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GOVERNMENT OF KERALA

# **Residential Vital Rates in Corporations and Municipalities 1984**

DEPARTMENT OF ECONOMICS AND STATISTICS  
TRIVANDRUM

**RESIDENTIAL VITAL RATES  
IN  
CORPORATIONS AND  
MUNICIPALITIES  
1984**

**POPULATION DIVISION  
DEPARTMENT OF ECONOMICS AND STATISTICS  
TRIVANDRUM**

## PREFACE

This report presents the adjusted residential vital rates of births and deaths in Municipalities and Corporations in the State for the year 1984. 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 conducted in the Municipality/Corporation. 31 Municipalities and 3 Corporations are covered in the report. The report has been prepared by the Vital Statistics Unit of the Population Division of the Directorate of Economics and Statistics.

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# RESIDENTIAL VITAL RATES IN MUNICIPALITIES

## 1. INTRODUCTION

To complement the civil registration of vital events, the spot check survey was introduced in the State under the scheme "Strengthening of Statistical Units in Municipalities for improvement of Vital Statistics". This report contains the spot check survey results for the year 1984.

The Registration of Births and Deaths Act of 1969 and the Kerala Births and Deaths Registration Rules 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 births 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 Corporations and Municipalities to estimate the correct residential vital rates and to estimate the extent of under registration of vital events.

During the year 1984, 3 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 work by the statistical staff. The statistical staff assigned for the work, visited these selected wards periodically 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.

For the calculation of residential vital rates of a town/city the vital events occurred to outsiders should be 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.

In the corporations of Trivandrum, Cochin and Kozhikode and in the major municipalities of Quilon and Alleppey, the scheme for medical certification of causes of death has also been introduced to develop cause of death statistics.

### 3. GENERAL FINDINGS OF THE TOWNS/CITIES

Table I gives the area, mid-year population and density of population of the municipalities and corporations. The highest density of population in 1984 was for Quilon (7727 per Sq. km.) followed by Trivandrum (6800 per Sq. km.) and Trichur (6339 per Sq. km.).

Table II represents the number of hospitals and other institutions in the municipalities and corporations. The largest number of public hospitals is in Trivandrum (20) with 4300 beds. About half a dozen municipalities (namely Punalur, Shertallai, Kodungallur, Chalakudy, Kunnamkulam, Kasargode) and Guruvayoor Township have only one public hospital. The maximum number of dispensaries is in Alleppey (135) and the majority of which is in the private sector.

Table III shows the number of burial-grounds, cremation-grounds and civil registration units in the various municipalities and corporations. Here again, as in the case of health facilities, the private sector dominates.

Table IV compares the area and population with the registration units. Considering the 3 corporations, the highest number of registration units is in Calicut 14. In Trivandrum there are 13 registration units and in Cochin 2. The area per registration unit is highest in Cochin (4744 Sq. km.). The area per registration unit for Trivandrum and Calicut is 5.76 Sq. km. and 5.90 Sq. km. respectively. Of the Municipalities, in Alleppey and Trichur, there are 6 registration units and in Palghat 5. In all the other Municipalities the number of registration units is below 5. The area per registration unit is highest in Punalur (34.60 Sq. km.) and lowest in Trichur (2.10 Sq. km.).

Table V presents the town-wise details of the vital events registered during the year. The maximum number of live births that occurred to normal residents in 1984 was in Trivandrum (11035) and the lowest in Guruvayoor Township (43). The highest number of still births to normal residents occurred in 1984 as also in 1983 was in Calicut (1983-136), (1984-141). The maximum number of infant deaths in respect of normal residents in 1984 was again in Calicut (286), though

it had decreased from its previous level (396) in 1983. We find occurrences of maternal deaths in Kottayam (1), Chalakudy (2), Guruvayoor (1) and Calicut (6).

In Table VI the distribution of deaths according to causes is listed out. The maximum number of deaths that occurred in Trivandrum on account of varied causes is 6,427 and the most dreaded cause has been heartfailure, which claimed 368 lives in Trichur.

The details of vital events collected through spot check during the year 1984 are presented in Table VII. The number of live births enumerated is highest in Cochin Corporation (2302) and that registered is highest in Trivandrum (1749). During 1983, the largest number of live births enumerated (2363) and registered (2156) was in Trivandrum.

Table VIII presents under registration and occurrence of outside events. The highest percentage of under registration of births has been in Calicut (24.70 per cent) and of death in Trichur (43.48 per cent). During the previous year under registration of births was highest in Neyyattinkara (35.13) and of deaths in Cannanore (37.50). Cent per cent registration of births and deaths occurred in Kottayam and Muvattupuzha.

