

GOVERNMENT OF KERALA



Residential Vital Rates
in
Municipalities & Corporations 1991

DEPARTMENT OF ECONOMICS & STATISTICS
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Preface

This report presents the residential rates of births and deaths in the selected Municipalities and City Corporations for the year 1991. 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 results of spot-check conducted in the Municipalities/Corporations. This report has been prepared by the Vital Statistics Unit in the Directorate of Economics & Statistics.

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RESIDENTIAL VITAL RATES IN CORPORATIONS & MUNICIPALITIES 1991

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 or to an outsider. The better medical facilities available in the urban areas are availed by the rural people also. Thereby increasing the rate of registration of vital *events* in the Municipal and Corporation areas.

The birth and death registration act and rules 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 completeness in registration, under registration still exists to a certain extent in Kerala. The presence of under registration as well as the fact that the registration is defecto created difficulties to get accurate and reliable data on vital events occurred to the normal residents. It was to complement 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 result of spot check survey for the year 1991 are presented in this report.

2. Scheme for the improvement of Vital Statistics

The scheme spot check survey aims at estimating the residential Vital rates in the selected Municipalities and City Corporations and ascertaining the extent of under registration.

The three city Corporations in Kerala, 30 Municipalities and Guruvayoor Township were covered under the scheme during the year under report. 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 :

- Events occurring inside the town and registered.
- Events occurring inside the town but not registered.
- Events occurring outside the town registered and 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 avail 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 outsiders 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 I - 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 (7571) followed by Thiruvananthapuram (7012). Density of population of Punalur Municipality was the lowest (1341). The density of population was more than 5000 in six centres viz. Thiruvananthapuram, Kollam, Kochi, Thrissur, Kozhikode and Kannur during the year 1991.

Table II - represents the number of hospitals and other medical institutions both in Public and Private sector with bed strength. The Number of public hospitals were the highest in Thiruvananthapuram Corporation followed by Kochi Corporation. Private hospitals were the highest in Kochi Corporation. Total number of beds available in both Public and Private sector in the three city Corporations were as follows. Thiruvananthapuram - 8090, Kochi - 5642 and Kozhikode - 4773. 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 the 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 public and private sector and also the number of registration units in each Municipality and Corporation selected for the spot check survey during the year 1991.

Table IV - represents number of registration units with area and population of each registration unit. Number of registration units was highest in Thiruvananthapuram (15) followed by Kozhikode (14). Area was largest in Kochi Corporation (94.88 Sq.Km.) followed by Kozhokode (82.68 Sq.Km.) and Thiruvananthapuram (74.93 Sq.Km.). Among Municipalities area was the largest in Alappuzha (46.77 Sq.Km.) Area per registration unit was largest in Kochi Corporation (47.44 Sq.Km.). Among municipalities area was largest in Punalur (34.60 Sq.Km.) followed by Malappuram (33.61 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 in Thiruvananthapuram (14152) followed by Kozhikode (7816) and Kochi (7429). With regard to Municipalities, Live Births to normal residents was maximum in Thalassery Municipality(3367) and minimum in Guruvayoor Township (62). Still Birth to normal residents was the highest in Kozhikode Corporation (193) and infant death to normal residents

was the highest in Thiruvananthapuram Corporation (197). No Still births were reported to normal residents in Neyyattinkara, Attingal, Irinjalakuda, Kunnamkulam and Malappuram Municipalities and Guruvayoor Township. No infant deaths to normal residents were reported from Neyyattinkara, Mavelikara, Vaikom, Irinjalakuda, Kunnamkulam and Thirur Municipalities. In the case of other deaths to normal residents Kochi Corporation (2938) stood first followed by Kozhikode Corporation (2368). Maternal deaths to normal residents were reported only from Kochi Corporation and Palakkad and Vadakara Municipalities.

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

Table VII - results of spot check survey are given in table VII. Live birth to normal residents enumerated were the highest in Kochi Corporation followed by Kozhikode. Other deaths enumerated were also highest in Kochi Corporation followed by Kozhikode 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 birth was highest in Thrissur municipality (10.26%) followed by Kochi Corporation (5.97%). The percentage of under registration of death was highest in Thrissur municipality (24.85%) followed by Chalakudi municipality (22.22%). The percentage of under registration of birth was nil in 20 centres viz. Neyyattinkara, Attingal, Kollam, Kayamkulam, Cherthala, Changanassery, Kottayam, Pala, Vaikom, Moovattupuzha, Aluva, N.Paravur, Perumbavoor, Irinjalakuda, Kodungallur, Chalakudy, Kunnamkulam, Thirur and Thalassery municipalities and Guruvayoor Township. The percentage of under registration of death was nil in Attingal, Kollam, Thiruvalla, Tirur and Thalassery municipalities. As in the previous year percentage of outside registration of birth was the highest in

Irinjalakuda municipality (88.21%). Percentage of outside registration of death was the highest in Changanachery municipality (34.15%).

