



GOVERNMENT OF KERALA

**RESIDENTIAL VITAL RATES  
IN  
CORPORATIONS & MUNICIPALITIES  
1989**

**DEPARTMENT OF ECONOMICS AND STATISTICS  
THIRUVANANTHAPURAM**

1993

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## P R E F A C E

This report presents the residential rates of births and deaths in the selected Municipalities, City Corporations for the year 1989. The rates are estimated from the registered births and deaths to the normal residents, after making adjustments for under-registration and for events occurring outside the Municipal/Corporation areas, using the result of the spot-check conducted in those Municipalities/Corporations. This report has been prepared by the Vital Statistics Unit in the Directorate of Economics and Statistics.

Thiruvananthapuram,  
27.9.1993.

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DIRECTOR.

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# RESIDENTIAL VITAL RATES IN CORPORATIONS & MUNICIPALITIES 1989

## 1. Introduction

Under the Civil Registration System in Kerala, all the births and deaths are to be registered at the place of occurrence itself irrespective of whether it occurred to a normal resident of or on outsider. Because of better Modern medical facilities available in the urban areas, the rural people also avail of them, thereby increasing the rate of registration of vital events in the Municipal and Corporation areas.

The birth and death registration act and rules framed thereunder are in force in Kerala to cover the entire events to be registered. According to the act, the registration of Vital events is compulsory. In order to avoid omissions in the registration of events, various remedial measures including educational efforts through the mass media, are taken by the responsible agencies involved in civil registration. Despite its compulsory nature and other steps taken for achieving the completeness in registration, under-registration still exists at a certain level in Kerala. The presence of under registration as well as the fact that the registration is 'defacto' created difficulties to get accurate and reliable data on vital events occurred to the normal residents. So to compliment Civil registration, the spot-check survey under the scheme 'strengthening of Vital Statistics units in Municipalities and Corporations' for the improvement of Vital Statistics was introduced. The results of the spot-check survey for the year 1989 are presented in this report.

## 2. Scheme for the improvement of Vital Statistics.

The scheme Spot-Check Survey aims at estimating the adjusted residential vital rates in the selected municipalities and city corporations and ascertaining the extent of under registration.

All the three City Corporations in Kerala, 30 municipalities and Guruvayoor Township were covered under the scheme during the year under report also. In the three City Corporations and in the Municipalities except Kollam and Alappuzha 15 wards each were selected for the conduct of the survey. In the municipalities of Kollam and Alappuzha 18 wards each were selected. In the Guruvayoor Township all the 10 wards were covered for the survey. Selection of wards were made by the random sampling technique. The Statistical staff engaged in the work, visited each household in the selected wards and collected the required data. The vital events to normal residents enumerated through the spot-check survey comprise the following.

1. Events occurring inside the town and registered.
2. Events occurring inside the town but not registered.
3. Events occurring outside the town registered & unregistered.

The Spot-check results are mainly used for the calculation of the extent of under registration and estimation of residential vital rates. For the calculation of under-registration, the events occurring to persons coming into the City/Town to avoid themselves of better medical facilities are excluded. Only events to the normal residents are considered.

For the calculation of residential vital rates, events occurred to out sideres are excluded from the total registered events. The registered events, to normal residents are weighted for under-registration and further adjusted for events occurring to normal residents outside the town.

### 3. General findings of the survey

Table - 1 represents area population and density of population of the selected municipalities and corporations during the year under report. Density of population was highest in Kollam (7550) followed by Thiruvananthapuram (6899). Density of population of Punalur Municipality was the lowest (1321). The density of population was more then 5000 in seven centres (viz. Kollam, Thiruvananthapuram, Thrissur, Kochi, Kannur, Kozhikode and Thalasserry during the year 1989.

Table - II represents the number of hospitals and other medical institutions both in the public and private sector with bed strength. Number of public hospitals was more in Thiruvananthapuram Corporation, while private hospitals was more in Kochi Corporation. Total number of beds available both in public and private sector in the three city corporations was as follows. Thiruvananthapuram - 7878, Kozhikode - 4773, Kochi - 4024. During the year under report, the bed-population ratio estimated in respect of the three city corporations was comparatively low which indicates that even in three city corporations the medical facilities now available in public hospitals are inadequate to meet the requirements of the increasing population.

Table - III shows the number of burial-grounds, cremation grounds available both in the private and public sector and also the number of registration units in each municipality and Corporation selected for the spot-check survey during the year 1989.

Table - IV represents, number of registration units with area and population of each registration units. Number of registration unit was highest in Thiruvananthapuram (15) followed by Kozhikode (14). Area was largest in Kochi (94.88 Sq.km.) followed by Kozhikode (82.67 Sq.km) and Thiruvananthapuram (75 Sq.km). Among municipalities area was the largest in Alappuzha 46.77 Sq.km. while area per registration unit was largest in Punalur (34.60 Sq.km.)