#### 4. ADJUSTED RESIDENTIAL VITAL RATES AND REGISTERED VITAL RATES 1984

Table IX presents the registered vital rates and adjusted residential vital rates. The registered birth rate is lowest in Guruvayoor township (2.31) and highest in Kasaragode (32.74). Regarding registered death rate, it is lowest in Cannanore (1.74) and highest in Chittoor-Thathamangalam (6.74). Turning to adjusted residential vital rate, the highest birth rates is for Kasargode (39.12) and lowest is for Tellicherry (7.35). During 1983, also, this rate was lowest in Tellicherry (9.61). The adjusted death rate is highest in Perumbavoor (8.95) and lowest in Malappuram (3.53). The method of calculation of adjusted residential vital rates is also given as appendix.

Table X presents the adjusted residential rates from 1980-84. In Trivandrum, the birth rate indicates a rise (that is from 20.15 in 1980 to 24.17 in 1984) over the 5 year span. This rate in Trivandrum has been alternately falling and rising. In Cochin too, a rise is witnessed (that is from 24.32 in 1980 to 26.41 in 1984). It has been steady around 25 for 3 years, from 1981 to 1983. In Calicut, over this 5 year period much variation did not occur. (30.80 in 1980 and 30.74 in 1984) but in 1983 it reached a high rate of 40.63. Over the years under comparison, the lowest birth rate continued to be 7.04 for Alwaye in 1981 and the highest (45.83) for Kodungallur in 1982. Reviewing death

rate for this period, in Trivandrum, it rose from 4.62 in 1980 to 5.52 in 1984, in Cochin it remained steady (7.21 in 1980 and 7.20 in 1984) and in Calicut it rose from 6.64 in 1980 to 8.87 in 1984.

## 5. CONCLUSION

In 1984 also, the implementation of the spot check scheme proved invaluable in highlighting the problem areas where under registration was high, as also in evolving birth and death statistics in the sample wards selected. The scheme also succeeded significantly in roping in unregistered events in the sample towns/cities.



TABLE I

## Annual residential vital rates 1984—Area and population

<i>Sl. No.</i>	<i>Name of Municipality/ Corporation</i>	<i>Area in sq. kms.</i>	<i>Mid-year population</i>	<i>Density of population</i>
(1)	(2)	(3)	(4)	(5)
1.	Neyyattinkara	9.99	29500	2952
2.	Trivandrum	75.00	510000	6800
3.	Attingal	14.18	30600	2157
4.	Quilon	18.48	142800	7727
5.	Punalur	34.60	44700	1291
6.	Kayamkulam	21.79	63900	2932
7.	Mavelikara	12.65	26900	2126
8.	Alleppey	46.77	173200	3703
9.	Sherthalai	16.19	41800	2581
10.	Thiruvalla	14.48	30100	2078
11.	Changanacherry	13.26	53100	4004
12.	Kottayam	16.45	66100	4018
13.	Palai	15.93	22100	1387
14.	Vaikom	8.73	21500	2462
15.	Muvattupuzha	13.18	26500	2010
16.	Cochin Corporation	94.88	541600	5708
17.	Alwaye	7.18	25700	3579
18.	Parur	9.02	27000	2993
19.	Perumbavoor	13.61	24300	1785
20.	Irinjalakuda	11.24	26300	2339
21.	Kodungalloor	17.30	29300	1693
22.	Chalakudy	25.23	43400	1720
23.	Trichur	12.65	80200	6339
24.	Guruvayoor	6.49	18600	2865
25.	Kunnamkulam	6.96	19800	2844
26.	Palghat	26.60	116800	4390
27.	Chittoor-Thathamangalam	14.71	31000	2107
28.	Tirur	16.59	44100	2658
29.	Malappuram	33.60	42800	1273
30.	Calicut	82.67	416800	5041
31.	Badagara	21.34	68000	3186
32.	Tellicherry	15.35	77900	5074
33.	Cannanore	11.03	63000	5711
34.	Kasargode	16.68	46300	2775

TABLE II  
Number of hospitals and other institutions 1984

Serial number	Name of Municipality/ Corporation	Hospitals						Dispensaries and other institutions					
		Public		Private		Total		Public		Private			
		No.	Beds	No.	Beds	No.	Beds	No.	Beds	No.	Beds		
1	2	3	4	5	6	7	8	9	10	11	12		
1	Neyyattinkara	3	185	2	30	5	215	..	..	7	..		
2	Trivandrum	20	4300	14	650	34	4950	..	..	60	..		
3	Attingal	..	..	7	285	7	285	..	45	9	..		
4	Quilon	..	950	20	1106	26	2056	..	..	69	..		
5	Punalur	1	100	8	180	9	280	..	..	3	..		
6	Kayamkulam	2	125	10	225	12	350	..	..	4	..		
7	Mavelikara	2	220	2	140	4	360	..	..	6	..		
8	Alleppey	6	1329	6	94	12	1423	..	..	132	..		
9	Sherthalai	1	146	4	200	5	346	..	40	..	..		
10	Thiruvalla	2	140	6	445	8	585	..	..	10	..		
11	Changanacherry	2	174	11	138	13	312	..	..	23	..		
12	Kottayam	3	315	15	200	18	515	..	..	53	..		
13	Palai	3	227	6	335	9	562	..	..	16	..		
14	Vaikom	2	280	2	60	4	340	..	..	34	..		
15	Muvattupuzha	3	158	10	298	13	456	..	..	4	..		
16	Cochin	13	1928	47	2048	60	3976	..	14	92	..		



