



GOVERNMENT OF KERALA

ANNUAL REPORT ON  
RESIDENTIAL  
VITAL RATES 1985

DEPARTMENT OF  
ECONOMICS & STATISTICS  
TRIVANDRUM  
1987

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**RESIDENTIAL VITAL RATES IN  
CORPORATIONS AND MUNICIPALITIES**

**1985**

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**DEPARTMENT OF ECONOMICS & STATISTICS**

**TRIVANDRUM**

## P R E F A C E

This report presents the adjusted vital rates of births and deaths in Municipalities and Corporations in the State for the year 1985. The rates have been estimated from the registered births and deaths to the normal residents, after making adjustments for under-registration and for the events occurring outside the Municipal/Corporation areas, using the results of spot check survey conducted in the Municipalities/Corporations. 30 Municipalities, 3 Corporations and one township are covered in the Report. The report has been prepared by the Vital Statistics Unit of the Department of Economics and Statistics.

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**DIRECTOR**

Trivandrum,  
26-9-1987.

## **C O N T E N T S**

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## **RESIDENTIAL VITAL RATES IN MUNICIPALITIES**

### **1. Introduction**

The civil registration system of vital events ignored two important aspects of registration of vital events namely the presence of unregistered events and the occurrence of outside events. This was remedied by the introduction of the spot check survey which enables the calculation of the actual birth/death rate of a particular city/town. The spot check survey was introduced in the state under the scheme "**Strengthening of Statistical Units in Municipalities for Improvement of Vital Statistics**". The results of this survey for the year 1985 are presented in this report.

The registration of Births and Deaths Act of 1969 and the Kerala Births and Death Registration Rule govern the registration of vital events in the State. Unregistered events invariably occur. All the events occurring inside the towns whether they pertain to normal residents or outsiders have to be registered at the places of occurrence of the events.

To avoid omissions in the registration of vital events, the municipal authorities are exhibiting notices to educate the public about the importance of birth and deaths registration. Slides are also exhibited in cinema theatres. Show cause notices are issued to defaulters and action is taken as per provisions of the Births and Deaths Act by the Municipal/Corporation Commissioners.

### **2. Scheme for Improvement of Vital Statistics**

The spot check scheme was introduced in the city corporations and municipalities to estimate the correct residential vital rates and to estimate the extent of under registration of vital events.

During the year 1985, 3 city Corporations, 30 Municipalities and Guruvayoor Township were covered under the scheme. In the Corporations of Trivandrum, Cochin and Calicut, 15 wards each were selected, as sample, for the study. In the major municipalities of Quilon and Alleppey, 18 wards each were selected. All the wards in Guruvayoor township and 15 wards each in all other municipalities were selected for spot check survey. The statistical staff assigned for the work, visited these selected wards and collected data on vital events from each household. Vital events occurring to normal residents enumerated during the spot check are divided into three categories.

- i. Events occurring inside the town and registered
- ii. Events occurring inside the town and not registered
- iii. Events occurring outside the town registered or unregistered.

For the calculation of the percentage of under registration, the events occurring to persons coming into the town/city to avail themselves of better medical facilities are excluded. Only events to normal residents are taken into account.

For the calculation of residential vital rates of a town/city the vital events occurred to outsiders are excluded from the total registered events. The registered rate to normal residents is weighted for under registration and further adjusted for events occurring outside the town to the normal residents.

The scheme for medical certification of cause of death was also introduced in the city corporations and major municipalities in the state to develop cause of death statistics. During 1985, this scheme was implemented in the corporations of Cochin and Kozhikode and in Quilon Municipality.

### **3. General findings of the survey in the towns/cities**

Table 1 gives the area, mid-year population and density of population of the municipalities and corporations for the year 1985. Seven centres namely, Quilon (7812 per sq.km.), Trivandrum (6925 per sq.km.), Trichur (6218 per sq.km.), Cochin (5788 per sq.km.), Cannanore (5764 per sq.km.), Calicut and Tellicherry (5128 per sq.km. each) have a density of population exceeding 5000 per sq.km. The lowest density of population was for Malappuram (1301 per sq.km.) during the year 1985.

Table 2 represents the number of hospitals and other institutions in the municipalities and corporations. The maximum number of public hospitals is in Trivandrum(27) with 6556 beds. The largest number of private hospitals is in Cochin Corporation(47) with 2048 beds. As in 1984, the number of dispensaries (135), mostly in the private sector, was highest in Alleppey.

Table 3 shows the number of burial grounds, cremation grounds and civil registration units in the various municipalities and corporations. The majority of the burial and cremation grounds come in the private sector.

Table 4 compares the area and population in the registration units. The number of registration units in Calicut (14), Trivandrum(13) and Cochin (2) remained the same as in 1984. There was no variation in the number of registration units in 1985; the area per registration unit in Trivandrum was 5.76 sq.km. in Cochin 47.44 sq.km., in Calicut 5.90 sq.km. This year again, considering the municipalities, the area per registration unit is highest in Punalur (34.60 sq.km.) and lowest in Trichur (2.10 sq.km.).

Table 5 presents the town-wise details of vital events registered during the year. The maximum number of live births occurred to normal residents in 1985 was in Trivandrum (13264). In the previous year it was 11035 in Trivandrum. The lowest number of live-births occurred in Guruvayoor township (46). The highest number of still births to normal residents occurred in Calicut (112). The maximum number of infant deaths in respect of normal residents during the year under report was in Trivandrum (456) followed by Calicut (247). In Tirur alone, there was no infant death. Maternal death was also nil regarding events to normal residents in all centres.