4. Adjusted Residential Vital Rates and Registered Vital Rates 1991

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. The registered birth rate was highest in Thalassery (32.45) and the same was lowest in Irinjalakuda (2.43) during the year under report. Registered death rate was also highest in Thalassery municipality (8.44) and lowest in Alappuzha municipality (2.11).

Table X represents the comparison of adjusted residential birth and death rates for the last 6 years beginning from 1986. The adjusted residential birth rates showed a fluctuating trend in almost all the centres except Palakkad, where it showed a declining trend. In respect of adjusted death rate, it also showed a fluctuating trend in all the Municipalities and corporations.

5. Conclusion

The survey has been successfully completed in all the three city corporations and in all the selected Municipalities during 1991 also. The survey results reveal that under registration of vital events still exists at 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 rate of under registration.

APPENDIX

6. 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 | - | $\frac{\text{No. of events occurred to normal residents inside the town but not registered} \times 100}{\text{No. of events occurred to normal residents inside the town registered and not registered.}}$ |
| 2. Percentage of events occurred outside the town to normal residents | - | $\frac{\text{No. of events occurred to normal residents outside the town registered and unregistered} \times 100}{\text{Total no. of events enumerated and occurred to normal residents inside and outside the town.}}$ |
| 3. Registered birth/death rate to normal residents | - | $\frac{\text{Total no. of birth/death occurred to normal residents} \times 1000}{\text{Mid year population of the town.}}$ |
| 4. Residential birth/death rate to normal residents occurred inside the town (weighted for under registration) | - | $\frac{\text{Registered birth/death rate} \times 100}{(100 - \text{percentage of under registration})}$ |
| 5. Final Residential birth/death rate (weighted for outside events) | - | $\frac{\text{Residential birth/death rate to normal residents occurred inside the town (weighted for under registration)} \times 100}{(100 - \text{percentage of events occurred outside the town to normal residents})}$ |

Table I - Area and Population 1991

Sl.No	Municipality/Corporation	Area in Sq.Km as per 1991 census	Mid year population	Density of population per Sq.Km.
1	2	3	4	5
1.	Neyyattinkara	9.70	30506	3145
2.	Thiruvananthapuram	74.93	525432	7012
3.	Attingal	14.18	32739	2309
4.	Kollam	18.48	139916	7571
5.	Punalur	34.60	46391	1341
6.	Kayamkulam	21.79	67355	3091
7.	Mavelikara	12.65	28358	2242
8.	Alappuzha	46.77	174826	3738
9.	Cherthala	16.18	43424	2684
10.	Thiruvalla	27.94	54883	1964
11.	Changanacherry	13.50	52461	3886
12.	Kottayam	15.55	63113	4059
13.	Palai	15.93	21899	1375
14.	Vaikom	8.73	21790	2496
15.	Muvattupuzha	13.18	27675	2100
16.	Kochi Corporation	94.88	566392	5970
17.	Aluva	7.18	24757	3448
18.	N.Paravur	9.02	27962	3100
19.	Perumbavoor	13.59	24722	1819
20.	Irinjalakuda	11.24	27539	2450
21.	Kodungallur	17.30	31352	1812
22.	Chalakudy	25.23	45179	1791
23.	Thrissur	12.65	74496	5889
24.	Guruvayoor Township	6.49	20300	3128
25.	Kunnamkulam	6.96	19664	2825
26.	Palakkad	26.60	123714	4651
27.	Chittoor-Thathamangalam	14.71	32104	2182
28.	Thirur	16.59	49773	3000
29.	Malappuram	33.61	50064	1490
30.	Kozhikode Corporation	82.68	420707	5088
31.	Vadakara	21.33	72728	3410
32.	Thalasserry	23.96	103771	4331
33.	Kannur	11.03	65388	5928
34.	Kasaragod	16.68	50379	3020

Table II - Number of Hospitals and other Institutions 1991

Sl. No.	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	2	26	5	331			11		11		2							
2.	Thiruvananthapuram	25	6738	37	1352	62	8090	6		32		38		34							
3.	Attingal	1	60	7	290	8	350	2		15		17		3							
4.	Kollam	6	950	20	1168	26	2118	5		69		74		15							
5.	Punalur	1	144	11	205	12	349	1		16		17		4							
6.	Kayamkulam	3	170	14	278	17	448			6		6		6							
7.	Mavelikara	2	267	9	282	11	549			10		10									
8.	Alappuzha	8	1548	5	120	13	1668	2		127		129		6							
9.	Cherthala	3	250	5	469	8	719			21		21		3							
10.	Thiruvalla	3	300	7	650	10	950			10		10									
11.	Changanacherry	2	217	7	292	9	509			26		26		4							
12.	Kottayam	4	415	15	200	19	615	1		54		55		3							
13.	Palai	3	243	9	417	12	660			22		22		9							
14.	Vaikom	2	266	2	25	4	291			38		38		1							
15.	Muvattupuzha	3	180	12	406	15	586	1		29		30		2							
16.	Kochi Corporation	14	1962	55	3680	69	5642	6		74		80		12							
17.	Aluva	2	237	12	577	14	814			28		28									

