



**Government of Kerala**

**Sample Registration of Births &  
Deaths  
Kerala 1998**

**Department of Economics & Statistics  
Thiruvananthapuram**



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2002**

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# **Sample Registration of Births and Deaths in Kerala (Rural) – 1998**

## **CHAPTER – I**

### **Introduction**

The Sample Registration system was introduced in all states of India by the Registrar General of India in order to rectify the problems involved in Civil Registration System. The Sample Registration System, as a dual recording system provides not only vital rates in India but also the details regarding Fertility, mortality, life expectancy, marriage, etc. The Department of Economics and Statistics of Kerala and Census Department in Kerala are the implementing agencies of the system in the rural and urban sectors respectively. This report is prepared on the basis of the details collected in the 66<sup>th</sup> and 67<sup>th</sup> half yearly surveys of SRS from the 150 selected samples from rural areas for the year 1998.

The Sample Registration System, basically a sample survey designed to obtain quick and reliable data on vital rates, was introduced in the state on a pilot project during 1964-65 in 20 rural and 5 urban samples. The full-fledged scheme was introduced on first July 1965 covering 150 samples in the rural areas of the State, on a regular basis.

The samples originally selected were retained for the study up to 1982. Out of these 150 samples, 75 samples were replaced during the year 1982 and the remaining 75 samples were replaced during the year 1983 for the study. The stratified simple Random sampling method was used for the selection of rural sample units. The stratum being the census village, which were classified into 4 types according to population of census such as below 500, 500-999, 1000-1999 and 2000 and above. The allocation of the samples in different states was in proportion to the population of samples selected for the study.

### **1.2 Staff engaged in the Survey**

The registration of all births and deaths occurred in each sample was carried out by 150 part-time enumerators appointed for the purpose. The half-yearly surveys in these 150 samples were conducted by 17 Computer Supervisors deputed from the census department. The Additional District Officers of this department in each district supervised the Fieldwork and conducted re-verification of the unmatched and partially matched events. The State Head Quarters One RSO, One RA and one computer supervisor from Census department and two Compilers attended the Sample Registration work.

### **1.3 Field Work**

A base line survey was conducted in all the 150 sample units to identify and find the resident population. The births and deaths occurring in these units for the resident population were registered by the Part time enumerators on a regular basis through informants and house visits and the details are reported to the District office. The computer supervisor conducted the half-yearly survey for updating

the population and collected the details of births and deaths occurred in each sample. These two sets of data collected independently by the enumerator and supervisor were matched at the district head quarters to identify the unmatched and partially matched events. The Additional District Officer in the District Office conducted re-verification of these unmatched and partially matched events and then finalised the results and forwarded to the state head quarters. These results were subjected to further scrutiny in the State head quarters and one copy of each of birth and death and population statement containing the details were forwarded to the Registrar General of India for computation of vital rates.

#### **1.4 Overlapping Survey**

The supervisors while conducting the half yearly survey collected the details of births and deaths occurred during the previous half year also find out the missed events if any which the enumerators as well as supervisors had failed to record. These 90 births and 23 deaths were detected during the year as the events for the extended reference period.





## CHAPTER – II

### Estimated Population in Rural areas of Kerala

#### 2.1 Population and its growth

The rural population of Kerala was estimated as 23653072 on 1.7.1998 and 23797666 on 1.1.99. District wise analysis shows that maximum numbers of population in Malappuram were 3140282 in which the male and female breakup were 1502520 and 637763 respectively. Kollam District comes next with 2133870 numbers. However the lowest estimated population was in Wayanad district with only 801773 numbers.

#### 2.2 Sex ratio and percentage distribution of population by age group

The sex ratio and percentage distribution of population for different age group for the years 1989, 1997, 1998 are presented in Table 5. Sex ratio based on age group was highest in the age of 70 and above with 1276 followed by 25-29 with 1214. But it was lowest in the age group of 5-9 having 940 classification of population in terms of age group, it was highest in the age group of 15-19 with 10.65 and lowest in the age group of 65-69 in 2.42.