Table - V represents the registered vital events such as live births, still births, infant deaths other deaths and maternal deaths with male and female break-up in City Corporations and municipalities selected for the spot-check survey during the year under report. Among the three city corporations, live births to normal residents was maximum (14021) in Thiruvananthapuram Corporation followed by Kozhikode (10534) and Kochi (7238). In the municipalities live birth to normal residents were maximum in Thalasserry (3232) and minimum in Kunnamkulam (57). Still births and infant deaths to normal residents were highest in Kozhikode Corporation. Out of the 30 municipalities 8 municipalities viz. Neyyattinkara, Vaikkom, Muvattupuzha, Kodungallur, Chalakudy, Kunnamkulam, Tirur and Malappuram have not reported any still birth to normal residents. During the previous year there were 11 municipalities from where no still births to normal residents were reported. Infant deaths to normal residents reported from Neyyattinkara, Attingal, Pala, Vaikkom, Parur, Irinjalakkuda, Kodungallur and Guruvayoor were nil during the year under report. In the case of other deaths to normal residents also, Kozhikode (3626) stood first among the Corporations and Kollam (1611) among the municipalities. Maternal deaths to normal residents reported only from Kollam, Alappuzha and Kozhikode.

Table - VI represents death according to causes, heart diseases seemed to be one of the major causes of death in all the three City Corporations and in most of the municipalities. The disease such as Cancer, Pulmonary diseases and Dysentery were also among the leading causes of death.

Results of spot-check survey are given in table - VII. It is seen that live births and other deaths to normal residents enumerated was maximum in Kochi Corporation.

Table - VIII represents the details of under-registration and occurrence of outside events in the City Corporations and Municipalities selected for the survey during the year under report. Percentage of under-registration of births was highest in Neyyattinkara Municipality (21.32) and that of death was highest in Cherthala (21.79). During the previous year these rates were 40.76 and 22.22 respectively in these municipalities. During the year under report also percentage of under-registration in respect of birth and death was 'nil' only in Changanacherry and Tirur as in the previous year. Out of the 34 centres selected for the survey in 15 centres there were no case of under-registration in respect of births during the year under report. As in the previous year percentage of outside registration of births was highest in Irinjalakkuda Municipality (85.26). But percentage of outside registration of death was highest in Changanacherry (34.38) during the year under report.

#### Adjusted residential vital rates and registered vital rates 1989

The adjusted residential vital rates and registered vital rates are given in table - IX. For estimation of adjusted residential

vital rates; the events occurring to outsiders are excluded. As in the previous year, the registered birth rate was highest in Thalasserry (41.66) and the same was lowest in Irinjalakkuda (2.64). Registered death rate was highest in Kozhikode (7.37) and lowest in Malappuram (2.32) during the year under report.

Table - X represents the comparison of residential births and death rates for the last 6 years from 1984. There was a fluctuating trend in respect of adjusted residential birth rate during the last 6 years. The only municipality where the adjusted residential birth rate has shown a diseasing trend was Cherthala for the last 6 years. In respect of adjusted residential death rate also, the tendency was more or less the same in the municipalities and corporations as in the case of adjusted residential birth rate.

### Conclusion

The survey has been successfully completed in all the selected municipalities and in all the three city corporation during 1989 also. The survey result reveals that under registration of vital events exists at a certain level in Kerala and hence cent percent coverage in civil registration was not achieved during the year under report also. Spot-check survey helps to find out the unregistered events and thereby the concerned authorities can take necessary steps to minimise the extent of under registration.

### APPENDIX

#### Method of calculation 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 in an year. The vital events occurring to normal residents enumerated during the Spot-check are divided into three categories.

- 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 persons coming to the town/city to avail themselves of better medical facilities are excluded and those of normal residents who are going outside the town are included.

1. Percentage of under registration: 
$$\frac{\text{No. of events occurred to normal residents inside the town but not registered}}{\text{No. of events occurred to normal residents inside the town registered and not registered}} \times 100$$



2. Percentage of events occurred outside the town to normal residents.
- No. of events occurred to normal residents outside the town registered and unregistered  $\times 100$  - (Total no. of events enumerated and occurred to normal residents inside the towns).
3. Registered birth/death rate to normal residents.
- Total no. of birth/death occurred to normal residents  $\times 1000$  - Mid-year population of the town.
4. Residential birth/death rate to normal resident occurred inside the towns (weighted for under registration).
- Registered birth/death rate  $\times 100$  - (100 - percentage of under registration).
5. Final (Residential birth/death rate (weighted for outside events).
- Residential birth/death rate to normal residents occurred inside the town (weighted for under registration)  $\times 100$  - (100 - percentage of events occurred outside the town to normal number residents).

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	29990	3092
2.	Thiruvananthapuram	74.93	516956	6899
3.	Attingal	14.18	32115	2265
4.	Kollam	18.48	139532	7550
5.	Punalur	34.60	45724	1321
6.	Kayamkulam	21.79	66144	3036
7.	Mavelikkara	12.65	28009	2214
8.	Alappuzha	46.77	173870	3718
9.	Cherthala	16.19	42840	2646
10.	Thiruvalla	27.87	54267	1947
11.	Changanacherry	13.50	52363	3879
12.	Kottayam	15.55	63366	4075
13.	Pala	15.93	21846	1371
14.	Vaikom	8.73	21650	2480
15.	Muvattupuzha	13.18	27201	2064
16.	Kochi Corporation	94.88	555695	5857
17.	Aluva	7.18	24857	3462
18.	Parur	9.03	27629	3060
19.	Perumbavoor	13.59	24393	1795
20.	Irinjalakuda	11.24	27253	2425
21.	Kodungallur	17.30	30744	1777
22.	Chalakkudy	25.23	44523	1765
23.	Thrissur	12.65	75147	5940
24.	Guruvayoor	6.49	19802	3051
25.	Kunnamkulam	6.96	19620	2819
26.	Palakkad	26.60	121196	4556
27.	Chittoor-Thathamangalam	14.71	31768	2160
28.	Thirur	16.59	47895	2887
29.	Malappuram	33.60	47887	1425
30.	Kozhikode	82.67	415492	5026
31.	Vadakara	21.34	70989	3327
32.	Thalasserry	15.35	77574	5054
33.	Kannur	11.03	64495	5847
34.	Kasaragod	16.68	48889	2931

