounds, cremation grounds, wards and civil registration units

Sl. No.	Municipality/ Corporation	Burial grounds			Cremation grounds			Total	
		Muni/ Corp.	Pri- vate	Total	Muni/ Corp.	Pri- vate	Total	No. of wards	No. of regn. divi- sions
1	2	3	4	5	6	7	8	9	10
1.	Neyyattinkara	1	4	5	-	3	3	20	1
2.	Thiruvananthapuram Corporation	-	24	24	2	-	2	50	15
3.	Attingal	1	1	2	-	5	5	20	1
4.	Kollam	2	15	17	-	-	-	36	3
5.	Punalur	1	7	8	-	-	-	28	1
6.	Kayamkulam	1	14	15	1	3	4	32	1
7.	Mavelikkara	1	9	10	-	1	1	20	1
8.	Alapuzha	2	21	23	-	-	-	36	2
9.	Sherthala	1	5	6	-	1	1	28	1
10.	Thiruvalla	2	-	2	-	-	-	32	1
11.	Changanacherry	1	12	13	-	1	1	28	1
12.	Kottayam	1	15	16	1	1	2	32	2
13.	Pala	1	5	6	-	-	-	20	1
14.	Vaikom	1	2	3	-	-	-	20	1
15.	Muvattupuzha	1	8	9	-	-	-	20	1
16.	Cochi Corporation	8	40	48	5	11	16	50	2
17.	Aluva	-	7	7	-	3	3	20	2
18.	Parur	1	7	8	1	7	8	20	1
19.	Perumbavoor	-	8	8	-	1	1	20	1
20.	Irinjalakuda	1	5	6	-	1	1	20	1
21.	Kodungalloor	-	2	2	-	-	-	20	1
22.	Chalakydy	2	7	9	-	1	1	28	1
23.	Thrissur	3	11	14	2	1	3	32	6
24.	Guruvayoor	1	4	5	-	1	1	10	1
25.	Kunnamkulam	-	2	2	-	-	-	16	1
26.	Palakkad	4	7	11	3	1	4	32	1
27.	Chittur- Thathamangalam	-	1	1	3	-	3	20	2
28.	Tirur	1	-	1	-	1	1	24	1
29.	Malappuram	1	10	11	-	1	1	24	1
30.	Kozhikode Corporation	2	9	11	4	2	6	39	14
31.	Vadagara	1	8	9	-	-	-	32	1
32.	Thalasserry	1	15	16	1	11	12	32	1
33.	Kannur	1	12	13	1	-	1	32	4
34.	Kasarkode	-	9	9	2	1	3	28	2

Table - 4 Registration units with area and population 1987

Sl. No.	Municipality/ Corporation	No. of regn. units	Area in Sq.Km.	Area per regn. unit	Estimated population	Population per regn. unit
1	2	3	4	5	6	7
1.	Neyyattinkara	1	9.70	9.70	30873	30873
2.	Thiruvananthapuram Corporation	15	74-.93	4.99	536298	35753
3.	Attingal	1	14.18	14.18	31414	31414
4.	Kollam	3	18.48	6.16	147417	49139
5.	Punalur	1	34.60	34.60	46426	46426
6.	Kayamkulam	1	21.79	21.79	66395	66395
7.	Mavelikkara	1	12.65	12.65	27217	27217
8.	Alappuzha	2	46.77	23.38	176437	88218
9.	Sherthala	1	16.19	16.19	43055	43055
10.	Thiruvalla	1	14.47	14.47	30958	30958
11.	Changanacherry	1	13.50	13.50	54237	54237
12.	Kottayam	2	15.55	7.77	67609	33804
13.	Pala	1	15.93	15.93	22526	22526
14.	Vaikom	1	8.73	8.73	21812	21812
15.	Muvattupuzha	1	13.18	13.18	27556	27556
16.	Cochi Corporation	2	94.88	47.44	566602	283301
17.	Aluva	2	7.18	3.59	26075	13037
18.	Parur	1	9.03	9.03	27563	27563
19.	Perumbavoor	1	13.59	13.59	24558	24558
20.	Irinjalakuda	1	11.24	11.24	26542	26542
21.	Khalidngalloor	1	17.30	17.30	30158	30158
22.	Chalakyudy	1	25.23	25.23	44892	44892
23.	Thrissur	6	12.65	2.10	79007	13167
24.	Guruvayoor	1	6.49	6.49	19251	19251
25.	Kunnamkulam	1	6.96	6.96	20151	20151
26.	Palakkad	1	26.60	26.60	122303	122303
27.	Chittur- Thathamangalam	2	14.71	7.35	31673	15836
28.	Tirur	1	16.59	16.59	47340	47340
29.	Malappuram	1	33.60	33.60	45670	45670
30.	Kozhikode Corporation	14	82.67	5.90	438300	31307
31.	Vadagara	1	21.34	21.34	71642	71642
32.	Thalasserry	1	15.35	15.35	80213	80213
33.	Kannur	4	11.03	2.75	64846	16211
34.	Kasarkod	2	16.68	8.34	49259	24629