TABLE II—(cont.)

Serial number	Name of Municipality/ Corporation	Hospitals						Dispensaries and other institutions									
		Public			Private			Total			Public			Private			
		No.	Beds	No.	Beds	No.	Beds	No.	Beds	No.	Beds	No.	Beds	No.	Beds	No.	Beds
		3	4	5	6	7	8	9	10	11	12						
1	2																
17	Alwaye	2	208	12	465	14	673	1				26					
18	Parur	2	143	5	110	7	253					5					
19	Perumbavoor	2	141	9	427	11	568	1				5					
20	Irinjalakuda	2	189	2	40	4	229	1									
21	Kodungalloor	2	180	3	94	4	274	1									
22	Chalakydy	1	144	8	290	9	434	2				9					
23	Trichur	1	1124	13	564	18	1688	1				12					
24	Guruvayoor	1	25	1	25	2	50	1				3					
25	Kunnankulam	1	94	6	125	7	219	2									
26	Falghat	4	508	15	169	19	677	2				11					
27	Chittoor	2	88	1		3	88	2				6					
28	Tirur	4	145	1	120	5	265	2				6					
29	Malappuram	4	121	1	55	5	176	1				3					
30	Calicut	7	3400	28	1000	35	4400	18				65					
31	Badagara	2	190			2	190	1				38					
32	Tellicherry	2	410			13	610	2				44					
33	Cannanore	2	55	17	390	19	445	2				16					
34	Kasargode	1	120	10	676	11	796					15					

TABLE II—(cont.)

Serial number	Name of Municipality/ Corporation	Dispensaries and other institutions		Maternity and child health centre							
		Total		Public		Private		Total			
		No.	Beds	No.	Beds	No.	Beds	No.	Beds		
17	Always	27	..	13	14	15	16	17	18	19	20
18	Parur	5	..	..	..	2	..	..	..	2	..
19	Perumbavoor	6	..	..	..	2	..	..	..	2	..
20	Irinjalakuda	1	..	..	..	4	..	..	..	4	..
21	Kodungalloor	10	..	..	..	2	..	..	..	2	..
22	Chalakudy	11	..	..	..	..	..	..	..	..	..
23	Trichur	13	..	..	..	3	..	..	..	3	..
24	Guruvayoor	3	45	..	..	4	..	..	..	4	..
25	Kunnankulam	2	..	..	..	1	..	..	..	1	..
26	Paigat	13	..	..	..	3	..	..	..	3	..
27	Chittoor	6	11	..	..	2	..	..	..	2	..
28	Tirur	8	..	..	..	3	..	..	..	3	..
29	Malappuram	4	..	..	..	2	..	..	..	2	..
30	Calicut	83	..	..	..	2	..	..	..	2	..
31	Badagara	39	254	..	..	7	..	..	..	7	..
32	Tellicherry	46	..	..	..	6	..	2	13	8	13
33	Cannanore	18	42	..	..	1	9	..	..	1	9
34	Kasargode	15	..	..	..	..	..	..	..	..	..

TABLE III

## No. of burial grounds, cremation grounds, wards and civil registration units

Serial number	Name of Municipality/ Corporation	Burial grounds			Cremation grounds			V. S. Registra- tion units											
		Municipi- pality/ Corpo- ration	Private	Total	Municipi- pality	Private	Total	No. of wards	No. of registra- tion divisions										
										3	4	5	6	7	8	9	10		
1	2																		
1	Neyyattinkara	..	4	5	..	3	3	20	1										
2	Trivandrum	..	27	27	.. 2	4	6	50	13										
3	Atingal	..	2	3	..	5	5	20	1										
4	Quilon	..	15	17	..	..	..	36	3										
5	Punahur	..	7	8	..	..	..	24	1										
6	Kayamkulam	..	14	15	..	.. 3	.. 3	32	1										
7	Mavelikara	..	9	10	..	1	1	20	1										
8	Alleppey	..	21	23	..	.. 4	.. 4	36	6										
9	Shertallai	..	1	2	..	..	..	24	1										
10	Thiruvalla	..	..	2	..	..	..	20	1										
11	Changanacherry	..	.. 6	7	..	.. 1	.. 1	28	1										
12	Kottayam	..	15	16	.. 1	.. 1	.. 2	32	4										
13	Palai	..	5	6	..	..	..	20	1										
14	Vaikom	..	1	2	..	..	..	20	1										
15	Muvattupuzha	..	4	5	..	..	..	20	1										
16	Cochin	..	40	48	.. 5	.. 11	.. 16	50	2										