In table 6 the distribution of deaths, according to causes is presented. In 1985, the maximum number of deaths occurred in Trivandrum (7610), due to all causes. Heart failure claimed the highest (1618) number of deaths in Trivandrum. The lowest number of deaths due to all causes occurred in Guruvayoor township (106).

The details of vital events collected through spot check during the year 1985 are presented in table 7. The number of live-births enumerated is highest in Cochin (2015) and that registered is highest in Trivandrum (1620) During 1984 also the highest number of live-births enumerated was in Cochin (2302) and that registered was in Trivandrum (2156).

Table 8 presents under registration and occurrence of outside events. The highest percentage of under registration of births has been in Neyyattinkara (25.32%) and of deaths in Changanacherry (32.83%). During the previous year, under registration of births was highest in Calicut (24.70%) and of deaths in Trichur (43.48%). Cent per cent registration of births and deaths occurred as in the previous year, in Kottayam and Tirur. Outside registration was maximum in Guruvayoor township (83.92%) in respect of births, and lowest in Kasargode (1.27%) in respect of deaths.

#### **4. Adjusted Residential Vital Rates and Registered Vital Rates - 1985**

Table 9 presents the registered vital rates and adjusted residential vital rates. The registered birth rate is lowest in Guruvayoor (2.45) and highest in Kasargode (35.59). Turning to registered death rate, it is lowest in Changanacherry (2.04) and highest in Trivandrum (7.12).

Adjusted residential vital rates in respect of births was highest in Tellicherry (44.50) and lowest in Attingal (14.54). Adjusted death rate turned out to be lowest in Tirur (3.23) and highest in Calicut (8.57). The method of calculation of adjusted residential vital rates is also given as appendix.

Table 10 presents the adjusted residential rates from 1980-85. In Trivandrum, the birth rate registered an increase from 18.93 in 1981 to 27.94 in 1985. In Cochin the birth rate fell slightly over these 5 years from 25.86 to 24.04. In Calicut, there was an increase from 27.37 in 1981 to 30.40 in 1985 in birth rate. The centres where birth rate rose, comparing 1981 and 1985 situations, are Attingal, Quilon, Vaikom, Alwaye, Perumbavoor, Irinjalakuda, Guruvayoor, Palghat, Chittoor-Thathamangalam, Tellicherry and Kasargode. The lowest birth rate considering this time period was for Alwaye (7.04) in 1981. The highest turned out to be in Kodungallur in 1982 (45.83). Analysis of the death rate indicates that in Trivandrum, the rate rose from 4.08 in 1981 to 8.02 in 1985 nearly doubling. In Cochin this rate declined from 7.98 to 5.91 over the period. In Calicut it rose from 7.00 in 1981 to 8.57 in 1985. In the Municipality of Quilon, the death rate declined from 5.77 in 1981 to 4.85 in 1985; whereas in Alleppey it rose from 5.56 in 1981 to 6.97 in 1985. Ruling out the instances of these municipalities where the death rate remained more or less the same in the State, the fall in this rate in some centres was equalised by the rise in an equal number of other municipalities.

#### **5. Conclusion**

The spot check survey was implemented successfully in the State in 1985 also. Unregistered events were promptly brought to the notice of the Commissioners concerned for further action. Outside registration was also accounted for, to present the true birth/death rate of a town/city.

**Table 1 - Annual residential vital rates 1985  
area and population**

Sl. No.	Name of Municipality/ Corporation	Area in sq.kms.	Mid year population	Density of population per sq.km.
1	2	3	4	5
1.	Neyyattinkara	9.70	29933	3086
2.	Trivandrum	74.93	518895	6925
3.	Attingal	14.18	30844	2175
4.	Quilon	18.48	144358	7812
5.	Punalur	34.60	45329	1310
6.	Kayamkulam	21.79	64751	2972
7.	Mavelikara	12.65	27020	2136
8.	Alleppey	46.77	174359	3728
9.	Shertalai	16.19	42228	2608
10.	Tiruvalla	14.47	30400	2101
11.	Changanacherry	13.50	53506	3963
12.	Kottayam	15.55	66589	4282
13.	Palai	15.93	22237	1396
14.	Vaikom	8.73	21584	2472
15.	Muvattupuzha	13.18	26827	2035
16.	Cochin	94.88	549185	5788
17.	Alwaye	7.18	25821	3596
18.	Parur	9.03	27154	3007
19.	Perumbavoor	13.59	24076	1772
20.	Irinjalakuda	11.24	26400	2349
21.	Kodungalloor	17.30	29615	1712
22.	Chalakydy	25.23	43923	1741
23.	Trichur	12.65	78663	6218
24.	Guruvayoor	6.49	18800	2897
25.	Kunnamkulam	6.96	19924	2863
26.	Palghat	26.60	118698	4462
27.	Chittoor-Thathamangalam	14.71	31268	2126
28.	Tirur	16.59	45171	2723
29.	Malappuram	33.60	43724	1301
30.	Calicut	82.67	423953	5128
31.	Badagara	21.34	69195	3243
32.	Tellicherry	15.35	78714	5128
33.	Cannanore	11.03	63574	5764
34.	Kasaragod	16.68	47238	2832