Table III - Number of Burial Grounds, Cremation Grounds, Wards and Civil Registration Units

Sl. No.	Municipality/ Corporation	Burial Grounds			Cremation Grounds			V.S Registration units	
		Mun/ Corp.	Private	Total	Mun/ Corp.	Private	Total	No. of wards	No. of units
1	2	3	4	5	6	7	8	9	10
1.	Neyyattinkara	1	4	5	-	3	3	20	1
2.	Thiruvananthapuram	4	27	31	1		1	50	15
3.	Attingal	1	1	2		5	5	20	1
4.	Kollam	2	20	22				36	1
5.	Punalur	1	16	17				28	1
6.	Kayamkulam	1	14	15	1	3	4	32	1
7.	Mavelikara	1	9	10		1	1	20	1
8.	Alappuzha	3	2	5		19	19	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	32	1
12.	Kottayam	1	15	16	1	1	2	32	2
13.	Palai	1	5	6				20	1
14.	Vaikom	1	2	3				20	1
15.	Muvattupuzha	1	8	9				20	1
16.	Kochi Corporation	8	40	48	5	11	16	50	2
17.	Aluva		7	7		3	3	20	1
18.	N.Paravur	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
22.	Chalakudy	2	8	10		1	1	20	1
23.	Thrissur	3	11	14	2	1	3	32	6
24.	Guruvayoor	1	4	5		1	1	16	1
25.	Kunnamkulam	1	1	2				16	1
26.	Palakkad	4	7	11	3	1	4	36	1
27.	Chittoor- Thathamangalam		1	1	3		3	24	1
28.	Thirur	1		1		1	1	28	1
29.	Malappuram	1	10	11		1	1	24	1
30.	Kozhikode Corporation	2	9	11	4	2	6	39	14
31.	Vadakara	1	8	9				32	1
32.	Thalasserry	1	15	16	1	11	12	32	3
33.	Kannur	1	12	13	1		1	32	4
34.	Kasaragod		9	9	2	1	3	28	2

Table IV - Registration units with area and population 1991

Sl.No.	Municipality/ Corporation	No.of Reg. units	Area in Sq.km	Area per Reg. units	Estimated population	Population per Reg. units
1	2	3	4	5	6	7
1.	Neyyattinkara	1	9.70	9.70	30506	30506
2.	Thiruvananthapuram	15	74.93	5.00	525432	35029
3.	Attingal	1	14.18	14.18	32739	32739
4.	Kollam	1	18.48	18.48	139916	139916
5.	Punalur	1	34.60	34.60	46391	46391
6.	Kayamkulam	1	21.79	21.79	67355	67355
7.	Mavelikara	1	12.65	12.65	28358	28358
8.	Alappuzha	2	46.77	23.39	174826	87413
9.	Cherthala	1	16.18	16.18	43424	43424
10.	Thiruvalla	1	27.94	27.94	54883	54883
11.	Changanacherry	1	13.50	13.50	52461	52461
12.	Kottayam	2	15.55	7.78	63113	31557
13.	Palai	1	15.93	15.93	21899	21899
14.	Vaikom	1	8.73	8.73	21790	21790
15.	Muvattupuzha	1	13.18	13.18	27675	27675
16.	Kochi Corporation	2	94.88	47.44	566392	283196
17.	Aluva	1	7.18	7.18	24757	24757
18.	N.Paravur	1	9.02	9.02	27962	27962
19.	Perumbavoor	1	13.59	13.59	24722	24722
20.	Irrinjalakuda	1	11.24	11.24	27539	27539
21.	Kodungallur	1	17.30	17.30	31352	31352
22.	Chalakydy	1	25.23	25.23	45179	45179
23.	Thrissur	6	12.65	2.11	74496	12416
24.	Guruvayoor	1	6.49	6.49	20300	20300
25.	Kunnankulam	1	6.96	6.96	19664	19664
26.	Palakkad	1	26.60	26.60	123714	123714
27.	Chittoor- Thathamangalam	1	14.71	14.71	32104	32104
28.	Thirur	1	16.59	16.59	49773	49779
29.	Malappuram	1	33.61	33.61	50064	50064
30.	Kozhikode Corporation	14	82.68	5.91	420707	30051
31.	Vadakara	1	21.33	21.33	72728	72728
32.	Thalasserry	3	23.96	7.99	103771	34590
33.	Kannur	4	11.03	2.76	65388	16347
34.	Kasaragod	2	16.68	8.34	50379	25190