Table - 2 : Number of hospitals and other institutions - 1989

Sl. No.	Municipality/ Corporation	Hospitals							Dispensaries and other institutions							Maternity and child health centre				
		Public		Private		Total		Public		Private		Total		Public		Private		Total		
		No.	Beds	No.	Beds	No.	Beds	No.	Beds	No.	Beds	No.	Beds	No.	Beds	No.	Beds	No.	Beds	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		
1.	Neyyattinkara	3	305	2	26	5	331	-	-	11	-	11	-	2	-	-	-	2		
2.	Thiruvananthapuram	24	6727	28	1151	52	7878	6	-	30	-	36	-	30	-	-	-	30		
3.	Attungal	-	-	7	290	7	290	2	-	15	-	17	-	4	-	-	-	4		
4.	Kollam	6	950	20	1106	26	2056	5	-	69	-	74	-	15	-	-	-	15		
5.	Punalur	1	133	9	202	10	335	2	-	6	-	8	-	3	-	-	-	3		
6.	Kayamkulam	3	170	17	295	20	465	-	-	6	-	6	-	6	-	-	-	6		
7.	Mavelikkara	2	247	6	215	8	462	-	-	10	-	10	-	-	-	-	-	-		
8.	Alappuzha	6	1548	5	112	11	1660	2	-	126	-	128	-	6	-	-	-	6		
9.	Cherthala	3	167	4	431	7	598	2	-	13	-	15	-	3	-	-	-	3		
10.	Thiruvalla	3	260	7	292	10	552	-	-	10	-	10	-	-	-	-	-	-		
11.	Changanacherry	2	217	7	292	9	509	-	-	25	-	25	-	4	-	-	-	4		
12.	Kottayam	3	398	15	200	18	598	3	-	54	-	57	-	3	-	-	-	3		
13.	Pala	3	240	9	366	12	606	-	-	20	-	20	-	5	-	-	-	5		
14.	Vaikom	2	260	2	50	4	310	-	-	35	-	35	-	1	-	-	-	1		
15.	Muvattupuzha	3	180	10	361	13	541	1	-	29	-	30	-	2	-	-	-	2		

(Contd.)

(Table 2 contd.)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
16. Kochi	14	1962	27	2062	71	4024	6	-	74	-	80	-	8	-	-	-	-	-	8
17. Aluva	2	237	13	560	15	797	1	-	27	-	28	-	-	-	-	-	-	-	-
18. Parur	2	189	5	165	7	334	-	-	17	-	17	-	2	-	-	-	-	-	2
19. Perumbavoor	2	181	11	503	13	684	1	-	4	-	5	-	4	-	-	-	-	-	4
20. Iringalakkuda	2	236	4	59	6	295	1	-	-	-	1	-	2	-	-	-	-	-	2
21. Kodungallur	2	210	5	190	7	400	-	-	12	-	12	-	-	-	-	-	-	-	2
22. Chalakkudy	1	144	9	271	10	415	2	-	24	-	26	-	3	-	-	-	-	-	3
23. Thrissur	5	1370	14	870	19	2940	1	-	13	-	14	-	-	-	-	4	-	-	4
24. Guruvayoor	1	30	7	196	8	226	-	-	-	-	-	-	1	-	-	-	-	-	1
25. Kunnankulam	1	104	6	193	7	297	2	-	-	-	2	-	1	-	-	-	-	-	1
27. Chittoor-Thamangalam	2	118	2	28	4	146	-	-	6	-	6	-	1	-	-	-	-	-	1
28. Tirur	4	145	3	215	7	360	2	-	6	-	8	-	3	-	-	-	-	-	3
29. Malappuram	4	156	2	100	6	256	1	-	16	-	17	-	2	-	-	-	-	-	2
30. Kozhikode	9	3805	32	968	41	4772	12	-	88	-	100	-	7	-	-	-	-	-	7
31. Vadakara	2	240	11	334	13	564	1	-	97	-	98	-	3	-	-	-	-	-	3
32. Thalasserry	2	555	16	240	18	795	2	-	14	16	-	-	-	-	-	-	-	-	-
33. Kannur	2	55	23	477	25	532	2	-	16	45	18	45	1	6	-	-	-	-	6
34. Kasaragod	2	210	9	750	11	960	1	-	21	-	22	-	-	-	-	-	-	-	-

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

Sl. Municipality/ No. Corporation	Burial grounds				Cremation grounds				Total no. of Wards Regn. Division	
	Muni- cipa- lity/ Corpo- ration	Pri- vate	Total		Muni- cipa- lity/ Corpo- ration	Pri- vate	Total		Wards	Regn. Division
1	2	3	4	5	6	7	8	9	10	
1. Neyyattinkara	1	4	5			3	3	20	1	
2. Thiruvananthapuram	1	24	25					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. Alappuzha	3	21	24					36	2	
9. Cherthala	1	5	6			1	1	28	1	
10. Thiruvalla	1	1	2					32	1	
11. Changanacherry	1	12	13			1	1	28	1	
12. Kottayam	1	15	16			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. Kochi	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. Kodungallur		2	2					20	1	

(Contd.)