#### 2.3 Religion wise Population

The population when classified according to three major religions viz. Hindu, Muslim and Christian in the State was 1346894, 5985193, 4199185 respectively. Out of the total population 56.9% were Hindus. District wise figures shows that Hindu were maximum in Kollam followed by Thrissur. In the case of Muslim it was maximum in Malappuram followed by Kozhikode. Christian population was maximum in Kottayam followed by Ernakulam.



# CHAPTER - III

## Measures of Fertility

### 3.1 Fertility Indicators

The primary components of fertility is the Birthrate, Age specific fertility rate, total fertility rate and net reproduction rate.

The number of live births per 1000 mid year population is defined as the birth rate. This is the common measures of fertility. The births to the usual residents of the area were only taken in to account for the calculation of vital rates. The birth rate of Kerala estimated during the year under report was 17.38.

District wise birth rate shows that Malappuram was the highest among the districts with 24.71 followed by Kannur with 19.14. However the lowest birth rate was in Pathanamthitta district having only 8.27.

Table - A1

Birth rate of Kerala and India (Rural) for the year 1989 to 1998.

Year	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
BR	20.2	19.6	18.4	17.6	17.5	17.26	18.1	18.0	17.9	18.3
BR(I)	32.2	31.7	30.9	30.9	30.4	30.5	30.0	27.5	27.2	26.5

(Source: SRS Bulletin)

### 3.2 Births rate of neighbouring States (1998)

Births rate of Kerala (Rural) and neighbouring States are presented below

State	Rural	Rural and Urban combined
Andhra Pradesh	22.8	22.4
Karnataka	28.1	22.0
Tamil Nadu	19.7	19.2
Kerala	18.3	18.3
All India	28.0	26.5

(Source: SRS Bulletin)

Above table shows that birthrate of Kerala is the lowest among the states with 18.3 and the second one is Tamil Nadu with 19.7.

### 3.3 Distribution of Sample units under different rates

The table represents the birth rate existing in the samples. Out of 150 samples 41 numbers have the birth rate between 12 and 16 and 40 numbers have the birth rate between 16 and 20.

### 3.4 Age Specific Fertility rate

Age specific fertility rate can be defined as the number of live birth in an year to 1000 women of a specific age group. Table No.9 represents the age specific fertility rate.It was highest in the age group of 20-24 with 142.47. District wise figure shows Age Specific Fertility Rate was highest in

Malappuram with 194.34 at the age group of 20-24. An overall picture shows that it was highest in many age group in Malappuram District.

### 3.5 Age Specific Marital Fertility Rate

Age Specific Marital Fertility Rate is defined as the number of live births in an year to 1000 married women of specific age group. Table 9 shows the District level and State level marital fertility rate during the year under report. Age specific Marital Fertility rate was highest in the age group of 20-24 with 254 followed by 210. In the age group of 15-19. ASMFR was highest in Alappuzha District with 750 and lowest in Kottayam District with 35.

### 3.6 Number of Surviving Children and Children ever born in different age group

The number of ever born and surviving children of currently married women in different age group from 15-19 to 45-49 is given in table 11 which is appended. It is observed that out of 4274 birth events, 2030 numbers were initial birth and 1424 numbers were second birth.

### 3.7 General Fertility Rate (GPR)

The number of live births in an year to 1000 women in the reproductive age group 15-49 is defined as General Fertility Rate. General Fertility Rate of the State was 59.35 during the year under report. District wise figures shows that it was highest in Malappuram and lowest in Pathanamthitta District. General Fertility rate from 1989 to 1998 in the State is as follows: -

1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
72.2	69.8	64.8	61.6	61.2	60.0	62.87	62.57	64.06	59.35

### 3.8 Total Fertility Rate (TFR)

Total fertility rate represent the average number of children that would be born to a woman during her lifetime, if she passes through the childbearing years conforming the age specific fertility rate of the year. The State level total fertility rate was 1.76 during the year under report. The total fertility rate from 1989 to 1998 is stated below:

1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
2.0	1.9	1.8	1.72	1.7	1.7	1.86	1.84	1.89	1.76

### 3.9 Gross Reproduction Rate

Gross Reproduction Rate is defined as the average number of female children that would be born to a woman during her life time, if she was to pass through her child bearing years conforming to the age specific fertility rate of the year. The gross reproduction rate of Kerala for the years 1989 to 1998 are given below:

1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
0.95	0.92	0.92	0.82	0.83	0.80	0.90	0.89	0.88	0.87

### 3.10 Net Reproduction Rate (NRR)

Net Reproduction rate is the average number of female children that would be born to a woman during her lifetime conforming to the age group by corresponding proportion of survivors as per life table for female ( $L_x/l_x$ ) then repeating the process in the gross reproduction rate. Net reproduction rate at the state from 1989 to 1998 is presented below: -

1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
0.95	0.91	0.91	0.81	0.83	0.79	0.90	0.89	0.87	0.87

### 3.11 Still Birth Rate (SBR)

Still Birth Rate is defined as the number of still births to 1000 Births (Both live birth and still birth) Total number of still birth estimated during the year was 2724 in which male and female classification were 1426 and 1298 respectively. District wise still birth shows that it was maximum in Kannur with 687 followed by Malappuram with 483 while any still birth was reported from Thrissur, Alappuzha and Pathanamthitta. Still birth rate in the state during the year was 0.87.

### 3.12 Order of Birth by age of mother

The percentage distribution of birth by age of mother and order of birth of child is given in Table 15 appended. Out of the total 4274 birth 46.05% of births comes under the 1st 34.28% of the birth comes under 11nd order of birth. The birth under seventh order and above during the year under report is less. It is clear that most of women in Kerala delivered only one or two children.

### 3.13 Birth by type of Medical Attention received

Table 14 represents the details of medical attention received by the women during the delivery period. Out of 4274 events, 4224 numbers had received institutional medical attention i.e. 98.8% of delivery was happened in the medical institutions. All the births in Kozhikode, Alappuzha, Pathanamthitta and Thiruvananthapuram districts were happened in the medical institutions. It was observed that the number of people utilizing the institutional facilities provided for maternal and child health increased year by year. The distribution of number of births by various medical institution receives is given in Table (appended). Percentage distribution of birth by type of medical attention received for the period from 1989 to 1998 are furnished below:

Year	Institutions	Trained Professional	Untrained professional	Non Professional	Not stated
1989	86.0	5.6	6.8	1.5	0.1
1990	89.1	3.6	5.6	1.4	0.3
1991	91.1	2.7	4.9	1.2	0.1
1992	94.5	1.8	3.2	0.4	0.1
1993	96.9	1.6	0.9	0.5	0.1
1994	91.9	5.4	2.2	0.2	0.3
1995	96.28	2.6	1.1	0.02	-
1996	96.95	1.6	1.1	0.02	-
1997	97.8	1.0	0.9	0.3	-
1998	98.8	0.6	0.2	0.4	-

### 3.14 Sex ratio at birth

The number of male children born to 1000 female children is defined as the sex ratio at birth. Sex ratio at birth of the state from 1989 to 1998 is stated below: -

1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
111.3	109.3	96.5	108.2	106.2	112.3	105.4	107.2	108.26	105.09

District wise figures shows that the same was highest in Kannur and lowest in Malappuram.

### 3.15 Child Women Ratio (CWR)

Child women Ratio is defined as the estimated number of children in the age group (0-4) year per 1000 women in the reproductive age group (15-49). According to the survey results the child women ratio during the period was 316.

### 3.16 Comparison of Vital rates under SRS and CRS

Civil Registration System is a statutory system of recording the details of vital events in the state and national level. The function of CRS is not in a full fledged level due to the existence of under Registration. Sample Registration provides cent percent reliability in data. So that the vital rates estimated under SRS has more importance than CRS. The vital rates estimated through CRS and SRS from 1989 to 1998 are given below:

Year	Birth Rate		Still Birth Rate	
	CRS	SRS	CRS	SRS
1989	12.6	20.2	3.4	10.6
1990	11.6	19.6	4.5	8.6
1991	10.8	18.4	3.7	6.2
1992	9.6	17.6	3.0	10.3
1993	9.4	17.5	3.0	7.5
1994	9.1	17.2	2.10	8.3
1995	9.4	18.4	3.9	6.2
1996	9.37	18.0	3.07	
1997	9.73	18.56	2.65	6.9
1998	9.39	18.3		6.58

### 3.17 Rate of marriage per 1000 population and percentage distribution according to age and sex.

Table No. 29 represent the rate of marriage per 1000 population and percentage distribution of marriage according to age and sex. During the year under report the rate of marriage at State level with male and female division was 24.36 and 33.07 respectively. Most of the marriage was occurred at the age of 73.65 to males and 20-29 to females. Usually the percentage of remarriage was very less in all age group.