Table V - Vital events registered during the year 1991

Sl.No	Municipality/ Corporation	Live Births						Still Births					
		Total Events			Events to normal residents			Total Events			Events to normal residents		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	Neyyattinkara	1738	1830	3568	161	150	311	6	4	10			
2.	Thiruvananthapuram	14950	15426	30376	6850	7302	14152	65	78	143	12	16	28
3.	Attingal	489	485	974	82	84	166	2	3	5			
4.	Kollam	7209	6589	13798	1280	1189	2469	12	10	22	3		3
5.	Punalur	1646	1570	3216	356	327	683	10	12	22	2	1	3
6.	Kayamkulam	1478	1283	2761	401	403	804	11	10	21	4	3	7
7.	Mavelikara	1866	1889	3755	163	151	314	8	3	11		1	1
8.	Alappuzha	4437	4363	8800	1078	958	2036	24	26	50	5	9	14
9.	Cherthala	1320	1268	2588	195	201	396	5	6	11	1	1	2
10.	Thiruvalla	2773	2566	5339	263	227	490	16	18	34	1	1	2
11.	Changanacherry	1393	1299	2692	211	232	443	9	5	14	1	1	2
12.	Kottayam	1920	1874	3794	221	233	454	13	11	24	2	1	3
13.	Palai	1333	1282	2615	65	67	132	12	12	24		1	1
14.	Vaikom	406	405	811	55	59	114	1	3	4		2	2
15.	Muvattupuzha	1423	1382	2805	121	104	225	10	4	14	2	2	4
16.	Kochi Corporation	9264	8599	17863	3780	3649	7429	92	77	169	34	27	61
17.	Aluva	2387	2318	4705	86	94	180	19	12	31		1	1

Table V - Vital events registered during the year 1991 (Contd.....)

S.N o	Municipality/ Corporation	Live Births						Still Births					
		Total Events			Events to normal residents			Total Events			Events to normal residents		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14
18.	N.Paravur	1318	1249	2567	126	115	241	10	11	21	9	11	20
19.	Perumbavoor	1361	1329	2690	75	73	148	5	11	16		1	1
20.	Irinjalakuda	673	558	1231	28	39	67	7	6	13			
21.	Kodungallur	1792	1683	3475	175	167	342	4	5	9	1		1
22.	Chalakudy	1499	1496	2995	202	189	391	4	3	7		2	2
23.	Thrissur	6791	6831	13622	471	502	973	104	77	181	3	2	5
24.	Guruvayoor	513	445	958	38	24	62	1		1			
25.	Kunnamkulam	981	1018	1999	41	28	69	8	7	15			
26.	Palakkad	4333	4355	8688	896	769	1665	34	22	56	10	6	16
27.	Chittoor- Thathamangalam	911	852	1763	221	213	434	5	10	15	1	2	3
28.	Thirur	2995	2970	5965	164	214	378	11	9	20		1	1
29.	Malappuram	1624	1633	3257	347	320	667	20	11	31			
30.	Kozhikode Corporation	14544	13586	28130	3907	3909	7816	299	354	653	94	99	193
31.	Vadakara	3659	3086	6745	511	466	977	12	14	26	1		1
32.	Thalassery	5317	5108	10425	1829	1538	3367	49	36	85	37	28	65
33.	Kannur	2294	2181	4475	356	325	681	10	8	18	2	1	3
34.	Kasaragod	2523	3400	5923	430	770	1200	35	98	133	6	5	11

Table V - Vital events registered during the year 1991 (Contd....)

Sl.No	Municipality/ Corporation	Infant Death						Other Deaths						Maternal Deaths	
		Total Events			Events to normal residents			Total Events			Events to normal residents			Total	Events to normal residents
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total		
														Male	Female
1	2	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1.	Neyyattinkara	10	7	17				144	90	234	50	36	86		
2.	Thiruvananthapuram	316	286	602	123	74	197	3498	3324	6822	897	882	1779		
3.	Attingal	1	1	2	1		1	76	57	133	75	54	129		
4.	Kollam	143	90	233	18	15	33	1189	658	1847	581	348	929		
5.	Punalur	11	14	25	9	10	19	235	114	349	110	63	173		
6.	Kayamkulam	12	7	19	3	1	4	229	147	376	146	118	264		
7.	Mavelikara	11	5	16				244	120	364	94	52	146		
8.	Alappuzha	89	86	175	13	19	32	1095	832	1927	163	174	337		
9.	Cherthala	17	13	30	1	4	5	353	195	548	115	99	214		
10.	Thiruvalla	43	24	67	4	2	6	482	288	770	171	103	274		
11.	Changanacherry	8	8	16	1		1	176	113	289	95	73	168		
12.	Kottayam	6	3	9	2	1	3	337	195	532	159	111	270		
13.	Palai	6	10	16		1	1	213	120	333	79	28	107		
14.	Vaikom	5	2	7				129	107	236	60	67	127		
15.	Muvattupuzha	12	11	23	4	2	6	123	93	216	46	41	87		
16.	Kochi Corporation	190	122	312	60	44	104	3074	1672	4746	1847	1091	2938	7	4
17.	Aluva	23	19	42	1	1	2	245	134	379	35	26	61	1	

Table V - Vital events registered during the year 1991 (Contd....)