(Table 3 contd.)

	1	2	3	4	5	6	7	8	9	10
22. Chalakkudy			2	7	9	-	1	1	18	1
23. Thrissur			3	11	14	2	1	3	32	6
24. Guruvayoor			1	4	5	-	1	1	10	1
25. Kunnankulam			-	2	2	-	-	-	16	1
26. Palakkad			4	7	11	3	1	4	32	1
27. Chittoor-Thathamangalam			-	1	1	3	1	3	20	2
28. Tirur			1	-	1	-	1	1	24	1
29. Malappuram			1	10	11	-	1	1	24	1
30. Kozhikode			2	9	11	4	2	6	39	14
31. Vadakara			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. Kasaragod			-	9	9	2	1	3	28	2

Table - 4: Registration units with area and population 1989

Sl. No.	Municipality/ Corporation	Number of regi- stration units	Area in Sq.Km. unit	Area per regist- ration unit	Estimated population	Population per regist- ration unit
1	2	3	4	5	6	7
1.	Neyyattinkara	1	9.70	9.70	29990	29990
2.	Thiruvananthapuram	15	74.93	4.99	516956	34464
3.	Attingal	1	14.18	14.18	32115	32115
4.	Kollam	3	18.48	6.16	139532	46511
5.	Punalur	1	34.60	34.60	45724	45724
6.	Kayamkulam	1	21.79	21.79	66144	66144
7.	Mavelikkara	1	12.65	12.65	28009	28009
8.	Alappuzha	2	46.77	23.38	173870	86935
9.	Cherthala	1	16.19	16.19	42840	42840
10.	Thiruvalla	1	27.87	27.87	54267	54267
11.	Chananganacherry	1	13.50	13.50	52363	52363
12.	Kottayam	2	15.55	7.77	63366	31683
13.	Pala	1	15.93	15.93	21846	21846
14.	Vaikom	1	8.73	8.73	21650	21650
15.	Muvattupuzha	1	13.18	13.18	27201	27201
16.	Kochi	2	94.88	47.44	555695	277848
17.	Aluva	2	7.18	3.59	24857	12429
18.	Parur	1	9.03	9.03	27629	27629

(Contd.)

(Table 4 contd.)

1	2	3	4	5	6	7
19.	Perumbavoor	1	13.59	13.59	243993	243993
20.	Irinjalakuda	1	11.24	11.24	27253	27253
21.	Kodungallur	1	17.30	17.30	30744	30744
22.	Chalakudy	1	25.23	25.23	44523	44523
23.	Thrissur	6	12.65	2.11	75147	12525
24.	Guruvayoor	1	6.49	6.49	19802	19802
25.	Kunnamkulam	1	6.96	6.96	19620	19620
26.	Palakkad	1	26.60	26.60	121196	121196
27.	Chittoor-Thathamangalam	2	14.71	7.36	31768	15884
28.	Tirur	1	16.59	16.59	47895	47895
29.	Malappuram	1	33.60	33.60	47887	47887
30.	Kozhikode	14	82.67	5.90	415492	29678
31.	Vadakara	1	21.34	21.34	70989	70989
32.	Kannur	4	11.03	2.75	64495	16124
34.	Kasaragod	2	16.68	8.34	43839	24445



Table - 5 : Vital events registered during the year 1989

Sl. No.	Municipality/ Corporation	Total events			Live-birth			Events to normal residents			No. of still-births		
		Male		Total	Male		Total	Male		Total	Male		Total
		1	2	3	4	5	6	7	8	9	10	11	
1.	Neyyattinkara	2016	1663	3679	215	206	421	10	4	14			
2.	Thiruvananthapuram	11966	2037	32343	5667	8354	14021	28	49	77			
3.	Attinagall	265	304	569	181	146	327	1	2	3			
4.	Kollam	7090	6150	13240	1361	1356	2717	10	12	22			
5.	Punalur	1343	1432	2775	317	365	682	14	8	22			
6.	Kayamkulam	1283	1230	2513	462	370	832	8	6	14			
7.	Mavelikkara	1923	1786	3709	209	189	398	5	10	15			
8.	Alappuzha	4441	4212	8653	1212	1189	2401	21	8	29			
9.	Cherthala	1250	1194	2444	186	181	367	10	8	18			
10.	Thiruvalla	3306	2498	5804	446	360	806	14	14	28			
11.	Changanacherry	1323	1247	2570	268	184	452	8	8	16			
12.	Kottayam	1897	1646	3543	373	251	624	11	12	23			
13.	Pala	1470	1546	3016	79	90	169	12	10	22			
14.	Vaikom	441	290	731	44	41	85	1	1	2			
15.	Muvattupuzha	1272	1364	2636	165	109	274	2	9	11			
16.	Kochi	9096	8459	17555	3768	3470	7238	89	87	176			
17.	Aluva	2491	2464	4955	125	106	231	9	14	23			
18.	Parur	1335	1277	2612	94	98	192	17	8	25			
19.	Perumbavoor	1369	1367	2736	145	134	279	15	1	16			
20.	Irinjalakuda	475	501	976	34	38	72	3	5	8			
21.	Kodungallur	1608	1458	3066	175	181	386	3	3	6			
22.	Chalakudy	1100	1102	2202	160	155	315	3	2	5			
23.	Thrissur	6862	7163	14025	645	827	1472	69	51	120			
24.	Guruvayoor	566	515	1081	40	37	77	10	11	21			
25.	Kunnamkulam	1020	973	1993	30	27	57	7	3	10			
26.	Palakkad	4417	4066	8483	1071	1057	2128	29	20	49			
27.	Chittoor-Thathamangalam	826	782	1608	374	260	634	12	20	32			
28.	Tirur	2854	2598	5452	239	231	470	14	22	36			

(contd.)