# CHAPTER – IV

## Mortality Measures

### 4.1 Death Rate

The death rate is defined as the number of death per 1000 of mid year population. The death rate is decreasing variably in the State during the last few years due to the existence of good health system and high literacy rate. The estimated death rate of the state was 6.46 during the year under report. District wise figures shows that death rate was maximum in Malappuram district with 17394 followed by Palakkad district with 16880 while the same was minimum in Wayanad district. Table No. 1 represent the death rate District wise and state wise.

### 4.2 Death rate of neighbouring State

The death rates in rural areas and rural and urban combined published for the year 1998 by the Registrar General of India in respect of the neighbouring States and All India are given

State	Rural	Rural – Urban combined
Andhra Pradesh	9.7	8.8
Karnataka	8.9	7.9
Tamil Nadu	9.3	8.5
Kerala	6.5	6.4
All India	9.7	9.0

Among the States, the death rate for Kerala was the lowest and Andhra Pradesh was the highest during the year under report.

### 4.3 Age specific death rate

Age specific death rate is the number of deaths in a specific age group among 1000 persons of that age group in an year. Out of 152844 estimated death events in the state 76706 deaths were occurred at the age of 70 and above in which the classification of males and females were 38313 and 38393 respectively. District wise analysis shows that maximum number of deaths estimated were in Malappuram District with 17394 followed by Palakkad with 16880 numbers. The minimum number of death estimated were in Wayanad District with 4701 followed by Kannur with 6086 numbers.

### 4.4 Infant Mortality rate

The infant mortality rate is defined as the estimated number of deaths of children below one year of age out of 1000 live births in an year. The usual trend of infant mortality rate in the state is a decreasing one. Number of infant deaths estimated during the year under report was 4744 in which the male and female divisions were 3256 and 1488 respectively. District wise figures shows that infant deaths was maximum in Malappuram with 1449 numbers of which the male and female division were 897 and 552 respectively. Next it was maximum in Palakkad with 763 while it was estimated

minimum in Thiruvananthapuram with 104. Any infant death was reported from Wayanad, Thrissur, Alappuzha and Pathanamthitta.

#### 4.5 Neo Natal Mortality Rate

Neo natal mortality rate is defined as the estimated number of deaths of infants below 28 days of age per 1000 live births in an year. Neo natal mortality rate estimated during the year under report was 8.51 in the State.

#### 4.6 Perinatal mortality rate

Perinatal mortality rate defined as the estimated number of deaths of infants below 7 days of age per 1000 live births in an year. The estimated Perinatal mortality rate during the year under report was 7.37. The classification of infant mortality rate as perinatal, neo natal and postnatal is given in Table No. 26

#### Distribution of Samples according to death rate of each sample

Table 22 presents the details regarding the extend of death rate in sample wire. During the year under report 47 units recorded death rate 5 to 7, 40 samples in the range of 7 to 9 and death rate of 3 to 5 have in 37 samples.

#### Medical attendance received before death

The percentage distribution of deaths according to medical attention received before the year 1989 to 1998 are stated below:

Year	Institutional	Qualified medical practitioner	Unqualified medical practitioner	None
1989	43	31	6	20
1990	47	36	7	10
1991	45	35	5	15
1992	54	29	4	13
1993	58	21	4	17
1994	57	20	4	19
1995	51	32	11	6
1996	51	36	4	9
1997	60	27	4	9
1998	55	30	6	9

Table 21 represents deaths classified by type of medical attention. It can be seen that about 91 percent of the persons were received some kind of attention before death in the current year.