Table 2 - Number of hospitals and other institutions 1985

Sl. No.	Name of Municipality/ Corporation	Hospitals							Dispensaries & other institutions							Maternity & 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	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	3	42	6	347	--	--	7	--	7	--	2	--	--	--	2	--		
2.	Trivandrum	27	6556	19	1547	46	8103	8	--	60	--	68	--	37	--	--	--	37	--		
3.	Attingal	--	--	7	285	7	285	2	45	9	--	11	45	3	--	--	--	3	--		
4.	Quilon	6	950	20	1106	26	2056	5	--	69	--	74	--	15	--	--	--	15	--		
5.	Punalur	1	100	8	180	9	280	2	--	3	--	5	--	3	--	--	--	3	--		
6.	Kayamkulam	3	125	10	205	13	330	--	--	6	--	6	--	6	--	--	--	6	--		
7.	Mavelikara	2	220	2	140	4	360	--	--	6	60	6	60	1	--	--	--	1	--		
8.	Alleppey	6	1329	6	94	12	1423	3	--	132	--	135	--	6	--	--	--	6	--		
9.	Shertallai	1	146	4	200	5	346	2	40	--	--	2	40	4	--	--	--	4	--		
10.	Tiruvalla	2	140	6	445	8	585	--	--	10	--	10	--	--	--	--	--	--	--		
11.	Changanacherry	2	174	12	152	14	326	--	--	23	--	23	--	4	--	--	--	4	--		
12.	Kottayam	3	315	15	200	18	515	3	--	54	--	57	--	3	--	--	--	3	--		
13.	Palai	3	230	6	335	9	565	--	--	18	--	18	--	4	--	--	--	4	--		
14.	Vaikom	2	280	2	60	4	340	--	--	34	--	34	--	2	20	--	--	2	20		
15.	Muvattupuzha	3	180	10	361	13	541	1	--	29	--	30	--	2	--	--	--	2	--		
16.	Cochin	13	1928	47	2048	60	3976	7	14	93	--	100	14	6	--	--	--	6	--		
17.	Alwaye	2	167	13	526	15	693	1	--	26	--	27	--	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	20
18. Parur	2	143	6	124	8	267	--	--	8	--	8	--	9	--	2	--	--	--	2	--
19. Perumbavoor	2	141	9	427	11	568	1	--	5	--	5	--	6	--	4	--	--	--	4	--
20. Irinjalakuda	2	189	4	59	6	248	1	--	--	--	--	--	1	--	2	--	--	--	2	--
21. Kodungalloor	1	180	3	100	4	280	1	--	10	--	10	--	11	--	--	--	--	--	--	--
22. Chalakudy	1	144	9	295	10	439	2	--	34	--	34	--	36	--	3	--	--	--	3	--
23. Trichur	5	1124	13	564	18	1688	1	--	12	--	12	--	13	--	--	--	4	--	4	--
24. Guvayoor	1	30	1	19	2	49	--	--	3	45	3	45	3	45	1	--	--	--	1	--
25. Kunnankulam	1	104	6	193	7	297	2	--	--	--	--	--	2	--	1	--	--	--	1	--
26. Palghat	4	508	15	169	19	677	2	--	11	--	11	--	13	--	3	--	--	--	3	--
27. Chittoor-Thathamangalam	2	88	1	--	3	88	--	--	6	11	6	11	6	11	2	--	--	--	2	--
28. Tirur	1	145	3	140	4	285	2	--	6	--	6	--	8	--	3	--	--	--	3	--
29. Malappuram	4	121	1	55	5	176	1	--	3	--	3	--	4	--	2	--	--	--	2	--
30. Calicut	9	3722	28	889	37	4611	12	--	85	--	85	--	97	--	7	--	--	--	7	--
31. Badagara	2	190	--	--	2	190	1	--	38	254	38	254	39	254	6	--	2	13	8	13
32. Tellicherry	2	500	15	230	17	730	2	--	42	--	42	--	44	--	--	--	--	--	--	--
33. Cannanore	2	55	17	390	19	445	2	--	16	42	16	42	18	42	1	9	--	--	1	9
34. Kasaragod	1	120	10	676	11	796	--	--	15	--	15	--	15	--	--	--	--	--	--	--

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

Sl. No.	Name of Municipality/ Corporation	Burial grounds			Cremation grounds			V.S. regn. units	
		Muni. (Corp.)	Private	Total	Muni. (Corp.)	Private	Total	No. of wards	No. of regn. divisions
1	2	3	4	5	6	7	8	9	10
1.	Neyyattinkara	1	4	5	-	3	3	20	1
2.	Trivandrum	-	27	27	2	4	6	50	13
3.	Attingal	1	2	3	-	5	5	20	1
4.	Quilon	2	15	17	-	-	-	36	3
5.	Punalur	1	7	8	-	-	-	24	1
6.	Kayamkulam	1	14	15	1	3	4	32	1
7.	Mavelikara	1	9	10	-	1	1	20	1
8.	Alleppey	2	21	23	-	-	-	36	6
9.	Shertalai	1	1	2	-	5	5	24	1
10.	Tiruvalla	1	-	1	-	-	-	20	1
11.	Changanacherry	1	12	13	-	1	1	28	1
12.	Kottayam	1	15	16	1	1	2	32	2
13.	Palai	1	5	6	-	-	-	20	1
14.	Vaikom	1	1	2	-	-	-	20	1
15.	Muvattupuzha	1	8	9	-	-	-	20	1
16.	Cochin	8	40	48	5	11	16	50	2
17.	Alwaye	-	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	-	-	-	-	-	-	20	1
22.	Chalakudy	2	7	9	-	1	1	24	1
23.	Trichur	3	11	14	2	1	3	32	6
24.	Guruvayoor	1	4	5	-	1	1	10	1
25.	Kunnamkulam	1	1	2	-	-	-	16	1
26.	Palghat	4	7	11	3	1	4	32	5
27.	Chittoor-Thathamangalam	-	1	1	3	1	4	20	2
28.	Tirur	1	-	1	-	1	1	24	1
29.	Malappuram	1	10	11	-	1	1	24	1
30.	Calicut	2	9	11	4	2	6	39	14
31.	Badagara	1	8	9	-	-	-	32	3
32.	Tellicherry	1	15	16	1	11	12	32	4
33.	Cannanore	1	12	13	1	-	1	32	4
34.	Kasaragod	-	9	9	2	1	3	24	2