(Table 5 contd.)

	1	2	3	4	5	6	7	8	9	10	11
29. Malappuram			1287	1299	2586	268	250	518	14	12	26
30. Kozhikode			13539	14108	27647	5721	4813	10534	351	335	686
31. Vadakara			2754	2613	5367	489	443	932	19	10	29
32. Thalasserry			5121	5116	10237	1703	1529	3232	29	23	52
33. Kannur			2254	2183	4437	571	456	1027	12	11	23
34. Kasaragod			2920	2849	5769	521	497	1018	61	59	120

(Table - 5 Contd.)

Sl. No.	Municipality/ Corporation	Events to normal residents			Still-births			Total events			Infant-deaths		
		Events to normal residents		Total	Total events		Total	Events to normal residents		Total	Events to normal residents		Total
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
1		12	13	14	15	16	17	18	19	20			
1.	Neyyattinkara	-	-	-	12	8	20	-	-	-	-	-	-
2.	Thiruvananthapuram	6	10	16	315	436	751	141	90	231	-	-	-
3.	Attinagall	1	1	2	1	1	2	-	-	-	-	-	-
4.	Kollam	2	2	4	107	115	222	44	32	76	-	-	-
5.	Punalur	1	1	2	11	11	22	3	3	6	-	-	-
6.	Kayamkulam	4	2	6	12	4	16	4	3	7	-	-	-
7.	Mavelikkara	2	1	3	9	5	14	1	1	2	-	-	-
8.	Alappuzha	8	4	12	104	71	175	20	12	32	-	-	-
9.	Cherthala	2	1	3	22	3	25	5	6	11	-	-	-
10.	Thiruvalla	3	3	6	41	31	72	6	4	10	-	-	-
11.	Changanacherry	1	-	1	3	3	6	3	3	6	-	-	-
12.	Kottayam	4	1	5	3	2	5	-	1	1	-	-	-
13.	Pala	1	1	2	8	8	16	-	-	-	-	-	-
14.	Valkom	-	-	-	8	4	12	-	-	-	-	-	-

(Contd.)

(Table 5 contd.)

	1	2	12	13	14	15	16	17	18	19	20
15. Muvattupuzha	-					14	10	24	6	2	8
16. Kochi	35			31	66	192	134	326	66	52	118
17. Aluva	1			1	1	26	7	33	1	1	2
18. Parur	-			2	2	12	5	17	-	-	-
19. Perumbavoor	1			1	1	23	16	39	1	2	3
20. Irinjalakuda	1			1	2	2	2	4	-	-	-
21. Kodungalur	-			-	-	13	16	29	-	-	-
22. Chalakudy	-			-	-	9	10	19	-	2	2
23. Thrissur	2			3	5	177	161	338	6	5	11
24. Guruvayoor	-			2	2	7	8	15	-	-	-
25. Kunnamkulam	-			-	-	24	17	41	1	-	1
26. Palakkad	7			1	8	102	85	187	12	11	23
27. Chittoor-Thathamangalam	2			4	6	11	8	19	4	2	6
28. Tirur	-			-	-	46	32	78	3	3	6
29. Malappuram	-			-	-	22	13	35	1	2	3
30. Kozhikode	131			105	236	797	548	1345	353	267	620
31. Vadakara	2			2	2	26	19	45	7	4	11
32. Thalasserry	12			15	27	35	50	85	19	15	34
33. Kannur	3			2	5	34	23	57	9	5	14
34. Kasaragod	12			10	22	56	37	93	7	6	13

(Table 5 contd.)

Sl. No.	Municipality/ Corporation	No. of other deaths						No. of maternal death	
		Total events			Events to normal residents			Total events	Events to normal residents
		M	F	T	M	F	T		
1	2	21	22	23	24	25	26	27	28
1.	Neyyattinkara	171	82	253	70	49	119	-	-
2.	Thiruvananthapuram	2819	3895	6714	906	804	1710	-	-
3.	Attungal	68	51	119	56	43	99	-	-
4.	Kollam	1013	598	1611	277	248	525	3	1
5.	Punalur	193	101	294	95	72	167	1	-
6.	Kayamkulam	203	130	333	144	94	238	-	-
7.	Mavelikkara	216	116	332	97	72	169	-	-
8.	Alappuzha	1096	641	1737	479	313	792	1	1
9.	Cherthala	286	211	497	104	93	197	-	-
10.	Thiruvalla	416	271	687	171	100	271	1	1
11.	Changanacherry	149	137	286	99	67	165	1	-
12.	Kottayam	278	179	457	155	80	235	-	-
13.	Pala	203	82	285	34	22	56	-	-
14.	Vaikom	113	82	195	45	42	87	-	-
15.	Muvattupuzha	144	80	224	32	35	67	-	-
16.	Kochi	2836	1537	4373	1560	922	2482	-	-
17.	Aluva	221	108	329	72	31	103	-	-
18.	Parur	235	123	358	85	71	156	-	-
19.	Perumbavoor	126	88	214	40	39	79	-	-
20.	Irinjalakuda	121	63	184	70	44	114	-	-

(Contd.)