17	Always	..	7	..	3	8	20	2
18	Parur	..	8	..	7	8	20	1
19	Perumbavoor	..	8	..	1	8	20	1
20	Irinjakuda	..	6	..	1	6	20	1
21	Kodungallur	..	..	..	..	..	20	1
22	Chalakudy	..	9	..	1	9	24	1
23	Trichur	..	14	..	1	14	32	6
24	Guruvayoor	..	5	..	1	5	10	1
25	Kunnankulam	..	2	..	1	2	16	1
26	Palghat	..	11	..	1	11	32	5
27	Chittoor	..	1	..	1	1	20	2
28	Tirur	..	1	..	1	1	24	1
29	Malappuram	..	1	..	1	1	24	1
30	Calicut	..	11	..	1	11	39	14
31	Badagara	..	9	..	2	9	32	3
32	Tellicherry	..	8	..	11	8	32	4
33	Cannanore	..	15	..	1	15	32	4
34	Kasargode	..	13	..	1	13	32	4
		..	9	..	1	9	24	2

TABLE IV

Registration units with area and population 1984

Sl. No.	1	2	3	4	5	6	7
1			3	4	5	6	7
1		Neyyattinkara	1	9.99	9.99	29500	29500
2		Trivandrum	13	75.00	5.76	510000	39230
3		Attingal	1	14.18	14.18	30600	30600
4		Quilon	3	18.48	6.16	142800	47600
5		Punalur	1	34.60	34.60	44700	44700
6		Kayamkulam	1	21.79	21.79	63900	63900
7		Mavelikara	1	12.65	12.65	26900	26900
8		Alleppey	6	46.77	7.79	173200	28866
9		Shertallai	1	16.19	16.19	41800	41800
10		Thiruvalla	1	14.48	14.48	30100	30100
11		Changanacherry	1	13.26	13.26	53100	53100
12		Kottayam	4	16.45	4.11	66100	16525
13		Palai	1	15.93	15.93	22100	22100
14		Valkom	1	8.73	8.73	21500	21500
15		Muvattupuzha	1	13.18	13.18	26500	26500
16		Cochin	2	94.88	47.44	541600	270800



17	Always	..	7-18	3-59	25700	12850
18	Farur	..	9-02	9-02	27000	27000
19	Perumbavoor	..	13-61	13-61	24300	24300
20	Irinjalakuda	..	11-24	11-24	26300	26300
21	Kodungallur	..	17-30	17-30	29300	29300
22	Chalakydy	..	25-23	25-23	43400	43400
23	Trichur	..	12-65	2-10	80200	13366
24	Guruvayoor	..	6-49	6-49	18600	18600
25	Kunnamkulam	..	6-96	6-96	19800	19800
26	Palghat	..	26-60	5-32	116800	23360
27	Chittoor-Thathamangalam	..	14-71	7-35	31000	15500
28	Tirur	..	16-59	16-59	44100	44100
29	Malappuram	..	33-60	33-60	42800	42800
30	Calicut	14	82-67	5-90	416300	29771
31	Badagara	3	21-34	7-11	68000	22666
32	Tellicherry	4	15-35	3-83	77900	19475
33	Cannanore	4	11-03	2-75	63000	15750
34	Kasargode	2	16-68	8-34	46300	23150

TABLE V  
Vital events registered during the year 1984

Serial number	Name of Municipality/ Corporation	Live births										No. of still births			
		Total events					Events to normal residents					Total events			
		M	F	T	M	T	M	F	T	M	F	T	M	F	T
1	2	3	4	5	6	7	8	9	10	11					
1	Neyyattinkara	1393	1330	2723	157	162	319	14	11	25					
2	Trivandrum	14264	14438	28702	5487	5548	11035	87	78	165					
3	Attingal	724	761	1485	110	146	256	6	4	10					
4	Quilon	6199	5912	12111	1385	1325	2710	95	74	169					
5	Punalur	1196	1311	2507	298	327	625	10	17	27					
6	Kayamkulam	1784	1596	3380	510	409	919	2	1	3					
7	Mavelikara	1245	1275	2520	169	157	326	1	5	6					
8	Alleppey	3903	3602	7505	1718	1490	3208	23	32	55					
9	Shertallai	1342	1268	2610	272	338	610	17	12	29					
10	Thiruvalla	1668	1582	3250	188	212	400	25	21	46					
11	Changanacherry	1290	1260	2550	285	269	554	18	22	40					
12	Kottayam	2221	1902	4123	378	298	676	6	2	8					
13	Palai	1279	1302	2581	96	81	177	19	14	33					
14	Vaikom	634	664	1298	81	83	164	4	3	7					
15	Muvattupuzha	1169	1519	2688	203	204	407	11	12	23					
16	Oochin.	7716	7759	15475	4586	4698	9284	94	83	177					

TABLE V—(cont.)