TABLE - 5 Vital events registered during the year 1987

Sl. Municipality/ No. Corporation	Live births						No. of still births			
	Total events			Events to nor- mal residents			Total events			
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
1	2	3	4	5	6	7	8	9	10	11
1. Neyyattinaka		1745	1709	3454	161	166	327	3	1	4
2. Thiruvananthapuram Corporation		16149	15569	31718	6734	6922	13656	47	59	106
3. Attingal		424	456	880	72	87	159	4	9	13
4. Kollam		6333	6204	12537	1703	912	2615	50	34	84
5. Punalur		1493	1418	2911	342	330	672	17	21	38
6. Kayamkulam		1423	1372	2795	518	464	982	8	15	23
7. Mavelikkara		1656	1580	3236	186	189	375	6	1	7
8. Alapuzha		4013	3827	7840	1202	1107	2309	3	1	4
9. Cherthala		1390	1372	2762	268	231	499	12	10	22
10. Thiruvalla		2416	2303	4719	245	220	465	19	10	29
11. Changanacherry		1181	1203	2384	276	298	574	8	14	22
12. Kottayam		2147	1874	4021	394	326	720	11	17	28
13. Pala		1306	1462	2768	75	77	152	20	11	31
14. Vaikom		600	645	1245	101	97	198	5	2	7
15. Muvattupuzha		1354	1171	2525	157	129	286	8	9	17
16. Cochi		8284	7834	16118	3911	3697	7608	95	69	164
17. Aluva		2540	2505	5045	100	102	202	23	32	55
18. Parur		1073	1022	2095	104	106	210	16	7	23
19. Perumbavoor		1382	1318	2700	131	104	235	4	11	15
20. Irinjalakuda		810	735	1545	86	84	170	11	6	17
21. Kodungalloor		1169	1087	2256	118	115	233	3	6	9
22. Chalakudy		981	950	1931	157	134	291	1	7	8
23. Thrissur		7198	7321	14519	595	684	1279	117	92	209
24. Guruvayoor		473	425	898	51	36	87	5	1	6
25. Kunnankulam		1459	1410	2869	40	47	87	10	6	16
26. Palakkad		4211	4027	8238	1222	1230	2452	118	95	213
27. Chittoor- Thathamangalam		690	789	1479	319	283	602	11	13	24
28. Tirur		2736	2416	5152	276	230	506	23	20	43
29. Malappuram		1354	1312	2666	311	287	598	33	42	75
30. Kozhikode Corporation		12584	12485	25069	3669	3611	7280	400	356	756
31. Vadagara		2947	2873	5820	539	527	1066	23	14	37
32. Thalasserry		5203	5081	10284	1491	1427	2918	67	56	123
33. Kannur		2608	2533	5141	493	506	999	14	18	32
34. Kasarkod		2773	2714	5487	950	966	1916	57	55	112

(Contd.)