S.I.N o	Municipality/ Corporation	Infant Death						Other Deaths						Maternal Deaths				
		Total Events			Events to normal residents			Total Events			Events to normal residents			Total	Events to normal residents			
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Total	Events to normal residents
1	2	15	16	17	18	19	20	21	22	23	24	25	26	27	28			
18.	N.Paravur	10	6	16	11	6	17	247	135	382	105	60	165					
19.	Perumbavoor	11	9	20	1	1	2	173	123	296	35	33	68					
20.	Irinjalakuda	8	3	11				118	98	216	64	67	131					
21.	Kodungallur	16	14	30		3	3	203	118	321	98	77	175					
22.	Chalakudy	14	6	20	1	1	2	213	110	323	120	71	191					
23.	Thrissur	182	159	341	3	5	8	1117	946	2063	199	91	290					
24.	Guruvayoor	4	5	9	1		1	110	73	183	50	40	90					
25.	Kunnamkulam	24	11	35				195	92	287	61	40	101					
26.	Palakkad	114	89	203	13	10	23	980	616	1596	350	277	627	5	1			
27.	Chittoor- Thathamangalam	3	1	4	3	1	4	201	169	370	132	101	233					
28.	Thirur	39	35	74				258	130	388	70	62	132					
29.	Malappuram	32	19	51	5	6	11	185	117	302	79	64	143					
30.	Kozhikode Corporation	564	452	1016	101	90	191	4333	2484	6817	1360	1008	2368	1				
31.	Vadakara	35	26	61	6	10	16	243	189	432	133	121	254	2	1			
32.	Thalassery	39	40	79	27	22	49	682	593	1275	483	344	827					
33.	Kannur	34	16	50	1		1	247	175	422	101	114	215					
34.	Kasaragod	32	31	63	4	8	12	220	214	434	87	56	143					

Table VI - Deaths according to cause 1991

Sl. No.	Municipality/ Corporation	T.B	Plague	Chole ra	Dysent ry & Diarohe a	Respirat ory Disease s	Enteric fever	Rabies	Dipht heria	Cancer	Gastr Enteri tics	Heart Failure	Pulmin ory Disease s	Others	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.	Neyyattinkara				4	18		1		4				224	251
2.	Thiruvananthapuram	92			196		62			323	137	2632		3982	7424
3.	Attingal	2			1	5				6		24	1	96	135
4.	Kollam				2		3			11		89	144	1831	2080
5.	Punalur				3		6		2	13		60	2	288	374
6.	Kayamkulam	6				37	3			12		98	8	231	395
7.	Mavelikara				2	42	3			7		141		185	380
8.	Alappuzha				4		3	3		29			37	2026	2102
9.	Cherthala									9			32	537	578
10.	Thiruvalla				4		8			13			53	750	837
11.	Changanacherry	3				32	12			17			7	234	305
12.	Kottayam				1			5		6			28	501	541
13.	Palai					32				9		37	29	242	349
14.	Vaikom				1					5		45	58	134	243
15.	Muvattupuzha									16		31		192	239
16.	Kochi Corpora.	223			1		3	6	1	362	44	1013		3412	5065
17.	Aluva						1			11		7	15	388	422

Table VI - Deaths according to cause 1991 (Contd...)

Sl. No.	Municipality/ Corporation	T.B	Plague	Chole- ra	Dysent- ry & Diarrhoea	Respi- ratory Disea- ses	Enteric fever	Rabies	Diphth- heria	Cancer	Gastr Enteri- tics	Heart Failure	Pulmin- ary Diseas- es	Others	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
18.	N.Paravur				1					12		103		283	399
19.	Perumbavoor				2					18				296	316
20.	Irinjalakuda									3				224	227
21.	Kodungallur				1		1			11			88	250	351
22.	Chalakudy					27				29		83	22	182	343
23.	Thrissur				9			7		127		347		1914	2404
24.	Guruvayoor				1		4			3		82	6	96	192
25.	Kunnamkulam									5		28	14	275	322
26.	Palakkad					38				30		619		1117	1804
27.	Chittoor- Thathamangalam				2					12			12	348	374
28.	Thirur	5			5		13			25	6	62	19	327	462
29.	Malappuram				4					8			31	310	353
30.	Kozhikode Corpo.	158		1	7		9			148		1175		6336	7834
31.	Vadakara									28	1		80	386	495
32.	Thalassery				23		33			176			118	1004	1354
33.	Kannur				1		6			16			53	396	472
34.	Kasaragod						4			7			5	481	497