Table 4 - Registration units with area and population - 1985

Sl. No.	Name of Municipality/ Corporation	No. of regn.units	Area in sq.km.	Area/ regn.units	Estimated population	Population/ regn. unit
1	2	3	4	5	6	7
1.	Neyyattinkara	1	9.70	9.70	29933	29933
2.	Trivandrum	13	74.93	5.76	518895	39915
3.	Attingal	1	14.18	14.18	30844	30844
4.	Quilon	3	18.48	6.16	144358	48119
5.	Punalur	1	34.60	34.60	45329	45329
6.	Kayamkulam	1	21.79	21.79	64751	64751
7.	Mavelikara	1	12.65	12.65	27020	27020
8.	Alleppey	6	46.77	7.79	174359	29060
9.	Shertallai	1	16.19	16.19	42228	42228
10.	Tiruvalla	1	14.47	14.47	30400	30400
11.	Changanacherry	1	13.50	13.50	53506	53506
12.	Kottayam	2	15.55	7.77	66589	33295
13.	Palai	1	15.93	15.93	22237	22237
14.	Vaikom	1	8.73	8.73	21584	21584
15.	Muvattupuzha	1	13.18	13.18	26827	26827
16.	Cochin	2	94.88	47.44	549185	274592
17.	Alwaye	2	7.18	3.59	25821	12911
18.	Parur	1	9.03	9.03	27154	27154
19.	Perumbavoor	1	13.59	13.59	24076	24076
20.	Irinjalakuda	1	11.24	11.24	26400	26400
21.	Kodungalloor	1	17.30	17.30	29615	29615
22.	Chalakydy	1	25.23	25.23	43923	43923
23.	Trichur	6	12.65	2.10	78663	13111
24.	Guruvayoor	1	6.49	6.49	18800	18800
25.	Kunnamkulam	1	6.96	6.96	19924	19924
26.	Palghat	5	26.60	5.32	118698	23740
27.	Chittoor-Thathamangalam	2	14.71	7.35	31268	15634
28.	Titur	1	16.59	16.59	45171	45171
29.	Malappuram	1	33.60	33.60	43724	43724
30.	Calicut	14	82.67	5.90	423953	30282
31.	Badagara	3	21.34	7.11	69195	23065
32.	Tellicherry	4	15.35	3.83	78714	19679
33.	Cannanore	4	11.03	2.75	63574	15894
34.	Kasaragod	2	16.68	8.34	47238	23619

Table 5 - Vital events registered during the year - 1985

Sl. No.	Name of Municipality/ Corporation	Live births						No. of still births		
		Total events			Events to normal residents			Total events		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7	8	9	10	11
1.	Neyyattinkara	1542	1366	2908	193	158	351	9	4	13
2.	Trivandrum	15417	15847	31264	6428	6836	13264	49	24	73
3.	Attingal	652	735	1387	131	146	277	6	7	13
4.	Quilon	6210	5931	12141	1400	1365	2765	65	53	118
5.	Punalur	1467	1350	2817	289	278	567	21	13	34
6.	Kayamkulam	1862	1735	3597	638	595	1233	9	4	13
7.	Mavelikara	1326	1254	2580	164	172	336	5	4	9
8.	Alleppey	3819	3453	7272	1669	1485	3154	12	9	21
9.	Shertallai	1515	1462	2977	287	287	574	15	28	43
10.	Tiruvalla	1801	1558	3359	128	127	255	11	8	19
11.	Changanacherry	1077	1205	2282	268	291	559	10	10	20
12.	Kottayam	2086	1943	4029	317	325	642	5	3	8
13.	Palai	1463	1407	2870	116	99	215	23	17	40
14.	Vaikom	510	448	958	88	76	164	5	2	7
15.	Muvattupuzha	1357	1344	2701	180	166	346	19	15	34
16.	Cochin	8243	8015	16258	4516	4462	8978	100	99	199
17.	Alwaye	2475	2388	4863	160	140	300	24	20	44
18.	Parur	1169	1145	2314	160	175	335	8	12	20
19.	Perumbavoor	1339	1196	2535	145	120	265	11	7	18
20.	Irinjalakuda	1189	1095	2284	176	151	327	14	7	21
21.	Kodungalloor	1729	1610	3339	212	186	398	11	10	21
22.	Chalakydy	1175	1079	2254	184	171	355	9	10	19
23.	Trichur	6979	7102	14081	621	651	1272	67	86	153
24.	Guruvayoor	346	275	621	18	28	46	2	4	6
25.	Kunnamkulam	1383	1236	2619	81	66	147	9	14	23
26.	Palghat	4062	3823	7885	1359	1299	2658	145	137	282
27.	Chittoor-Thathamangalam	455	367	822	203	182	385	4	9	13
28.	Tirur	2705	2497	5202	364	333	697	33	31	64
29.	Malappuram	1402	1301	2703	328	309	637	29	30	59
30.	Calicut	12129	11275	23404	4893	4664	9557	364	352	716
31.	Badagara	2938	2762	5700	608	579	1187	18	12	30
32.	Tellicherry	4662	4617	9279	1113	1203	2316	47	55	102
33.	Cannanore	1870	1788	3658	493	561	1054	10	7	17
34.	Kasaragod	2466	2370	4836	824	856	1680	70	51	121

(contd.)

(Table 5 contd.)