(TABLE - 5 contd.)

Sl. Municipality/ No. Corporation	No. of still births events to normal residents			No. of infant deaths						
				Total events			Events of normal residents			
	Male	Female	Total	Male	Female	Total	Male	Female	Total	
1	2	12	13	14	15	16	17	18	19	20
1. Neyyattinaka	-	-	-	19	22	41	2	-	2	
2. Thiruvananthapuram Corporation	26	31	57	314	472	786	101	108	209	
3. Attingal	1	4	5	1	1	2	-	-	-	
4. Kollam	15	10	25	122	110	232	53	32	85	
5. Punalur	4	3	7	16	12	28	8	6	14	
6. Kayamkulam	3	6	9	12	12	24	6	3	9	
7. Mavelikara	-	-	-	10	19	29	1	4	5	
8. Alapuzha	2	-	2	88	65	153	27	25	52	
9. Cherthala	3	4	7	29	30	59	6	5	11	
10. Thiruvalla	1	2	3	38	25	63	4	4	8	
11. Changanacherry	5	4	9	18	9	27	6	3	9	
12. Kottayam	-	3	3	19	9	28	7	2	9	
13. Pala	-	-	-	8	14	22	3	3	6	
14. Vaikom	2	-	2	4	7	11	1	2	3	
15. Muvattupuzha	1	-	1	11	7	18	2	1	3	
16. Cochi Corporation	35	28	63	209	166	375	98	82	180	
17. Aluva	1	1	2	21	23	44	1	-	1	
18. Parur	2	1	3	6	3	9	3	1	4	
19. Perumbavoor	-	-	-	23	16	39	-	-	-	
20. Irinjalakuda	1	1	2	8	8	16	3	1	4	
21. Kodungalloor	-	1	1	10	7	17	1	1	2	
22. Chalakudy	-	2	2	17	6	23	-	2	2	
23. Thrissur	4	6	10	130	91	221	25	14	39	
24. Guruvayoor	-	-	-	7	4	11	-	-	-	
25. Kunnankulam	-	-	-	23	27	50	-	-	-	
26. Palakkad	40	33	73	151	102	253	63	40	103	
27. Chittoor- Thathamangalam	4	4	8	17	16	33	5	7	12	
28. Tirur	-	-	-	55	29	84	2	2	4	
29. Malappuram	-	-	-	28	23	51	7	6	13	
30. Kozhikode Corporation	72	74	146	704	580	1284	128	118	246	
31. Vadagara	3	1	4	27	24	51	6	6	12	
32. Thalasserry	37	31	68	62	58	120	27	21	48	
33. Kannur	3	5	8	41	33	74	30	18	48	
34. Kasarkod	20	14	34	52	30	82	12	10	22	

(Contd.)

(TABLE - 5 contd.)