Table VII - Results of Spot Check 1991

Sl. No.	Municipality/ Corporation	No. of wards selected	Total no. of House holds	No. of House holds visited	No. of events detected to normal residents											
					Live Births				Infant Deaths				Other deaths			
					Enumerated	Registered	Not Registered	occurred outside	Enumerated	Registered	Not Registered	occurred outside	Enumerated	Registered	Not Registered	occurred outside
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.	Neyyattinkara	15	6869	6869	256	120		136					63	44	1	18
2.	Thiruvananthapuram	15	25493	19493	548	532	4	12					155	150	1	4
3.	Attingal	15	4901	4901	239	57		182	1			1	66	60		6
4.	Kollam	18	14150	14150	926	788		138	8	8			200	167		33
5.	Punalur	15	6661	6661	307	217	2	88	2	2			77	54	1	22
6.	Kayamkulam	15	5112	5112	289	188		101					81	74	1	6
7.	Mavelikara	15	4345	4345	270	172	1	97	3			3	112	98	1	13
8.	Alappuzha	18	15514	15514	1118	943	1	174	12	10			406	383	12	11
9.	Cherthala	15	7391	7391	224	116		108					99	76	10	14
10.	Thiruvalla	15	5726	5726	204	113	1	90	5	2		2	49	43		5
11.	Changanacherry	15	5886	5886	202	107		95	82	53		28	1		1	1
12.	Kottayam	15	5318	5318	268	142		126	2			2	129	92	6	31
13.	Palai	15	4658	2659	192	110		82					59	46	4	9
14.	Vaikom	15	4532	3221	176	40		136				1	105	85	4	16
15.	Muvattupuzha	15	4007	4007	308	173		135	4	1		3	75	59	4	12
16.	Kochi Corporation	15	26703	26703	1957	1511	96	350	8	6	1	1	585	451	110	24
17.	Aluva	15	3664	3664	191	101		90					67	46	7	14

Table VII - Results of Spot Check 1991 (Contd....)

Sl. No.	Municipality/ Corporation	No. of wards selected	Total no. of House holds	No. of House holds visited	No. of events detected to normal residents											
					Live Births				Infant Deaths				Other deaths			
					Enumerated	Registered	Not Registered	occurred outside	Enumerated	Registered	Not Registered	occurred outside	Enumerated	Registered	Not Registered	occurred outside
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
18.	Paravur	15	4060	4060	286	147		139					121	88	15	18
19.	Perumbavoor	15	3594	3594	185	100		85					56	44	1	11
20.	Irrinjalakuda	15	6018	4055	263	31							131	92	5	34
21.	Kodungalur	15	4569	4569	326	204		122	1			1	127	94	12	21
22.	Chalakudy	15	4583	4757	277	171		106					125	84	24	17
23.	Thrissur	15	6793	7150	591	479	55	57	4	4			217	155	44	18
24.	Guruvayoor	10	3576	3576	236	62		174	1	1			130	90	12	28
25.	Kunnamkulam	15	3783	3783	239	50		189					104	84	6	14
26.	Palakkad	15	8355	8355	693	489	5	199	7	6	1		249	222	6	21
27.	Chittoor-Thathamangalam	15	3690	3690	195	92	2	101					110	90	5	15
28.	Thirur	15	3811	3811	224	188		36					68	68		1
29.	Malappuram	15	4786	4786	610	399	5	206	7	6		1	96	82	2	12
30.	Kozhikode Corpo.	15	32966	17180	1623	1389	22	212	13	10	3		505	407	75	23
31.	Vadakara	15	5088	5088	660	416	16	228	5		1	4	135	96	9	30
32.	Thalassery	15	4069	4069	393	360	33						116	99		17
33.	Kannur	15	8790	3624	327	230	5	92					76	56	6	14
34.	Kasaragod	15	6205	3378	466	418	11	37	49	49			342	339	3	