#### 4.7 Comparison of rural mortality rate under Civil Registration System and SRS for the year from 1989 to 1998

##### MORTALITY RATE UNDER CRS AND SRS

Year	Death Rate		Infant Mortality Rate	
	CRS	SRS	CRS	SRS
1989	4.2	6.1	8.2	23.3
1990	4.1	6.0	8.1	17.1
1991	4.3	6.2	7.5	16.6
1992	4.5	6.3	5.2	17.0
1993	4.3	6.1	5.8	14.8
1994	4.3	5.9	7.1	16.0
1995	4.2	5.4	6.5	14.4
1996	4.33	6.3	5.77	18.0
1997	4.17	6.0	4.97	18.8
1998	4.66	6.46	4.86	11.5

Vital rates i.e. the death rate and infant mortality rate, estimated under Civil Registration System are less than that of the rates arrived through Sample Registration System. The low mortality rate under Civil Registration System may be due to the fact that a considerable number of births and death of the resident population in rural areas are registered in urban areas where they seek better medical attention.

#### 4.8 Expectation of life based on age specific death rates for the last three years.

Generally the life expectancy of the people is very high in Kerala among the states in India. Expectation of life in different age group is calculated in the life tables – Table No. 30, 31, 32 appended to this report. The life tables prepared sex wise and population wise separately based on Age specific death rates 1996, 1997 and 1998. The expectation of life at birth for males, females and for both sex together were calculated as respectively. Expectation of life calculated for the last 10 years are given below:

#### 4.9 Expectation of life based on age specific death rates

Age specific death rates for the year			Male	Female	Both Sex
1987	1988	1989	67.6	73.9	70.6
1988	1989	1990	67.9	74.7	71.3
1989	1990	1991	68.1	74.7	71.3
1990	1991	1992	67.9	74.8	71.2
1991	1992	1993	68.3	75.2	71.6
1992	1993	1994	64.3	65.2	67.5
1993	1994	1995	70.2	76.6	73.3
1994	1995	1996	70.4	76.8	73.5
1995	1996	1997	70.2	77.5	73.6
1996	1997	1998	69.1	76.1	72.7



## Method adopted for calculation of Life Table

$$nm_x = \frac{\text{Total Age specific death rates for the last three years}}{3 \times 1000}$$

$$q_0 = \frac{D_1}{B_1} + \frac{D_2}{B_2}$$

Where  $D_1$  is the number of deaths of children born during 1996 and died in 1997.  $D_2$  is that of the children born and died in 1997.  $B_1$  and  $B_2$  denote the total number of births occurred during 1996 and 1997 respectively.

$$Q_x = \frac{2 \times nm_x \times c}{2 + (c \times nm_x)} \quad \text{Where 'c' is the class interval}$$

Let  $l_0$  be 1,00,000

$$l_x = l_0 - d_0$$

$$d_x = l_x \times q_x$$

Let  $d_{70} = l_{70}$

$$L_0 = f \times l_0 + (1 - f) l_1$$

where  $f =$

$$\frac{D_1}{D_1 + D_2}$$

$$L_x = \frac{(l_x + l_{x+1}) \times c}{2}$$

$$L_{70} = \frac{d_{70}}{nm_{x70}}$$

Let  $L_{70}$  be  $T_{70}$

$$T_{(70-1)} = T_{70} + L_{(70-1)}$$

$$\text{Expectation of Life } E_x = \frac{T_x}{l_x}$$

\*\*\*

**Table -1****Midyear estimated population, Births, Deaths and Vital rates 98**

District	Popu- lation	Estimated figures				Vital Rates			
		Births	Death	Still Births	Infant Death	Birth	Death	Still Birth	Infant Death
Kasargod	1073084	20484	6645	185	184	19.09	6.19	8.95	8.98
Kannur	1236127	23658	6086	687	98	19.14	4.92	28.22	4.14
Wayanad	801773	14563	4701	0	271	18.16	5.87	0.00	18.61
Kozhikode	1805166	29424	11337	204	204	16.30	6.28	6.89	6.93
Malappura	3140282	77597	17394	483	1449	24.71	5.54	6.19	18.67
Palakkad	2156070	39869	16880	382	763	18.49	7.83	9.49	19.14
Thrissur	2091822	32481	13278	0	110	15.53	6.35	0.00	3.39
Ernakulam	1615188	25181	10661	128	0	15.59	6.60	5.06	0.00
Idukki	1115289	19694	6532	207	104	17.66	5.85	10.40	5.28
Kottayam	1647766	26502	10690	232	348	16.08	6.49	8.68	13.13
Alappuzha	1565026	22483	12155	0	365	14.37	7.77	0.00	16.23
Pathanamt	1113427	9205	10266	0	0	8.27	9.22	0.00	0.00
Kollam	2133870	34917	14259	112	224	16.36	6.68	3.20	6.42
Thiruvanan- thapuram	2158182	34945	11960	104	624	16.19	5.54	2.97	17.86
State	23653072	411003	152844	2724	4744	17.38	6.46	6.58	11.54