Sl. No.	Name of Municipality/ Corporation	No. of still births						No. of infant deaths					
		events to normal residents			Total events			events to normal residents					
		M	F	T	M	F	T	M	F	T			
1	2	12	13	14	15	16	17	18	19	20			
1.	Neyyattinkara	1	1	2	7	10	17	2	-	2			
2.	Trivandrum	18	11	29	556	387	943	314	142	456			
3.	Attingal	-	3	3	4	3	7	-	3	3			
4.	Quilon	13	9	22	44	29	73	9	7	16			
5.	Punalur	4	2	6	27	26	53	12	10	22			
6.	Kayamkulam	1	-	1	12	5	17	4	2	6			
7.	Mavelikara	-	-	-	23	10	33	3	2	5			
8.	Alleppey	5	4	9	131	111	242	36	32	68			
9.	Shertallai	2	3	5	29	25	54	6	5	11			
10.	Tiruvalla	1	2	3	25	34	59	3	4	7			
11.	Changanacherry	3	5	8	17	19	36	4	5	9			
12.	Kottayam	1	2	3	13	9	22	3	3	6			
13.	Palai	1	1	2	22	20	42	1	2	3			
14.	Vaikom	-	-	-	9	10	19	2	2	4			
15.	Muvattupuzha	2	-	2	20	15	35	1	1	2			
16.	Cochin	47	50	97	196	128	324	74	49	123			
17.	Alwaye	-	2	2	28	22	50	1	2	3			
18.	Parur	-	-	-	7	4	11	-	3	3			
19.	Perumbavoor	1	2	3	20	15	35	5	1	6			
20.	Irinjalakuda	-	1	1	16	10	26	4	1	5			
21.	Kodungalloor	-	-	-	19	25	44	-	1	1			
22.	Chalakydy	1	2	3	9	12	21	-	6	6			
23.	Trichur	6	9	15	129	122	251	17	15	32			
24.	Guruvayoor	-	1	1	4	1	5	-	1	1			
25.	Kunnankulam	-	-	-	35	25	60	4	1	5			
26.	Palghat	25	31	56	141	112	253	45	49	94			
27.	Chittoor-Thathamangalam	-	1	1	16	10	26	6	6	12			
28.	Tirur	-	-	-	58	49	107	-	-	-			
29.	Malappuram	-	-	-	48	39	87	2	1	3			
30.	Calicut	62	50	112	647	508	1155	142	105	247			
31.	Badagara	2	3	5	47	42	89	4	9	13			
32.	Tellicherry	17	23	40	71	79	150	19	20	39			
33.	Cannanore	4	1	5	39	28	67	12	8	20			
34.	Kasaragod	18	12	30	82	41	123	7	6	13			

(contd.)

(Table 5 contd.)

Sl. No.	Name of Municipality/ Corporation	No. of other deaths						No. of maternal deaths	
		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	170	112	282	58	56	114	--	--
2.	Trivandrum	4167	2500	6667	1762	1478	3240	--	--
3.	Attingal	66	39	105	57	32	89	--	--
4.	Quilon	1140	740	1880	308	152	460	--	--
5.	Punalur	127	93	220	59	43	102	1	--
6.	Kayamkulam	151	135	286	114	113	227	--	--
7.	Mavelikara	176	142	318	72	70	142	--	--
8.	Alleppey	1034	663	1697	499	369	868	--	--
9.	Shertallai	328	203	531	115	106	221	--	--
10.	Tiruvalla	314	169	483	63	28	91	--	--
11.	Changanacherry	165	75	240	58	42	100	--	--
12.	Kottayam	354	183	537	153	93	246	1	--
13.	Palai	161	87	248	54	24	78	--	--
14.	Vaikom	132	75	207	58	46	104	--	--
15.	Muvattupuzha	116	90	206	45	23	68	--	--
16.	Cochin	2251	1307	3558	1336	854	2190	--	--
17.	Alwaye	224	89	313	50	32	82	--	--
18.	Parur	200	79	279	76	48	124	--	--
19.	Perumbavoor	128	70	198	47	35	82	--	--
20.	Irinjalakuda	103	69	172	76	41	117	--	--
21.	Kodungalloor	152	87	239	60	52	112	--	--
22.	Chalaky	174	76	250	93	58	151	--	--
23.	Trichur	1170	830	2000	149	98	247	--	--
24.	Guruvayoor	52	49	101	37	43	80	--	--
25.	Kunnamkulam	145	98	243	39	37	76	--	--
26.	Palghat	693	599	1292	291	229	520	5	--
27.	Chittoor-Thathamangalam	119	119	238	97	92	189	--	--
28.	Tirur	235	188	423	77	69	146	--	--
29.	Malappuram	127	109	236	73	74	147	--	--
30.	Calicut	3948	2269	6217	1368	1037	2405	6	--
31.	Badagara	223	144	367	157	119	276	--	--
32.	Tellicherry	516	444	960	82	80	162	--	--
33.	Cannanore	235	185	420	92	81	173	--	--
34.	Kasaragod	237	149	386	87	83	170	--	--