Sl. Municipality/ No. Corporation	No. of other deaths						No. of maternal		
	Total Events			Events to normal			deaths	Events to	
	Male	Female	Total	Male	Female	Total	Total	normal	
1	2	21	22	23	24	25	26	27	28
1. Neyyattinkara		152	77	229	60	35	95	-	-
2. Thiruvananthapuram Corpn	3854	2364	6218	1186	437	1623	-	-	
3. Attingal		69	53	122	66	52	118	-	-
4. Kollam		913	598	1511	300	158	458	-	-
5. Punalur		152	139	291	69	64	133	2	2
6. Kayamkulam		180	126	306	150	113	263	-	-
7. Mavelikara		217	93	310	89	51	140	-	-
8. Alapuzha		996	755	1751	492	401	893	1	-
9. Cherthala		287	176	463	117	86	203	-	-
10. Thiruvalla		365	276	641	179	82	261	-	-
11. Changanacherry		164	98	262	94	73	167	-	-
12. Kottayam		307	155	462	124	93	217	1	-
13. Pala		163	125	288	40	24	64	-	-
14. Vaikom		108	75	183	59	49	108	-	-
15. Muvattupuzha		150	64	214	58	20	78	-	-
16. Cochi Corpn.		2566	1372	3938	1439	923	2362	-	-
17. Aluva		232	98	330	51	27	78	-	-
18. Parur		208	102	310	93	63	156	-	-
19. Perumbavoor		155	94	249	49	38	87	-	-
20. Irinjalakuda		76	143	219	91	61	152	-	-
21. Kodungalloor		207	95	302	114	53	167	-	-
22. Chalakudy		195	91	286	117	65	182	-	-
23. Thrissur		1265	984	2249	139	94	233	2	-
24. Guruvayoor		57	47	104	40	37	77	-	-
25. Kunnankulam		162	110	272	52	46	98	-	1
26. Palakkad		784	532	1316	307	240	547	3	-
27. Chittur- Thathamangalam		161	106	267	107	75	182	-	-
28. Tirur		253	151	404	64	65	129	-	-
29. Malappuram		152	114	266	72	68	140	-	-
30. Kozhikode Corpn.		3758	2166	5924	1410	972	2382	1	-
31. Vadakara		290	179	469	156	124	280	1	-
32. Thalassery		556	426	982	127	71	198	-	-
33. Kannur		271	199	470	234	177	411	-	-
34. Kasarkod		220	193	413	89	82	171	-	-

Table - 6 Deaths according to cause - 1987

S1. Municipality/ No. Corporation	T.B.		Plague Cholera		Small pox		Dysen- try/ Diar- hoea		Resp- iratory dise- ases		Enter- ic fever		Rab- ies		Dept- heria		Cancer		Gastro Enter- titis		Heart Pulmo- fail- ure dise- ases		Others		Total	
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16											
1. Neyyattinkara	-	-	-	-	2	33	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	231	270		
2. Thiruvananthapuram Corpn.	104	-	-	-	216	-	-	-	-	116	172	1821	-	-	-	-	-	-	-	-	-	-	4602	7031		
3. Attingal	3	-	-	-	-	13	8	-	-	6	-	25	-	-	-	-	-	-	-	-	-	-	69	124		
4. Kollam	-	-	2	-	27	-	-	7	-	17	-	597	59	-	-	-	-	-	-	-	-	-	1096	1805		
5. Punalur	-	-	-	-	-	-	-	-	-	28	-	-	-	-	-	-	-	-	-	-	-	21	272	321		
6. Kayamkulam	15	-	-	-	-	17	6	-	-	16	-	84	1	-	-	-	-	-	-	-	-	1	200	339		
7. Mavelikara	-	-	-	-	1	78	-	-	-	11	1	38	9	-	-	-	-	-	-	-	-	9	201	339		
8. Alapuzha	-	-	-	-	11	-	79	1	-	17	-	-	-	-	-	-	-	-	-	-	-	155	1577	1840		
9. Cherthala	-	-	-	-	3	-	3	-	-	22	-	-	-	-	-	-	-	-	-	-	-	19	534	581		
10. Thiruvalla	-	-	-	-	2	-	2	-	-	4	-	-	-	-	-	-	-	-	-	-	-	15	681	704		
11. Changanacherry	5	-	-	-	9	22	15	-	-	7	-	-	-	-	-	-	-	-	-	-	-	4	227	289		
12. Kottayam	-	-	-	-	1	-	-	5	1	-	-	-	-	-	-	-	-	-	-	-	-	34	450	491		
13. Pala	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	281	310		
14. Vaikom	-	-	-	-	-	-	2	-	-	9	2	-	-	-	-	-	-	-	-	-	-	50	153	216		
15. Muvattupuzha	-	-	-	-	2	-	4	-	-	14	-	57	-	-	-	-	-	-	-	-	-	-	155	232		
16. Cochi Corpn.	109	-	-	-	36	-	1	8	2	255	4	-	-	-	-	-	-	-	-	-	-	-	3898	4313		

(Contd.)