Serial number	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	Neyyattinkara	1	1	2	13	14	15	16	17	18	19	20
2	Trivandrum	29	16	45	387	308	13	14	27	135	5	5
3	Attungal	1	1	1	1	2	387	308	695	135	5	235
4	Quilon	14	13	27	114	93	114	93	207	25	21	46
5	Punalur	3	6	9	14	19	14	19	33	6	8	14
6	Kayar kulam	..	1	1	11	10	11	10	21	6	3	9
7	Mavelikara	..	..	..	17	17	17	17	34	2	3	5
8	Alleppy	..	..	..	114	98	114	98	212	37	49	86
9	Shertallai	..	..	..	32	28	32	28	55	8	2	10
10	Thiruvalla	..	..	..	22	14	22	14	36	2	1	3
11	Changanacherry	..	..	..	23	8	23	8	31	4	5	9
12	Kottayam	..	..	..	14	10	14	10	24	6	5	11
13	Palai	..	..	..	9	4	9	4	18	..	..	..
14	Vaikom	..	..	..	6	8	6	8	14	..	..	..
15	Muvattupuzha	..	..	..	17	16	17	16	33	4	2	6
16	Cochin	53	45	98	143	95	143	95	238	72	48	120

TABLE V—(cont.)

Serial number	Name of Municipality/ Corporation	No. of other deaths										No. of maternal deaths
		Total events					Events to normal residents					
		M	F	T	M	F	T	M	F	T		
1	Neyyattinkara	186	88	274	64	31	95	..	..	..	..	..
2	Trivandrum	3141	2591	5732	1275	960	2235	..	..	..	..	..
3	Attingal	77	52	129	61	39	100	..	..	..	..	..
4	Qulon	941	570	1511	255	151	406	..	..	..	..	..
5	Punalur	87	130	217	72	49	121	..	..	..	..	..
6	Kayamkulam	157	114	271	113	96	209	..	..	..	..	..
7	Mavelikara	211	129	340	98	62	160	..	..	..	..	..
8	Alleppey	1034	684	1718	483	385	868	..	1	..	..	..
9	Shertallai	279	180	459	131	99	230	..	..	..	..	..
10	Thiruvalla	154	82	236	94	50	144	..	..	..	..	..
11	Changanacherry	144	80	224	93	61	154	..	..	..	..	..
12	Kottayam	317	177	494	120	92	212	..	..	..	1	..
13	Palai	136	78	214	38	27	65	..	..	..	..	..
14	Vaikom	105	92	197	30	24	54	..	..	..	..	..
15	Muvattupuzha	119	65	184	44	36	80	..	..	..	..	..
16	Cochin	2351	1333	3684	1408	853	2261	..	..	..	..	..

TABLE V—(cont.)

Serial number	Name of Municipality/ Corporation	Live births										No. of still births			
		Total events					Events to normal residents					Total events			
		M	F	T	M	T	M	F	T	M	F	T	M	F	T
1	2	3	4	5	6	7	8	9	10	11					
17	Always	2505	2413	4918	128	154	282	21	16	37					
18	Parur	1322	1239	2561	117	120	237	4	1	5					
19	Perumbavoor	1335	1204	2539	194	152	246	14	15	29					
20	Irinjalakuda	959	1116	2075	169	177	346	5	3	8					
21	Kodungalloor	1878	1722	3600	172	166	338	14	10	24					
22	Chalakudy	1110	1098	2208	175	187	363	17	10	27					
23	Trichur	6847	6967	13814	594	604	1198	88	93	181					
24	Guruvayoor	264	279	543	23	20	43	3	3	6					
25	Kunnamkulam	1158	1099	2257	57	71	128	17	9	26					
26	Palghat	3923	3775	7698	1330	1351	2681	111	113	224					
27	Chittoor	434	383	817	210	173	383	4	9	13					
28	Tirur	2189	1955	4144	341	310	651	20	21	41					
29	Malappuram	1429	1371	2800	333	290	623	38	31	69					
30	Calicut	3086	2818	5906	642	592	1234	17	..	638					
31	Badagara	4140	3746	7886	282	245	527	52	38	90					
32	Tellicherry	1629	1880	3509	451	476	927	9	10	19					
33	Cannanore	2297	2176	4473	740	775	1515	66	75	141					
34	Kasaragode	..	..	..	..	..	..	..	..	..					

TABLE V—(cont.)

Serial number	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			
17	Always	..	..	..	29	35	64	1	1	2	18	19	20
18	Parur	1	..	1	20	9	29	2	2	4	2	2	4
19	Perumbavoor	1	..	1	27	12	39	2	2	4	2	2	4
20	Irinjalakuda	2	1	3	11	8	19	2	2	7	2	5	7
21	Kodungalloor	..	3	..	27	23	50	4	4	9	4	5	9
22	Chalakudy	..	3	5	7	8	15	..	..	1	..	1	1
23	Trichur	..	4	10	151	133	284	23	23	39	23	16	39
24	Guruvayoor	6	..	1	1	4	5	..	..	1	..	1	1
25	Kunnamkulam	1	3	4	21	18	39	..	..	1	..	1	1
26	Palghat	6	24	30	149	87	236	42	42	64	42	22	64
27	Chittoor	..	2	2	16	9	25	8	8	15	8	7	15
28	Tirur	1	..	1	36	37	73	3	3	8	3	5	8
29	Malappuram	..	..	..	54	29	83	3	3	3	3	..	3
30	Calicut	..	..	141	..	..	982	..	..	286	..	..	286
31	Badagara	6	3	9	50	37	87	11	11	17	11	6	17
32	Tellicherry	..	1	1	70	57	127	1	1	2	1	1	2
33	Cannanore	3	2	5	15	12	27	2	2	5	2	3	5
34	Kasaragod	15	11	26	58	46	104	9	9	16	9	7	16

TABLE V—(cont.)