Table 6 - Deaths according to cause - 1985

Sl. No.	Name of Municipality/ Corporation	Plague Cholera			5	6	7	8	9	10	11	12	13	14	15	16
		3	4													
1.	Neyyattinkara	-	-	-	1	58	4	-	-	-	-	-	-	236	299	
2.	Tivandrum	-	-	-	425	-	-	-	-	-	52	32	1618	148	5335	7610
3.	Attungal	-	1	-	-	8	-	1	-	-	6	-	30	2	64	112
4.	Quilon	-	1	-	51	-	-	3	-	-	-	-	295	160	1443	1933
5.	Punalur	-	-	-	1	-	7	-	-	-	-	-	-	31	235	274
6.	Kayamkulam	-	-	-	2	8	-	-	-	-	9	-	53	-	231	303
7.	Mavelikara	-	-	-	4	-	5	2	-	-	-	-	-	95	245	351
8.	Alleppey	-	-	-	20	7	27	3	-	-	-	-	-	73	1809	1939
9.	Shertallai	-	-	-	9	-	40	-	-	-	-	-	-	82	454	585
10.	Tiruvalla	-	-	-	-	-	2	-	-	-	-	-	102	438	542	
11.	Changanacherry	-	-	-	4	24	5	-	-	-	9	-	-	2	232	276
12.	Kottayam	-	-	-	2	-	2	8	2	-	-	-	-	33	513	560
13.	Palai	-	-	-	-	-	-	-	-	-	-	-	-	23	267	290
14.	Vaikom	-	-	-	-	-	2	-	-	-	7	-	-	28	189	226
15.	Muvattupuzha	-	-	-	-	-	12	-	3	-	-	3	-	70	153	241
16.	Cochin	-	-	-	28	-	3	15	2	-	-	25	-	106	3703	3882
17.	Alwaye	-	-	-	-	-	1	-	-	-	-	-	92	270	363	

(contd.)



(Table 6 contd.)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
18. Parur	-	-	-	-	-	-	-	-	1	-	-	1	177	-	131	310
19. Perumbavoor	-	-	-	-	-	19	-	-	-	-	-	-	-	-	214	233
20. Irinjalakuda	-	-	-	-	-	-	-	7	-	-	-	-	-	23	168	199
21. Kodungalloor	-	-	-	-	-	6	-	1	-	-	-	-	-	54	222	283
22. Chalakudy	-	-	-	-	-	-	-	-	-	-	-	-	28	4	239	271
23. Trichur	-	-	-	-	-	14	-	-	8	-	88	-	315	224	1602	2251
24. Guruvayoor	-	-	-	-	-	4	-	5	-	-	4	-	27	14	52	106
25. Kunnankulam	-	-	-	-	-	4	-	-	-	-	-	-	-	16	283	303
26. Palghat	-	-	-	3	1	-	-	7	1	3	-	57	346	-	1132	1550
27. Chittoor-Thathamangalam	-	-	-	-	13	-	-	21	-	-	-	-	-	76	154	264
28. Tirur	-	-	-	-	6	-	-	9	-	-	12	-	-	48	455	530
29. Malappuram	-	-	-	-	3	-	-	-	-	-	-	-	-	-	320	323
30. Calicut	-	-	-	-	-	-	-	2	16	4	345	112	-	349	6550	7378
31. Badagara	-	-	-	-	-	-	-	-	-	-	-	-	-	22	434	456
32. Tellicherry	-	-	-	-	128	-	-	60	-	-	-	-	-	30	892	1110
33. Cannanore	-	-	-	-	7	-	-	28	-	1	-	-	-	7	444	487
34. Kasaragod	-	-	-	-	25	-	-	-	-	40	-	-	-	120	324	509



(Table 7 contd.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
18.	Parur	15	5389	5389	256	131	118	3	2	1	99	74	15
19.	Perumbavoor	15	3173	3173	203	84	117	-	-	-	77	50	24
20.	Irinjalakuda	15	3664	3664	328	115	210	5	1	4	117	72	40
21.	Kodungalloor	15	3905	3905	396	244	150	-	-	-	97	73	20
22.	Chalakudy	15	4596	4596	376	169	206	2	1	1	111	73	22
23.	Trichur	15	10294	6269	230	161	51	-	-	-	85	56	6
24.	Guruvayoor	10	3310	3310	286	46	240	1	1	-	112	80	15
25.	Kunnamkulam	15	3903	3903	371	144	225	10	5	4	121	79	25
26.	Palghat	15	10603	8597	760	541	203	12	10	2	243	204	24
27.	Chittoor-Thathamangalam	15	3950	3950	245	124	115	3	1	-	142	120	14
28.	Tirur	15	3976	3976	559	526	33	3	3	-	79	79	-
29.	Malappuram	15	4133	4133	596	400	149	2	1	1	84	77	5
30.	Calicut	15	14192	14192	1207	895	90	7	2	-	282	206	4
31.	Badagara	15	4506	4506	804	556	193	-	-	-	189	122	28
32.	Tellicherry	15	6675	6675	300	198	72	-	-	-	101	64	27
33.	Cannanore	15	6928	6928	476	313	144	-	-	-	149	93	39
34.	Kasaragod	15	4978	4978	468	421	38	-	-	-	79	76	1