(Table - 6 contd.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17. Aluva	-	-	-	-	5	-	-	-	-	5	-	-	-	364	374
18. Parur	-	-	-	-	1	-	-	-	-	8	-	200	-	110	319
19. Perumbavoor	-	-	-	-	17	-	-	-	-	3	-	-	-	268	288
20. Irinjalakuda	-	-	-	-	1	-	3	-	-	14	-	-	6	211	235
21. Kodungalloor	-	-	-	-	-	-	1	-	-	9	-	-	141	178	321
22. Chalakudy	-	-	-	-	-	12	2	-	-	17	-	64	15	192	302
23. Thrissur	-	-	-	-	15	-	-	17	-	53	-	-	257	2230	2572
24. Guruvayoor	3	-	-	-	-	7	-	-	-	6	-	17	-	82	115
25. Kunnankulam	-	-	-	-	1	-	-	-	-	6	-	-	14	301	322
26. Palakkad	-	-	25	-	18	-	50	-	-	25	-	-	300	1154	1572
27. Chittoor-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thathamangalam	-	-	-	-	3	-	6	-	-	8	-	-	64	215	296
28. Tirur	-	-	-	-	13	-	-	-	-	8	-	120	71	276	488
29. Malappuram	-	-	-	-	10	-	-	-	-	15	-	-	5	287	317
30. Kozhikode Corpn.	-	-	-	-	31	-	-	7	3	255	-	-	181	6679	7156
31. Vadagara	-	-	-	-	-	-	-	-	-	17	-	-	26	478	521
32. Thalasserry	-	-	-	-	135	-	42	-	-	20	-	-	40	813	1050
33. Kannur	-	-	-	-	-	-	17	-	-	29	-	-	35	469	544
34. Kasarkod	-	-	-	-	22	-	20	-	28	5	-	-	134	286	495

Table - 7 Results of spot-check - 1987

Municipality/ Corporation	No. of wards selected	Total No. of households	No. of house- holds visited	No. of events to normal residents detected													
				Live births				Infant deaths				Others deaths					
				Enu- rated	Regi- stered	Occur- red	outside	Enu- rated	Regis- tered	Occur- red	outside	Enu- rated	Regis- tered	Occur- red	outside	Enu- rated	Regis- tered
1. Neyyattinkara	15	5890	5890	304	302	164	-	-	-	-	-	-	-	65	35	22	
2. Thiruvananthapuram Corpn.	15	27500	27500	1545	1453	1372	3	2	-	-	-	-	-	650	587	589	
3. Attiingal	15	4593	4593	289	228	161	1	-	1	-	-	-	-	191	67	122	
4. Kollam	18	12558	12558	1044	820	1224	10	10	-	-	-	-	-	193	166	320	
5. Punalur	15	6333	6333	301	212	1087	7	6	1	-	-	-	-	165	141	22	
6. Kayamkulam	15	4944	4944	477	282	178	3	1	1	-	-	-	-	104	92	20	
7. Mavelikara	15	3894	3894	263	145	118	1	1	-	-	-	-	-	101	87	11	
8. Alapuzha	18	18821	18821	945	745	197	6	6	-	-	-	-	-	296	259	115	
9. Cherthala	15	6524	6524	300	157	143	1	-	-	-	-	-	-	103	67	18	
10. Thiruvalla	15	5353	5353	265	185	109	4	4	-	-	-	-	-	157	51	105	
11. Changanasserry	15	5970	5970	137	92	45	5	-	5	-	-	-	-	171	50	21	
12. Kottayam	15	8611	8611	408	146	162	-	-	-	-	-	-	-	105	176	126	
13. Pala	15	4287	4287	134	87	47	2	1	1	-	-	-	-	137	50	123	
14. Vaikom	15	4533	4533	140	48	92	1	-	1	-	-	-	-	148	46	106	
15. Muvattupuzha	15	5805	5805	264	120	135	3	1	5	-	-	-	-	135	102	53	
16. Cochi Corpn.	15	23808	23808	1988	1318	1997	12	8	2	-	-	-	-	452	299	124	
17. Aluva	15	3562	3562	196	136	100	-	-	-	-	-	-	-	154	87	589	

(Contd.)