(Table 5 contd.)

	21	22	23	24	25	26	27	28
21. Kodungallur	196	99	295	94	63	157	-	-
22. Chalakkudy	195	95	290	119	61	180	-	-
23. Thrissur	972	811	1783	165	102	267	-	-
24. Guruvayoor	84	65	149	41	47	88	-	-
25. Kunnankulam	163	101	264	41	53	94	-	-
26. Palakkad	871	499	1370	353	238	591	-	-
27. Chittoor-Thatthamangalam	138	123	261	75	74	149	-	-
28. Tirur	235	134	369	77	71	148	-	-
29. Malappuram	154	84	238	70	38	108	-	-
30. Kozhikode	4050	2655	6705	1429	1010	2439	6	4
31. Vadakara	291	185	476	180	118	298	-	-
32. Thalasserry	611	545	1156	119	102	221	-	-
33. Kannur	279	183	462	117	108	225	-	-
34. Kasaragod	210	156	366	96	66	162	-	-



(Table 6 contd.)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
19. Perumbavoor	-	-	-	-	-	-	4	-	-	-	-	9	-	-	-	240	253
20. Irinjalakuda	-	-	-	-	-	-	-	-	2	-	-	9	-	-	19	158	188
21. Kodungallur	-	-	-	-	-	-	1	-	4	-	-	14	-	-	29	276	324
22. Chalakudy	-	-	-	-	-	-	7	20	1	-	-	21	-	67	14	146	309
23. Thrissur	-	-	-	-	-	-	7	-	-	7	-	104	-	345	-	1658	221
24. Guruvayoor	-	-	-	-	-	-	-	19	14	-	-	4	-	51	-	76	164
25. Kunnankulam	-	-	-	-	-	-	-	-	-	-	-	5	-	16	18	266	305
26. Palakkad	-	-	-	-	-	-	34	-	-	-	-	32	-	366	-	1125	1557
27. Chittoor-Thamangalam	6	-	-	-	-	-	-	-	-	-	-	5	-	-	-	269	280
28. Tirur	13	-	-	-	-	-	1	-	16	-	-	20	-	-	38	359	447
29. Malappuram	-	-	-	-	-	-	6	-	-	-	-	14	-	-	24	229	273
30. Kozhikode	162	-	-	-	-	-	19	128	-	2	-	328	-	100	-	7317	8056
31. Vadakara	-	-	-	-	-	-	4	-	-	1	-	30	-	-	68	418	521
32. Thalasserry	-	-	-	-	-	-	6	-	76	-	-	30	-	-	42	42	1077
33. Kannur	-	-	-	-	-	-	2	-	4	-	-	12	-	-	10	491	519
34. Kasaragode	-	-	-	-	-	-	20	-	4	-	-	5	-	-	145	285	459

Table - 7: Results of spot-check - 1989

Sl. No.	Municipality/ Corporation	No. of wards selected	Total no. of house holds	No. of house holds visited	No. of events to normal residents detected														
					Live birth					Infant deaths					Other deaths				
					Enu-mera- ted	Regi- ster- ed	Occu- red	Occu- red	side	Enu-mer- ated	Regi- ster- ed	Occu- red	Occu- red	side	Enu-mer- ated	Regi- ster- ed	Occu- red	Occu- red	side
3	4	5	6	7	8	9	10	11	12	13	14								
1.	Neyyattinkara	15	6793	6993	301	107	165	-	-	-	-	-	-	-	58	42	6		
2.	Thiruvananthapuram	15	24815	24815	1037	979	52	-	-	-	-	-	-	-	427	421	-		
3.	Attingal	15	4778	4778	278	116	161	-	-	-	-	-	-	-	81	56	25		
4.	Kollam	18	12621	12621	1065	913	152	8	8	-	-	-	-	-	191	157	27		
5.	Punalur	15	6223	6223	315	209	103	-	-	-	-	-	-	-	64	56	8		
6.	Kayamkulam	15	5381	5381	387	230	156	-	-	-	-	-	-	-	79	57	17		
7.	Mavelikkara	15	4343	4343	277	180	97	3	3	-	-	-	-	-	116	98	17		
8.	Alappuzha	18	15897	15897	1254	998	254	9	8	1	1	1	1	1	420	378	25		
9.	Cherthala	15	6501	6501	228	103	125	-	-	-	-	-	-	-	102	61	24		
10.	Thiruvalla	15	5752	5752	189	126	62	3	3	-	-	-	-	-	35	33	2		
11.	Changanacherry	15	5656	5656	164	79	85	1	1	-	-	-	-	-	95	63	32		
12.	Kottayam	15	7806	7806	248	121	127	1	1	-	-	-	-	-	101	68	32		
13.	Pala	15	3934	3934	155	92	63	-	-	-	-	-	-	-	45	32	7		
14.	Vaikom	15	4465	4465	187	48	139	-	-	-	-	-	-	-	64	55	7		
15.	Muvattupuzha	15	5962	5962	293	142	139	1	1	-	-	-	-	-	61	47	10		
16.	Kochi	15	26813	26813	1981	1466	400	8	7	1	1	1	1	1	553	420	26		
17.	Aluva	15	3395	3395	168	85	83	-	-	-	-	-	-	-	83	64	15		

(Contd.)