Table 8 - Under registration and occurrence of outside events

Sl. No.	Name of Municipality/ Corporation	Percentage of under registration		Percentage of outside events	
		Births	Deaths	Births	Deaths
1	2	3	4	5	6
1.	Neyyattinkara	25.32	20.48	54.60	25.23
2.	Trivandrum	3.62	6.44	5.08	5.15
3.	Attingal	--	--	38.22	28.79
4.	Quilon	0.22	25.45	20.71	8.57
5.	Punalur	1.65	2.17	39.74	42.50
6.	Kayamkulam	11.25	26.44	26.74	20.18
7.	Mavelikara	3.37	9.35	39.25	6.96
8.	Alleppey	2.45	18.86	14.06	5.35
9.	Shertallai	1.23	3.28	43.55	9.63
10.	Tiruvalla	14.38	7.69	41.00	17.46
11.	Changanacherry	2.43	32.83	50.59	33.66
12.	Kottayam	--	--	45.89	27.87
13.	Palai	--	15.22	42.33	11.54
14.	Vaikom	--	--	60.23	27.66
15.	Muvattupuzha	--	5.56	45.56	30.77
16.	Cochin	11.66	22.73	22.98	7.85
17.	Alwaye	0.69	22.53	42.85	13.41
18.	Parur	5.07	11.63	46.09	15.69
19.	Perumbavoor	2.33	5.66	57.64	31.17
20.	Irinjalakuda	2.54	6.41	64.02	36.07
21.	Kodungalloor	0.81	5.19	37.87	20.61
22.	Chalakudy	0.59	17.78	54.79	20.35
23.	Trichur	10.05	29.11	22.17	7.05
24.	Guruvayoor	--	17.35	83.92	13.27
25.	Kunnamkulam	1.37	17.65	60.65	22.14
26.	Palghat	2.87	6.55	26.71	10.20
27.	Chittoor-Thathamangalam	4.62	7.63	46.94	9.66
28.	Tirur	--	--	5.90	--
29.	Malappuram	10.51	2.50	25.00	6.98
30.	Calicut	19.87	25.90	7.46	1.42
31.	Badagara	9.00	24.22	24.00	14.81
32.	Tellicherry	13.16	13.51	24.00	26.70
33.	Cannanore	5.72	15.45	30.25	26.17
34.	Kasaragod	2.09	2.56	8.12	1.27

Table 9 - Registered vital rates and adjusted residential rates 1985

Sl. No.	Name of Municipality/ Corporation	Registered vital rates		Adjusted residential vital rates	
		Births	Deaths	Births	Deaths
1	2	3	4	5	6
1.	Neyyattinkara	11.74	3.88	34.62	6.53
2.	Trivandrum	25.56	7.12	27.94	8.02
3.	Attingal	8.98	2.98	14.54	4.18
4.	Quilon	19.15	3.30	24.20	4.85
5.	Punalur	12.51	2.74	21.10	4.86
6.	Kayamkulam	19.03	3.60	29.27	6.12
7.	Mavelikara	12.44	5.44	21.19	6.45
8.	Alleppey	18.08	5.36	21.56	6.97
9.	Shertallai	13.65	5.50	24.48	6.30
10.	Tiruvalla	8.40	3.22	16.61	4.24
11.	Changanacherry	10.45	2.04	21.68	4.58
12.	Kottayam	9.64	3.78	17.82	5.24
13.	Palai	9.68	3.65	16.79	4.86
14.	Vaikom	7.59	5.00	19.08	6.91
15.	Muvattupuzha	12.91	2.61	23.71	3.99
16.	Cochin	16.35	4.21	24.04	5.91
17.	Alwaye	11.63	3.29	20.49	4.91
18.	Parur	12.32	4.67	24.08	6.26
19.	Perumbavoor	10.81	3.59	26.13	5.54
20.	Irinjalakuda	12.39	4.62	35.33	7.73
21.	Kodungalloor	13.45	3.82	21.83	5.08
22.	Chalakudy	8.09	3.58	17.99	5.46
23.	Trichur	16.16	3.54	23.07	5.36
24.	Guruvayoor	2.45	4.31	15.24	6.01
25.	Kunnamkulam	7.39	4.07	19.03	6.34
26.	Palghat	22.39	5.17	31.45	6.16
27.	Chittoor-Thathamangalam	12.30	6.42	24.22	7.69
28.	Tirur	15.42	3.23	16.39	3.23
29.	Matappuram	14.58	3.43	21.72	3.78
30.	Calicut	22.54	6.26	30.40	8.57
31.	Badagara	17.15	4.18	24.80	6.48
32.	Tellicherry	29.40	2.60	44.50	4.10
33.	Cannanore	16.58	3.04	25.22	4.87
34.	Kasaragod	35.59	3.88	39.55	4.03
	State	--	--	25.98	6.42