Table VIII - Under Registration and Occurance of Outside events

Sl. No.	Municipality/ Corporation	% of under registration		% of outside registration	
		Births	Deaths	Births	Deaths
1	2	3	4	5	6
1.	Neyyattinkara		2.22	53.13	28.57
2.	Thiruvananthapuram	0.75	0.66	2.19	2.58
3.	Attingal			76.15	9.09
4.	Kollam			14.90	15.87
5.	Punalur	0.91	1.82	28.66	28.57
6.	Kayamkulam		1.33	34.95	7.41
7.	Mavelikara	0.58	1.01	35.93	13.91
8.	Alappuzha	0.10	2.96	15.38	2.70
9.	Cherthala		15.15	48.22	14.00
10.	Thiruvalla	0.88		44.12	12.96
11.	Changanacherry		1.85	47.03	34.15
12.	Kottayam		6.12	47.01	25.19
13.	Palai		8.00	42.71	15.25
14.	Vaikom		4.49	72.27	15.24
15.	Muvattupuzha		6.35	43.83	16.00
16.	Kochi Corporation	5.97	19.54	17.88	4.22
17.	Aluva		13.21	47.12	20.90
18.	N.Paravur		14.56	48.60	14.88
19.	Perumbavoor		2.22	45.95	19.64
20.	Irinjalakuda		5.15	88.21	25.95
21.	Kodungallur		11.32	37.42	16.54
22.	Chalakyudy		22.22	38.27	13.60
23.	Thrissur	10.26	24.85	9.64	8.14
24.	Guruvayoor		11.65	73.73	21.37
25.	Kunnamkulam		6.67	79.08	13.46
26.	Palakkad	1.01	2.98	28.72	8.20
27.	Chittoor- Thathamangalam	2.13	5.26	51.79	13.64
28.	Thirur			16.07	1.47
29.	Malappuram	1.24	2.22	33.77	12.62
30.	Kozhikode Corpo.	1.56	15.56	13.06	4.55
31.	Vadakara	3.70	9.43	34.55	24.29
32.	Thalasserry			8.40	14.66
33.	Kannur	2.13	9.68	28.13	18.42
34.	Kasaragod	2.56	0.77	7.94	

Table IX - Registered Vital Rates and Adjusted Residential Vital rates 1991

Sl. No.	Municipality/ Corporation	Registered vital rates		Adjusted residential vital rates	
		Births	Deaths	Births	Deaths
1	2	3	4	5	6
1.	Neyyattinkara	10.19	2.82	21.74	4.03
2.	Thiruvananthapuram	26.93	3.76	27.74	3.88
3.	Attingal	5.07	3.97	21.26	4.37
4.	Kollam	17.65	6.88	20.74	8.18
5.	Punalur	14.72	4.14	20.83	5.91
6.	Kayamkulam	11.94	3.98	18.36	4.35
7.	Mavelikara	11.07	5.15	17.37	6.04
8.	Alappuzha	11.65	2.11	13.78	2.23
9.	Cherthala	9.12	5.04	17.61	6.63
10.	Thiruvalla	8.93	5.10	16.12	5.86
11.	Changanacherry	8.44	3.20	15.93	4.95
12.	Kottayam	7.19	4.33	13.57	6.16
13.	Palai	6.03	4.93	10.53	6.32
14.	Vaikom	5.23	5.83	18.86	7.20
15.	Muvattupuzha	8.13	3.36	14.47	4.27
16.	Kochi Corporation	13.12	5.38	16.99	6.98
17.	Aluva	7.27	2.54	13.75	3.66
18.	N.Paravur	8.62	6.51	16.77	8.95
19.	Perumbavoor	5.99	2.83	11.08	3.60
20.	Irrinjalakuda	2.43	4.76	20.61	6.78
21.	Kodungallur	10.91	5.68	17.43	7.68
22.	Chalakydy	8.65	4.27	14.01	6.35
23.	Thrissur	13.06	4.00	16.11	5.56
24.	Guruvayoor	3.05	4.48	11.61	6.45
25.	Kunnamkulam	3.51	5.14	16.78	6.37
26.	Palakkad	13.46	5.26	19.08	5.90
27.	Chittoor- Thathamangalam	13.52	7.38	28.65	9.02
28.	Thirur	7.59	2.65	9.04	2.69
29.	Malappuram	13.32	3.08	20.37	3.60
30.	Kozhikode Corpo.	18.58	6.08	21.70	7.54
31.	Vadakara	13.43	3.73	21.31	5.44
32.	Thalasserry	32.45	8.44	35.43	9.89
33.	Kannur	10.41	3.30	14.80	4.47
34.	Kasaragod	23.82	3.08	26.56	3.10