Table - 8 : Under Registration and occurrence of outside events

Sl. No.	Municipality/ Corporation	Percentage of under registration			Percentage of outside events		
		Births	Deaths	4	Births	Deaths	6
1.	Neyyattinkara	21.32	4.55	-	54.82	12.00	-
2.	Thiruvananthapuram	0.61	1.41	-	5.01	-	30.86
3.	Attungal	0.85	-	-	57.91	13.57	12.50
4.	Kollam	-	4.07	-	14.27	21.52	16.81
5.	Punalur	1.42	-	-	32.70	6.06	23.53
6.	Kayamkulam	0.43	8.06	-	40.31	5.26	34.38
7.	Mavelikkara	-	1.01	-	35.02	32.35	15.56
8.	Alappuzha	0.20	4.22	-	20.26	10.94	16.13
9.	Cherthala	-	21.79	-	54.82	4.81	18.07
10.	Thiruvalla	0.79	-	-	32.80	6.79	18.70
11.	Changanacherry	-	-	-	51.83	18.42	10.44
12.	Kottayam	-	1.45	-	51.21	14.52	14.52
13.	Pala	-	15.79	-	40.65	6.49	6.49
14.	Valkom	-	3.51	-	74.33	-	-
15.	Muvattupuzha	7.79	7.69	-	47.44	-	-
16.	Kochi	7.27	20.04	-	20.19	-	-
17.	Aluva	-	5.88	-	49.40	-	-
18.	Parur	-	16.36	-	53.41	-	-
19.	Perumbavoor	-	5.77	-	44.55	-	-
20.	Irinjalakuda	-	7.06	-	85.26	-	-
21.	Kodungallur	-	17.92	-	45.87	-	-
22.	Chalakudy	-	21.50	-	64.22	-	-
23.	Thrissur	12.99	16.56	-	15.82	-	-
24.	Guruvayoor	-	12.00	-	71.05	-	-
25.	Kunnankulam	1.92	9.68	-	78.60	-	-
26.	Palakkad	1.36	4.91	-	30.38	-	-
27.	Chittur-Thathamangalam	1.41	0.94	-	33.02	-	-
28.	Tirur	-	-	-	20.90	-	-

(Contd.)

(Table 8 contd.)

1	2	3	4	5	6
29.	Malappuram	4.59	2.99	32.06	6.94
30.	Kozhikode	0.37	9.54	13.02	3.27
31.	Vadakkara	3.55	8.70	35.42	29.88
32.	Thalasserry	0.81	-	14.39	18.80
33.	Kannur	7.65	12.50	38.94	23.08
34.	Kasaragod	3.95	2.22	9.92	2.17

Table - 9 : Registered Vital rates and adjusted residential vital rates

Sl. No.	Municipality/ Corporation	Registered Vital Rates		Adjusted residential vital rates	
		Births	Deaths	Births	Deaths
1.	Neyyattinkara	14.04	3.97	39.49	4.73
2.	Thiruvananthapuram	27.12	3.75	28.73	3.80
3.	Attungal	10.18	3.08	24.40	4.45
4.	Kollam	19.47	4.31	22.71	5.19
5.	Punalur	14.92	3.78	22.48	4.32
6.	Kayamkulam	11.07	3.70	18.63	5.12
7.	Mavelikkara	14.21	6.11	21.87	7.42
8.	Alappuzha	13.81	4.74	17.36	5.27
9.	Cherthala	8.57	4.86	18.97	8.12
10.	Thiruvalla	14.85	5.20	22.28	5.49
11.	Changanacherry	8.63	3.27	17.93	4.98
12.	Kottayam	9.85	3.72	20.19	5.57
13.	Pala	7.74	2.56	13.04	4.49
14.	Vaikom	3.93	4.02	15.31	4.68

(Contd.)

(Table 9 contd.)

1	2	3	4	5	6
15.	Muvattupuzha	10.07	2.76	20.78	3.57
21.	Kochi	13.03	4.68	17.60	6.15
17.	Aluva	9.29	4.22	18.36	5.47
18.	Parur	6.95	5.65	14.92	8.05
19.	Perumbavoor	11.44	3.36	20.63	4.60
20.	Irinjalakuda	2.64	4.18	17.91	6.56
21.	Kodungallur	11.58	5.11	21.39	6.70
22.	Chalakudy	7.07	4.09	19.75	5.75
23.	Thrissur	19.59	3.70	26.74	4.75
24.	Guruvayoor	3.89	4.44	13.44	6.21
25.	Kunnankulam	2.91	4.84	13.88	6.57
26.	Palakkad	17.56	5.07	25.57	5.94
27.	Chittoor-Thatamangalam	19.96	4.88	30.23	5.77
28.	Tirur	9.81	3.22	12.40	3.44
29.	Malappuram	10.82	2.32	16.69	2.57
30.	Kozhikode	25.35	7.37	29.25	8.43
31.	Vadakara	13.13	4.35	21.07	6.79
32.	Thalasserry	41.66	3.29	49.06	4.05
33.	Kannur	15.92	3.71	28.23	5.51
34.	Kasaragod	20.82	3.58	24.07	3.74