12/16 - 1 coupq

Table - 7 contd.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
18.	Parur	15	3899	3899	291	130	161	-	-	-	126	84	28
19.	Perumbavoor	15	3221	3221	205	99	105	-	-	-	65	45	17
20.	Irinjalakuda	15	3646	3646	266	62	204	3	1	2	132	103	25
21.	Kodungalloor	15	4204	4204	351	145	206	1	-	1	148	114	19
22.	Chalakudy	15	4431	4431	373	147	226	5	1	4	131	92	15
23.	Thrissur	15	6292	6292	417	281	102	-	-	-	162	115	19
24.	Guruvayoor	10	3223	3223	285	87	198	2	-	2	116	77	28
25.	Kunnamkulam	15	3582	3582	238	78	160	-	-	-	124	91	16
26.	Palakkad	15	11479	9106	628	460	153	5	5	-	203	173	22
27.	Chittur-Thathamangalam	15	3899	3899	243	145	95	4	3	-	124	110	11
28.	Tirur	15	4012	4012	278	252	26	-	-	-	64	64	-
29.	Malappuram	15	4432	4432	615	372	194	4	4	-	104	89	4
30.	Kozhikode Corpn.	15	14033	12388	1014	758	107	-	-	-	214	156	7
31.	Vadagara	15	4703	4703	736	505	196	-	-	-	191	122	31
32.	Thalasserry	15	6151	6151	373	303	69	-	-	-	114	98	15
33.	Kannur	15	7927	7927	443	297	135	2	1	1	86	57	26
34.	Kasarkod	15	4287	4287	365	309	26	-	-	-	98	91	4
	Total	-	-	-	16021	10566	4764	74	53	15	4774	3713	542

Table - 8 Under registration and occurrence of outside events

Sl. Municipality/ No. Corporation	Percentage of under regis- tration		Percentage of outside events		
	Births	Deaths	Births	Deaths	
1	2	3	4	5	6
1. Neyyattinkara		27.14	18.60	53.95	33.85
2. Thiruvananthapuram Corpn.		1.36	8.54	4.66	1.38
3. Attingal		-	2.90	55.71	25.00
4. Kollam		-	3.83	21.46	9.85
5. Punalur		0.93	4.08	28.90	31.94
6. Kayamkulam		5.69	15.12	37.32	19.63
7. Mavelikara		-	3.30	44.87	10.78
8. Alapuzha		0.40	10.77	20.85	1.66
9. Cherthala		-	22.09	47.67	17.31
10. Thiruvalla		0.54	1.79	29.81	8.20
11. Changanasserry		-	-	32.85	29.58
12. Kottayam		-	3.80	32.60	24.76
13. Pala		-	7.41	35.07	5.26
14. Vaikom		-	2.13	65.71	11.32
15. Muvattupuzha		6.98	2.33	51.14	21.82
16. Cochi Corpn.		17.16	29.91	19.97	5.60
17. Aluva		-	17.78	51.02	16.67
18. Parur		-	14.29	55.33	22.22
19. Perumbavoor		1.00	6.25	51.22	26.15
20. Irinjalakuda		-	3.70	76.69	20.00
21. Kodungalloor		-	11.63	58.69	13.42
22. Chalakudy		-	20.51	60.59	13.97
23. Thrissur		10.79	19.58	24.46	11.73
24. Guruvayoor		-	12.50	69.47	25.42
25. Kunnankulam		-	15.74	67.23	12.90
26. Palakkad		3.16	4.30	24.36	10.58
27. Chittur-Thathamangalam		2.03	3.42	39.09	8.59
28. Tirur		-	-	9.35	-
29. Malappuram		11.64	10.58	31.54	3.70
30. Kozhikode Corpn.		16.43	24.64	10.55	3.27
31. Vadagara		6.48	23.75	26.63	16.23
32. Thalasserry		0.33	1.01	18.50	13.16
33. Kannur		3.57	4.92	30.47	30.68
34. Kasarkod		8.85	3.19	7.12	4.08
Total		6.14	12.23	29.74	11.49