Table X - Adjusted Residential Vital Rates from 1986 to 1991

Sl. No.	Municipality/ Corporation	Birth rate							Death Rate						
		1986	1987	1988	1989	1990	1991	1986	1987	1988	1989	1990	1991		
1	2	3	4	5	6	7	8	9	10	11	12	13	14		
1.	Neyyattinkara	27.40	31.55	40.85	39.49	31.48	21.74	7.11	5.84	6.15	4.73	5.05	4.03		
2.	Thiruvananthapuram	27.56	27.05	27.49	28.73	30.98	27.74	6.15	3.79	3.59	3.80	4.02	3.88		
3.	Attingal	13.33	11.42	24.21	24.40	35.11	21.26	3.75	5.16	4.13	4.45	4.28	4.37		
4.	Kollam	20.90	22.59	21.65	22.71	21.42	20.74	5.05	4.25	4.05	5.19	6.05	8.18		
5.	Punalur	19.99	20.55	21.15	22.48	14.57	20.83	3.47	4.92	4.51	4.32	4.22	5.91		
6.	Kayamkulam	20.95	25.02	19.66	18.63	11.78	18.36	5.75	6.01	6.12	5.12	4.10	4.35		
7.	Mavelikara	28.55	25.00	22.54	21.87	11.85	17.37	6.23	6.18	7.59	7.42	5.64	6.04		
8.	Alappuzha	20.42	16.60	17.58	17.36	17.84	13.78	6.77	6.11	8.88	5.27	5.06	2.23		
9.	Cherthala	22.78	22.15	19.81	18.97	10.02	17.61	6.97	7.72	7.95	8.12	5.73	6.63		
10.	Thiruvalla	15.96	21.51	25.38	22.28	13.07	16.12	7.91	9.64	5.12	5.49	4.89	5.86		
11.	Changanacherry	19.45	15.76	17.50	17.93	21.05	15.93	4.48	4.62	5.22	4.98	4.51	4.95		
12.	Kottayam	19.99	22.47	19.26	20.19	18.86	13.57	6.73	4.61	5.25	5.57	5.16	6.16		
13.	Palai	13.14	10.40	11.39	13.04	11.84	10.53	3.23	3.55	3.20	4.49	3.50	6.32		
14.	Vaikom	28.01	26.48	13.94	15.31	27.36	18.86	4.75	5.86	4.90	4.68	5.34	7.20		
15.	Muvattupuzha	16.47	22.85	20.09	20.78	15.32	14.47	2.89	3.85	3.28	3.57	4.32	4.27		
16.	Kochi Corporation	23.17	20.25	18.79	17.60	16.96	16.99	6.38	6.79	6.01	6.15	5.69	6.98		
17.	Aluva	17.23	15.82	18.41	18.36	17.16	13.75	5.15	4.43	3.32	5.47	6.16	3.66		

Table X - Adjusted Residential Vital Rates from 1986 to 1991 (Contd.....)

Sl. No.	Municipality/ Corporation	Birth rate						Death Rate					
		1986	1987	1988	1989	1990	1991	1986	1987	1988	1989	1990	1991
1	2	3	4	5	6	7	8	9	10	11	12	13	14
18.	Paravur	27.22	17.06	16.89	14.92	16.65	16.77	6.51	8.70	7.36	8.05	7.66	8.95
19.	Perumbavoor	18.06	19.82	21.66	20.63	12.55	11.08	5.64	5.12	5.09	4.60	3.40	3.60
20.	Irinjalakuda	22.61	27.46	17.94	17.91	17.22	20.61	5.55	7.65	8.50	6.56	5.49	6.78
21.	Kodungallur	18.38	18.71	21.52	21.39	15.82	17.43	5.26	7.32	6.62	6.70	7.13	7.68
22.	Chalakudy	17.62	16.44	18.49	19.75	15.01	14.01	5.12	6.00	4.60	5.75	6.90	6.35
23.	Thrissur	21.70	24.03	26.00	26.74	16.55	16.11	4.31	4.85	5.43	4.75	5.22	5.56
24.	Guruvayoor	14.30	14.81	11.64	13.44	11.96	11.61	6.56	6.13	7.04	6.21	7.31	6.45
25.	Kunnamkulam	16.97	13.18	13.75	13.88	14.56	16.78	7.95	6.62	6.54	6.57	7.13	6.37
26.	Palakkad	29.96	27.37	25.76	25.57	20.25	19.08	6.63	6.21	5.94	5.94	5.23	5.90
27.	Chittoor- Thathamangalam	28.54	31.85	30.09	30.23	37.38	28.65	8.22	6.95	7.97	5.77	9.52	9.02
28.	Thirur	14.09	11.79	11.06	12.40	8.16	9.04	3.07	2.81	3.43	3.44	2.95	2.69
29.	Malappuram	22.92	21.63	18.40	16.69	20.40	20.37	3.76	3.89	3.05	2.57	3.13	3.60
30.	Kozhikode Corpo.	27.21	22.22	29.37	29.25	29.74	21.70	8.83	8.23	8.57	8.43	11.30	7.54
31.	Vadakara	22.87	21.68	22.98	21.07	20.89	21.31	6.20	6.39	6.38	6.79	6.19	5.44
32.	Thalasserry	39.75	44.80	49.40	49.06	42.13	35.43	3.28	3.57	3.99	4.05	9.73	9.89
33.	Kannur	20.61	22.98	28.25	28.23	18.81	14.80	5.90	10.75	9.47	5.51	4.20	4.47
34.	Kasaragod	45.55	45.95	25.11	24.07	26.22	26.56	4.30	4.22	3.79	3.74	3.89	3.10

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