Serial number	Name of Municipality/ Corporation	No. of other deaths										No. of maternal deaths
		Total events					Events to normal residents					
		M	F	T	M	F	T	M	F	T		
		21	22	23	24	25	26	27	28			
17	Alwaye	196	112	308	38	32	70	..	..	..	..	
18	Parur	173	114	287	68	46	114	..	..	..	..	
19	Perumbavoor	130	89	219	43	31	74	..	..	..	..	
20	Irinjalakuda	112	70	182	71	41	112	..	..	..	..	
21	Kodungalloor	128	108	236	60	55	115	..	..	..	..	
22	Chalakudy	166	86	252	89	63	152	..	..	..	..	
23	Trichur	1114	774	1888	142	91	233	..	..	..	..	
24	Guruvayoor	65	46	111	45	43	88	..	..	..	..	
25	Kunnankulam	143	84	227	50	45	95	..	..	..	..	
26	Palghat	758	490	1248	366	268	634	..	..	..	..	
27	Chittoor	119	117	236	100	94	194	..	..	..	..	
28	Tirur	247	168	415	85	72	157	..	..	..	..	
29	Malappuram	144	105	249	71	56	127	..	..	..	..	
30	Calicut	..	..	5213	..	..	2056	..	..	..	..	
31	Badagara	256	168	424	141	110	251	..	..	..	..	
32	Tellicherry	559	390	949	139	145	284	..	..	..	..	
33	Cananore	230	194	424	53	48	101	..	..	..	..	
34	Kasaragode	247	134	381	86	90	176	..	..	..	..	







TABLE VII  
Results of spot check

Serial number	Name of Municipality and Corporation	No. of wards selected	Total No. of households	No. of households visited	No. of events to normal residents detected.											
					Live births.			Infant deaths			Other deaths					
					Enumerated	Registered	Occurred outside	Enumerated	Registered	Occurred outside	Enumerated	Registered	Occurred outside			
1					6	7	8	9	10	11	12	13	14			
2																
1	Neyyattinkara	15	5437	5437	373	147	184	6	2	4	89	46	24			
2	Trivandrum	15	28593	28593	1954	1749	73	255	236	..	679	583	39			
3	Attingal	15	6499	5445	283	148	134	..	..	..	88	76	12			
4	Quilon	18	10806	10806	1138	933	199	..	..	..	218	135	38			
5	Punalur	15	4415	4415	342	226	114	10	7	..	66	41	24			
6	Kayamkulam	15	4684	4684	570	315	160	7	3	3	99	69	21			
7	Mavelikara	15	4231	4231	304	189	109	7	3	..	109	86	11			
8	Alleppey	18	14466	14466	1317	1122	174	32	32	..	371	324	14			
9	Sherattalai	15	6803	6803	307	182	122	1	1	..	136	109	25			
10	Thiruvalla	15	5685	5685	331	185	106	3	3	..	110	85	19			
11	Changanacherry	15	5819	5819	336	147	179	2	2	..	103	57	20			
12	Kottayam	15	8686	8686	293	153	140	1	1	..	93	74	19			
13	Palai	15	4313	2460	183	119	63	..	..	..	57	30	11			
14	Vaikom	15	4134	4134	237	120	116	..	..	..	48	32	11			
15	Muvattupuzha	15	5098	4176	278	198	80	..	..	..	34	21	13			
16	Cochin	15	30257	30257	2302	1494	529	14	6	1	624	384	29			

17	Alwaye	15	3359	3359	295	147	144	3	..	1	66	42	17
18	Parur	15	5388	5388	312	170	140	1	1	..	90	71	15
19	Perumbavoor	15	3323	3323	233	82	140	..	..	4	39	14	22
20	Irinjalakuda	15	3471	3471	348	138	208	7	..	..	112	78	26
21	Kodungalloor	15	4557	4557	352	241	110	..	..	..	99	80	11
22	Chalakudy	15	4490	4490	362	163	198	6	1	5	115	67	19
23	Trichur	15	6491	6292	166	103	46	..	..	..	53	26	7
24	Guruvavoor	10	3277	3277	288	43	243	5	1	3	128	90	18
25	Kunnamkulam	15	3691	3691	336	121	213	5	5	87	124	87	22
26	Palghat	15	11340	7995	828	597	211	20	14	3	222	189	18
27	Chittoor Thathamangalam	15	4057	4057	255	183	69	..	..	..	104	96	8
28	Tirur	15	3798	3798	443	387	52	5	5	77	77	76	1
29	Malappuram	15	4054	4054	578	411	124	1	1	..	93	80	7
30	Calicut	15	15171	15171	1206	823	113	10	8	..	293	186	8
31	Badagara	15	4563	4563	681	462	171	..	..	..	173	105	33
32	Tellicherry	15	5218	5218	446	411	17	4	3	1	177	149	9
33	Cannanore	15	7950	7950	159	82	74	..	..	..	92	41	46
34	Kasargode	15	4194	4194	429	359	57	..	..	..	99	95	2