Table - 9 Registered vital rates and adjusted residential vital rates - 1987

Sl. Municipality/ No. Corporation		Registered vital rates		Adjusted resi- dential vital rates	
		Births	Deaths	Births	Deaths
1	2	3	4	5	6
1.	Neyyattinkara	10.59	3.14	31.55	5.84
2.	Thiruvananthapuram Corpn.	25.44	3.42	27.05	3.79
3.	Attingal	5.06	3.76	11.42	5.16
4.	Kollam	17.74	3.68	22.59	4.25
5.	Punalur	14.47	3.21	20.55	4.92
6.	Kayamkulam	14.79	4.10	25.02	6.01
7.	Mavelikara	13.78	5.33	25.00	6.18
8.	Alapuzha	13.09	5.36	16.60	6.11
9.	Cherthala	11.59	4.97	22.15	7.72
10.	Thiruvalla	15.02	8.69	21.51	9.64
11.	Changanasserry	10.58	3.25	15.76	4.62
12.	Kottayam	10.65	3.34	22.47	4.61
13.	Pala	6.75	3.11	10.40	3.55
14.	Vaikom	9.08	5.09	26.48	5.86
15.	Muvattupuzha	10.38	2.94	22.85	3.85
16.	Cochi Corpn.	13.43	4.49	20.25	6.79
17.	Aluva	7.75	3.03	15.82	4.43
18.	Parur	7.62	5.80	17.06	8.70
19.	Perumbavoor	9.57	3.54	19.82	5.12
20.	Irinjalakuda	6.40	5.88	27.46	7.65
21.	Kodungalloor	7.73	5.60	18.71	7.32
22.	Chalakydy	6.48	4.10	16.44	6.00
23.	Thrissur	16.19	3.44	24.03	4.85
24.	Guruvayoor	4.52	4.00	14.81	6.13
25.	Kunnamkulam	4.32	4.86	13.18	6.62
26.	Palakkad	20.05	5.31	27.37	6.21
27.	Chittur-Thathamangalam	19.01	6.13	31.85	6.95
28.	Tirur	10.69	2.81	11.79	2.81
29.	Malappuram	13.09	3.35	21.63	3.89
30.	Kozhikode Corpn.	16.61	6.00	22.22	8.23
31.	Vadagara	14.88	4.08	21.68	6.39
32.	Thalasserry	36.38	3.07	44.80	3.57
33.	Kannur	15.41	7.08	22.98	10.75
34.	Kasarkod	38.90	3.92	45.95	4.22
State (Urban)		-	-	23.10	5.91