**Table 10 - Adjusted residential vital rates from 1980-85**

Sl. No.	Name of Municipality/ Corporation	Birth rate														Death rate			
		1980	1981	1982	1983	1984	1985	1980	1981	1982	1983	1984	1985	1980	1981	1982	1983	1984	1985
		3	4	5	6	7	8	9	10	11	12	13	14	9	10	11	12	13	14
1.	Neyyattinkara	27.98	39.23	20.79	38.74	27.43	34.62	6.55	7.04	6.48	6.56	6.71	6.53	6.55	7.04	6.48	6.56	6.71	6.53
2.	Trivandrum	20.15	18.93	23.06	19.55	24.17	27.94	4.62	4.08	4.73	5.16	5.52	8.02	4.62	4.08	4.73	5.16	5.52	8.02
3.	Attingal	17.40	13.27	10.96	13.91	16.01	14.54	3.59	3.44	2.98	3.92	3.79	4.18	3.59	3.44	2.98	3.92	3.79	4.18
4.	Quilon	18.71	20.94	21.90	19.98	23.15	24.20	7.74	5.77	5.05	4.24	5.05	4.85	7.74	5.77	5.05	4.24	5.05	4.85
5.	Punalur	28.96	27.77	31.92	21.09	21.15	21.10	4.10	4.89	5.04	5.18	4.59	4.86	4.10	4.89	5.04	5.18	4.59	4.86
6.	Kayamkulam	32.78	31.56	31.81	26.75	23.28	29.27	5.82	7.02	6.04	6.65	6.02	6.12	5.82	7.02	6.04	6.65	6.02	6.12
7.	Mavelikara	25.83	25.24	23.58	22.14	19.50	21.19	7.54	6.41	6.60	6.62	7.91	6.45	7.54	6.41	6.60	6.62	7.91	6.45
8.	Alleppey	14.75	24.77	22.42	21.44	21.74	21.56	4.40	5.56	5.41	6.67	6.24	6.97	4.40	5.56	5.41	6.67	6.24	6.97
9.	Shertallai	27.69	25.18	26.28	26.34	24.61	24.48	6.02	5.97	6.16	6.38	7.14	6.30	6.02	5.97	6.16	6.38	7.14	6.30
10.	Tiruvalla	15.60	17.34	16.56	17.27	23.77	16.61	5.90	5.88	6.09	6.21	6.26	4.24	5.90	5.88	6.09	6.21	6.26	4.24
11.	Changanacherry	28.61	27.39	22.97	25.18	23.84	21.68	5.67	8.11	5.37	7.53	5.46	4.58	5.67	8.11	5.37	7.53	5.46	4.58
12.	Kottayam	21.19	20.71	18.22	20.84	19.59	17.82	4.35	5.34	4.98	5.32	4.25	5.24	4.35	5.34	4.98	5.32	4.25	5.24
13.	Palai	16.84	18.04	16.14	16.17	12.32	16.79	5.95	5.59	3.76	4.53	5.59	4.86	5.95	5.59	3.76	4.53	5.59	4.86
14.	Vaikom	17.53	17.49	16.30	15.18	15.08	19.08	5.01	4.06	4.38	3.89	4.24	6.91	5.01	4.06	4.38	3.89	4.24	6.91
15.	Muvattupuzha	22.01	25.04	15.93	32.62	21.60	23.71	5.56	7.92	3.10	1.03	5.26	3.99	5.56	7.92	3.10	1.03	5.26	3.99
16.	Cochin	24.32	25.86	25.81	25.66	26.41	24.04	7.21	7.98	8.35	6.98	7.20	5.91	7.21	7.98	8.35	6.98	7.20	5.91
17.	Alwaye	14.83	7.04	27.76	24.66	22.04	20.49	5.61	2.39	4.79	8.10	4.60	4.91	5.61	2.39	4.79	8.10	4.60	4.91

(contd.)

(Table 10 contd.)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
18. Parur	20.39	20.46	17.62	18.80	16.13	24.08	5.44	5.00	5.24	5.88	5.53	6.26		
19. Perumbavoor	22.03	23.27	22.19	19.50	28.76	26.13	5.71	5.00	6.29	5.01	8.95	5.54		
20. Irinjalakuda	41.95	25.89	22.61	31.26	33.10	35.33	6.08	5.91	5.73	5.52	6.71	7.73		
21. Kodungalloor	43.19	40.01	45.83	20.94	16.86	21.83	4.54	8.76	11.24	6.33	5.23	5.08		
22. Chalakudy	19.25	18.49	16.58	18.50	18.57	17.99	5.95	5.67	5.79	4.50	6.35	5.46		
23. Trichur	30.38	25.20	24.49	25.34	24.08	23.07	8.24	8.65	9.79	6.07	6.91	5.36		
24. Guruvayoor	15.58	12.45	15.99	15.27	15.49	15.24	6.90	5.66	6.66	5.25	7.08	6.01		
25. Kunnankulam	22.33	21.18	20.34	17.91	17.95	19.03	8.93	7.64	7.00	7.05	7.12	6.34		
26. Palghat	24.53	10.20	25.25	26.68	31.83	31.45	6.04	2.87	5.87	7.26	7.13	6.16		
27. Chittoor - Thathamangalam	26.92	19.49	19.58	15.87	24.28	24.22	9.51	6.92	8.54	7.69	7.30	7.69		
28. Tirur	19.48	21.54	22.88	19.52	16.89	16.39	4.45	4.12	4.18	4.12	3.79	3.23		
29. Maleppuram	35.03	29.61	29.44	30.01	20.47	21.72	7.20	6.01	5.10	4.85	3.53	3.78		
30. Calicut	30.80	27.37	32.50	40.63	30.74	30.40	6.64	7.00	8.06	10.42	8.87	8.57		
31. Badagara	27.39	27.23	25.39	25.62	26.75	24.80	5.87	5.16	5.06	7.80	6.49	6.48		
32. Tellicherry	3.03	7.68	20.53	9.61	7.35	44.50	4.66	3.85	6.95	3.68	4.37	4.10		
33. Cannanore	42.31	32.64	31.70	30.54	32.97	25.22	10.76	8.96	9.09	4.94	3.90	4.87		
34. Kasaragod	-29.20	35.80	32.52	36.05	39.12	39.55	6.72	3.96	4.31	4.38	4.33	4.03		

## 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 a 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 to be included.

i. Percentage of under registration

$$= \frac{\text{No. of events occurred to normal residents inside in the town but not registered} \times 100}{\text{No. of events occurred to normal residents inside the town registered and not registered.}}$$

ii. Percentage of events occurred outside the town to normal residents

$$= \frac{\text{No. of events occurred to normal residents outside the town registered and unregistered} \times 100}{\text{Total no. of events enumerated and occurred to normal residents inside the town.}}$$

iii. Registered Birth/Death rate to NR

$$= \frac{\text{Total no. of birth/death occurred to NR} \times 1000}{\text{Mid year population of the town}}$$

iv. Residential birth/death rate to NR occurred inside the town (weighted for under registration)

$$= \frac{\text{Registered birth/death rate} \times 100}{100 - \text{Percentage of under registration}}$$

v. Final residential birth/death rate (weighted for outside events)

$$= \frac{\text{Residential birth/death rate to NR occurred inside the town (weighted for under registration)} \times 100}{100 - \text{Percentage of events occurred outside the town to NR.}}$$



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