TABLE VIII

## 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 ..	22.22	28.36	49.33	29.47
2.	Trivandrum ..	7.02	8.49	3.74	4.18
3.	Attingal ..	0.67	Nil	47.35	13.64
4.	Quilon ..	0.64	24.34	17.49	17.11
5.	Punalur ..	0.88	2.04	33.33	32.88
6.	Kayamkulam ..	10.00	30.10	31.37	18.90
7.	Mavelikara ..	3.08	13.86	35.86	9.82
8.	Alleppey ..	1.84	8.48	13.21	3.47
9.	Shertalai ..	1.62	1.79	39.74	18.25
10.	Thiruvalla ..	17.78	6.38	32.02	16.81
11.	Changanacherry ..	6.37	30.59	53.27	19.05
12.	Kottayam ..	..	..	47.78	20.21
13.	Palai ..	0.83	34.78	34.43	19.30
14.	Vaikom ..	0.83	12.50	48.95	24.53
15.	Muvattupuzha ..	..	..	28.78	38.24
16.	Cochin Corpora- tion ..	15.74	35.86	22.98	4.70
17.	Alwaye ..	2.65	17.65	48.81	26.09
18.	Parur ..	1.16	5.26	44.87	16.48
19.	Perumbavoor ..	11.83	17.65	60.09	56.41
20.	Irinjalakuda ..	1.43	10.11	59.77	25.21
21.	Kodungalloor ..	0.42	9.09	31.25	11.11
22.	Chalakydy ..	0.61	29.90	54.70	19.83
23.	Trichur ..	14.17	43.48	27.71	13.21
24.	Guruvayoor ..	4.44	18.75	84.38	15.78
25.	Kunnamkulam ..	1.63	14.71	63.39	20.93
26.	Palghat ..	3.24	8.14	25.48	8.68
27.	Chittur-Thatha- mangalam ..	2.14	Nil	26.95	7.69
28.	Tirur ..	1.02	Nil	11.74	1.22
29.	Malappuram ..	9.47	6.90	21.45	7.45
30.	Calicut ..	24.70	34.74	9.37	2.73
31.	Badagara ..	9.41	25.00	25.11	19.08
32.	Tellicherry ..	4.20	11.11	3.81	5.82
33.	Cannanore ..	13.68	10.87	46.54	50.00
34.	Kasargode ..	3.49	2.06	13.29	2.02

TABLE IX

## Registered vital rates and adjusted residential rates 1984

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 ..	10.81	3.39	27.43	6.71
2.	Trivandrum ..	21.64	4.84	24.17	5.72
3.	Attingal ..	8.37	3.27	16.01	3.79
4.	Quilon ..	18.98	3.17	23.15	5.05
5.	Punalur ..	13.98	3.02	21.15	4.59
6.	Kayamkulam ..	14.38	3.41	23.28	6.02
7.	Mavelikkara ..	12.12	6.13	19.50	7.91
8.	Alleppey ..	18.52	5.51	21.74	6.24
9.	Shertallai ..	14.59	5.84	24.61	7.14
10.	Thiruvalla ..	13.29	4.88	23.77	6.26
11.	Changanacherry ..	10.43	3.07	23.84	5.46
12.	Kottayam ..	10.23	3.39	19.59	4.25
13.	Palai ..	8.01	2.94	12.32	5.59
14.	Vaikom ..	7.64	2.80	15.08	4.24
15.	Muvattupuzha ..	15.38	3.25	21.60	5.26
16.	Cochin Corpora- tion ..	17.14	4.40	26.41	7.20
17.	Alwaye ..	10.98	2.80	22.04	4.60
18.	Parur ..	8.79	4.38	16.13	5.53
19.	Perumbavoor ..	10.12	3.21	28.76	8.95
20.	Irinjalakuda ..	13.16	4.52	33.10	6.71
21.	Kodungalloor ..	11.54	4.23	16.86	5.23
22.	Chalakyudy ..	8.36	3.57	18.57	6.35
23.	Trichur ..	14.94	3.39	24.08	6.91
24.	Guruvayoor ..	2.31	4.84	15.49	7.08
25.	Kunnamkulam ..	6.46	4.80	17.95	7.12
26.	Palghat ..	22.95	5.98	31.83	7.13
27.	Chittur Thatta- mangalam ..	12.35	6.74	17.28	7.30
28.	Tirur ..	14.76	3.74	16.89	3.79
29.	Malappuram ..	14.56	3.04	20.47	3.53
30.	Calicut ..	20.98	5.63	30.74	8.87
31.	Badagara ..	18.15	3.94	26.75	6.49
32.	Tellicherry ..	6.77	3.67	7.35	4.37
33.	Cannanore ..	15.22	1.74	32.97	3.90
34.	Kasargode ..	32.74	4.15	39.28	4.33
	State ..	..	..	24.74	6.37