Table - 10 Adjusted residential vital rates from 1982-'87

Sl. Municipality/ No. Corporation	Birth rate				Death rate								
	1982	1983	1984	1985	1986	1987	1982	1983	1984	1985	1986	1987	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Neyyattinkara	20.79	38.74	27.43	34.62	27.40	31.55	6.48	6.56	6.71	6.53	7.11	5.84	
2. Thiruvananthapuram Corpn.	23.06	19.55	24.17	27.94	27.56	27.05	4.73	5.16	5.52	8.02	6.15	3.79	
3. Attingal	10.96	13.91	16.01	14.54	13.33	11.42	2.98	3.92	3.79	4.18	3.75	5.16	
4. Kollam	21.90	19.98	23.15	24.20	20.90	22.59	5.05	4.24	5.05	4.85	5.05	4.25	
5. Punalur	31.92	21.09	21.15	21.10	19.99	20.55	5.04	5.18	4.59	4.86	3.47	4.92	
6. Kayamkulam	31.81	26.75	23.28	29.27	20.95	25.02	6.04	6.65	6.02	6.12	5.75	6.01	
7. Mavelikara	23.58	22.14	19.50	21.19	28.55	25.00	6.60	6.62	7.91	6.45	6.23	6.18	
8. Alapuzha	22.42	21.44	21.74	21.56	20.42	16.60	5.41	6.67	6.24	6.97	6.77	6.11	
9. Cherthala	26.28	26.34	24.61	24.48	22.78	22.15	6.16	6.38	7.14	6.30	6.97	7.72	
10. Thiruvalla	16.56	17.27	23.77	16.61	15.96	21.51	6.09	6.21	6.26	4.24	7.91	9.64	
11. Changanasserry	22.97	25.18	23.84	21.68	19.45	15.76	5.37	7.53	5.46	4.58	4.48	4.62	
12. Kottayam	18.22	20.84	19.59	17.82	19.99	22.47	4.98	5.32	4.25	5.24	6.73	4.61	
13. Pala	16.14	16.17	12.32	16.79	13.14	10.40	3.76	4.53	5.59	4.86	3.23	3.55	
14. Vaikom	16.30	15.18	15.08	19.08	28.01	26.48	4.38	3.89	4.24	6.91	4.75	5.86	
15. Muvattupuzha	15.93	32.62	21.60	23.71	16.47	22.85	3.10	1.03	5.26	3.99	2.89	3.85	
16. Cochi Corpn.	25.81	25.66	26.41	24.04	23.17	20.25	8.35	6.98	7.20	5.91	6.38	6.79	
17. Aluva	27.76	24.66	22.04	20.49	17.23	15.82	4.79	8.10	4.60	4.91	5.15	4.43	

(Contd.)

(Table - 10 contd.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
18. Parur		17.62	18.80	16.13	24.08	27.22	17.06	5.24	5.88	5.53	6.26	6.51	8.70
19. Perumbavoor		22.19	19.50	28.76	26.13	18.06	19.82	6.29	5.01	8.95	5.54	5.64	5.12
20. Irinjalakuda		22.61	31.26	33.10	35.33	22.61	27.46	5.73	5.52	6.71	7.73	5.55	7.65
21. Kodungalloor		45.83	20.94	16.86	21.83	18.38	18.71	11.24	6.33	5.23	5.08	5.26	7.32
22. Chalakudy		16.58	18.50	18.57	17.99	17.62	16.44	5.79	4.50	6.35	5.46	5.12	6.00
23. Thrissur		24.49	25.34	24.08	23.07	21.79	24.03	9.79	6.07	6.91	5.36	4.31	4.85
24. Guruvayoor		15.99	15.27	15.49	15.24	14.30	14.81	6.66	5.25	7.08	6.01	6.56	6.13
25. Kunnamkulam		20.34	17.51	17.95	19.03	16.97	13.18	7.00	7.05	7.12	6.34	7.95	6.62
26. Palakkad		25.25	26.68	31.83	31.45	29.96	27.37	5.89	7.26	7.13	6.16	6.63	6.21
27. Chittur-Thathamangalam		19.58	15.87	17.28	24.22	28.54	31.85	8.54	7.69	7.30	7.69	8.22	6.95
28. Tirur		22.88	19.52	16.89	16.39	14.09	11.79	4.18	4.12	3.79	3.23	3.07	2.81
29. Malappuram		29.44	30.01	20.47	21.72	22.92	21.63	5.10	4.85	3.53	3.78	3.76	3.89
30. Kozhikode Corpn.		32.50	40.63	30.74	30.40	27.21	22.22	8.06	10.42	8.87	8.57	8.83	8.23
31. Vadagara		25.39	25.62	26.75	24.80	22.87	21.68	5.06	7.80	6.49	6.48	6.20	6.39
32. Thalasserry		20.53	9.61	7.35	44.50	39.75	44.80	6.95	3.68	4.37	4.10	3.28	3.57
33. Kannur		31.70	30.54	32.97	25.22	20.61	22.98	9.09	4.94	3.90	4.87	5.90	10.75
34. Kasarkod		32.52	36.05	39.12	39.55	45.55	45.95	4.31	4.38	4.33	4.03	4.30	4.22