Table - 10: Adjusted residential vital rates from 1984 to 1989

Sl. Municipality/ No. Corporation	Birth rate					Death rate							
	1984	1985	1986	1987	1988	1989	1984	1985	1986	1987	1988	1989	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Neyyattin- kara	27.43	34.62	27.40	31.55	40.85	39.49	6.71	6.53	7.11	5.84	6.15	4.73	
2. Thiruvanan- thapuram	24.17	27.94	27.56	27.05	27.49	28.73	5.52	8.02	6.15	3.79	3.59	3.80	
3. Attingal	16.01	14.54	13.33	11.42	24.21	24.40	3.79	4.18	3.75	5.16	4.13	4.45	
4. Kollam	23.15	24.20	20.90	22.59	21.65	22.71	5.05	4.85	5.05	4.25	4.05	5.19	
5. Punalur	21.15	21.10	19.99	20.55	21.15	22.48	4.59	4.86	3.47	4.92	4.51	4.32	
6. Kayamkulam	23.28	29.27	20.95	25.02	19.66	18.63	6.02	6.12	5.75	6.01	6.12	5.12	
7. Mavelikkara	19.50	21.19	28.55	25.00	22.54	21.87	7.1	6.45	6.23	6.18	7.59	7.42	
8. Alappuzha	21.74	21.56	20.42	16.60	17.58	17.36	6.24	6.97	6.77	6.11	8.88	5.27	
9. Cherthala	24.61	24.48	22.78	22.15	19.81	18.97	7.14	6.30	6.97	7.72	7.95	8.12	5
10. Thiruvalla	23.77	16.61	15.96	21.51	25.38	22.28	6.26	4.24	7.91	9.64	5.12	5.49	
11. Changana- cherry	23.84	21.68	19.45	15.76	17.50	17.93	5.46	4.58	4.48	4.62	5.21	4.98	
12. Kottayam	19.59	17.82	19.99	22.47	19.26	20.19	4.25	5.24	6.73	4.61	5.25	5.57	
13. Pala	12.32	16.79	13.14	10.40	11.39	13.04	5.59	4.86	3.23	3.55	3.20	4.49	
14. Vaikom	15.08	19.08	28.01	26.48	13.94	15.31	4.24	6.91	4.75	5.86	4.90	4.68	
15. Muvattupuzha	21.60	23.71	16.47	22.85	20.09	20.78	5.26	3.99	2.89	3.85	3.28	3.57	
16. Kochi	26.41	24.04	23.17	20.25	18.79	17.60	7.20	5.91	6.38	6.79	6.01	6.15	

(Contd.)

(Table 10 contd.)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
17. Aluva	22.04	20.49	17.23	15.82	18.41	18.36	4.60	4.91	5.15	4.43	3.32	5.47		
18. Parur	16.13	24.08	27.22	17.06	16.89	14.92	5.53	6.26	6.51	8.70	7.36	8.05		
19. Perumbavoor	28.76	26.13	18.06	19.82	21.66	20.63	8.95	5.54	5.64	5.12	5.09	4.60		
20. Irinjalakuda	33.10	35.33	22.61	27.46	17.94	17.91	6.71	7.73	5.55	7.65	8.50	6.56		
21. Kodungallur	16.86	21.83	18.38	18.71	21.52	21.39	5.23	5.08	5.26	7.32	6.62	6.70		
22. Chalakkudy	18.57	17.99	17.62	16.44	18.49	19.75	6.35	5.46	5.12	6.00	4.60	5.75		
23. Thrissur	24.08	23.07	21.7	24.03	26.00	26.74	6.91	5.36	4.31	4.85	5.43	4.75		
24. Guruvayoor	15.49	15.24	14.30	14.81	11.64	13.44	7.08	6.01	6.56	6.13	7.04	6.21		
25. Kunnankulam	17.95	19.03	16.97	13.18	13.75	13.88	7.12	6.34	7.95	6.62	6.54	6.57		
26. Palakkad	31.83	31.45	29.96	27.37	25.76	25.57	7.13	6.16	6.63	6.21	5.94	5.94		
27. Chittoor- Thathamangalam	17.28	24.22	28.54	31.85	30.09	30.23	7.30	7.69	8.22	6.95	7.97	5.77		
28. Tirur	16.89	16.39	14.09	11.79	11.06	12.40	3.79	3.23	3.07	2.81	3.43	3.44		
29. Malappuram	20.47	21.72	22.92	21.63	18.40	16.69	3.53	3.78	3.76	3.89	3.05	2.57		
30. Kozhikode	30.74	30.40	27.21	22.22	29.37	29.25	8.87	8.57	8.83	8.23	8.57	8.43		
31. Vadakara	26.75	24.80	22.87	21.68	22.98	21.07	6.49	6.48	6.20	6.39	6.38	6.79		
32. Thalassery	7.35	44.50	39.75	44.80	49.40	49.06	4.37	4.10	3.28	3.57	3.99	4.05		
33. Kannur	32.97	25.22	20.61	22.98	28.25	28.23	3.90	4.87	5.90	10.75	9.47	5.51		
34. Kasaragode	39.12	39.55	45.55	45.95	25.11	24.07	4.33	4.03	4.30	4.22	3.79	3.74		

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