TABLE X  
Adjusted Residential Vital Rates from 1980-1984

Sl. No.	Name of Municipality/ Corporation	Birth Rate						Death Rate				
		1980		1981		1982		1983		1984		
		3	4	5	6	7	8	9	10	11	12	
1	Neyyattinkara	27.98	39.23	20.79	38.74	27.43	6.55	7.04	6.48	6.56	6.71	
2	Trivandrum	20.15	18.93	23.06	19.55	24.17	4.62	4.08	4.73	5.16	5.52	
3	Attungal	17.40	13.27	10.96	13.91	16.01	3.59	3.44	2.98	3.92	3.79	
4	Quilon	18.71	20.94	21.90	19.98	23.15	7.74	5.77	5.05	4.24	5.05	
5	Punalur	28.96	27.77	31.92	21.09	21.15	4.10	4.89	5.04	5.18	4.59	
6	Kayamkulam	32.78	31.56	31.81	26.75	23.28	5.82	7.03	6.04	6.65	6.02	
7	Mavelikara	25.83	25.24	23.58	22.14	19.50	7.54	6.41	6.60	6.62	7.91	
8	Alleppey	14.75	24.77	22.42	21.44	21.74	4.40	5.56	5.41	6.67	6.24	
9	Shertrallai	27.69	25.18	26.28	26.34	24.61	6.02	5.97	6.16	6.38	7.14	
10	Thiruvalla	15.60	17.34	16.56	17.27	23.77	5.90	5.88	6.09	6.21	6.25	
11	Changanacherry	28.61	27.39	22.97	25.18	23.84	5.67	8.11	5.37	7.53	5.46	
12	Kottayam	21.19	20.71	18.22	20.84	19.59	4.35	5.34	4.98	5.32	4.25	
13	Palai	16.84	18.04	16.14	16.17	12.32	5.95	5.57	3.76	4.53	5.59	
14	Vaikom	17.53	17.49	16.30	15.18	15.08	5.01	4.06	4.38	3.89	4.24	
15	Muvattupuzha	22.01	25.04	15.93	32.62	21.60	5.56	7.92	3.10	1.03	5.26	
16	Cochin Corporation	24.32	25.86	25.81	25.66	26.41	7.21	7.98	8.35	6.98	7.20	
17	Alwaye	14.83	7.04	27.76	24.66	22.04	5.61	2.39	4.79	8.10	4.60	
18	Parur	20.39	20.46	17.62	18.80	16.13	5.44	5.00	5.24	5.88	5.53	
19	Perumbavoor	22.03	23.27	22.19	19.50	28.76	5.71	5.00	6.29	5.01	8.95	
20	Irinjalakuda	41.95	25.89	22.61	31.26	33.10	6.08	5.91	5.73	5.52	6.71	
21	Kodungalloor	43.19	40.01	45.83	20.94	16.86	4.54	8.76	11.24	6.33	5.23	

22	Chikalady	19.25	18.49	16.58	18.50	18.57	5.95	5.67	5.79	4.50	6.85
23	Trichur	30.38	25.20	24.49	25.34	24.08	8.24	8.65	9.79	6.09	6.91
24	Guruvayoor	15.58	12.45	15.99	15.27	15.49	6.90	5.66	6.66	5.25	7.06
25	Knunankulam	22.33	21.18	20.34	17.51	17.95	8.93	7.64	7.00	7.05	7.13
26	Palghat	24.53	10.20	25.25	26.68	31.83	6.04	2.87	5.87	7.26	
27	Chittoor Thatham- anglam	26.92	19.49	19.58	15.87	17.28	9.51	6.92	8.54	7.69	7.30
28	Tirur	19.48	21.54	22.88	19.52	16.89	4.45	4.12	4.18	4.12	3.79
29	Malappuram	35.03	30.80	29.44	30.01	20.47	7.26	6.01	5.10	4.85	3.53
30	Calicut	30.80	27.37	32.50	40.63	30.74	6.64	7.00	8.06	10.42	8.87
31	Badagara	27.39	27.23	25.39	25.62	26.75	5.87	5.16	5.06	7.80	6.49
32	Tellicherry	3.03	7.68	20.53	9.61	7.35	4.66	3.85	6.95	3.68	4.37
33	Cannanore	42.31	32.64	31.70	30.54	32.97	10.76	8.96	9.09	4.94	3.90
34	Kasargode	29.20	35.80	32.52	36.05	39.12	6.72	3.96	4.31	4.38	4.33

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GENERAL DEPARTMENT  
 CHENNAI

## 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 and 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 into 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.

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

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



III. Registered Birth/Death rate to NR\*

=  $\frac{\text{Total No. of Birth/Death occurred to N.R.} \times 1000}{\text{Mid year population of the town}}$

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)

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

\*N.R.—Normal residents

967

1962

1962

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