**Table 2****Sample Population and Estimated Population-District wise**

Districts	Observed Population		Estimated Population	
	As on 01-Jul-98	As on 01-Jan-99	As on 01-Jul-98	As on 01-Jan-99
Kasargod	11630	11620	1073084	1072161
Kannur	12592	12730	1236127	1249674
Wayanad	8864	8803	801773	796255
Kozhikode	17669	17881	1805166	1826825
Malappuram	45487	45806	3140282	3162305
Palakkad	22605	22601	2156070	2155688
Thrissur	19063	19206	2091822	2107514
Ernakulam	12572	12656	1615188	1625980
Idukki	10760	10809	1115289	1120368
Kottayam	14176	14245	1647766	1655787
Alappuzha	12878	13112	1565026	1593463
Pathanamthitta	9435	9393	1113427	1108470
Kollam	19006	19135	2133870	2148353
Thiruvananthapuram	20751	20911	2158182	2174823
State	237483	238908	23653072	23797666

**Table 3**  
**Population according to Sex 1998**

Districts	Male	Female	Total	Male	Female	Total
Kasargod	5707	5923	11630	526577	546507	1073084
Kannur	6006	6586	12592	589595	646532	1236127
Wayanad	4365	4499	8864	394826	406947	801773
Kozhikode	8476	9193	17669	865956	939209	1805166
Malappuram	21764	23723	45487	1502520	163776	3140282
Palakkad	10757	11848	22605	1026005	113006	2156070
Thrissur	8980	10083	19063	985394	110642	2091822
Ernakulam	6274	6298	12572	806052	809136	1615188
Idukki	5342	5418	10760	553706	561583	1115289
Kottayam	7046	7130	14176	819001	828765	1647766
Alappuzha	6165	6713	12878	749215	815811	1565026
Pathanamthitta	4512	4923	9435	532462	580965	1113427
Kollam	9146	9860	19006	1026853	110701	2133870
Thiruvananthapuram	9976	10775	20751	1037542	112064	2158182
<b>State</b>	<b>114516</b>	<b>122972</b>	<b>237488</b>	<b>11415704</b>	<b>12237369</b>	<b>23653072</b>

**Table - 4**  
**Estimation by age group and sex**

Age Group	Male	Female	Total
Below1	235821	224253	460074
1-4	884628	843657	1728285
5-9	1075588	1007065	2082653
10-14	1186286	1133574	2319860
15-19	1199537	1265908	2465445
20-24	1078341	1235230	2313571
25-29	982510	1191748	2174258
30-34	839439	957270	1796709
35-39	781940	924799	1706739
40-44	697910	728582	1426492
45-49	614170	621119	1235289
50-54	449468	497422	946890
55-59	399712	428372	828084
60-64	347255	384210	731465
65-69	272382	321945	594327
70-74	176538	215150	391688
75-79	102384	131463	233847
80-84	55843	77523	133366
Above85	35952	48078	84030
<b>All Ages</b>	<b>11415704</b>	<b>12237368</b>	<b>23653072</b>

Table 4

## Midyear Sample Population according to Age and Sex

Age group	Observed Population		
	Male	Female	Total
Below 1	2432	2315	4747
1-4	9100	8661	17761
5-9	11055	10395	21450
10-14	12169	11621	23790
15-19	12278	13021	25299
20-24	10854	12480	23334
25-29	9762	11854	21616
30-34	8317	9558	17875
35-39	7725	9195	16920
40-44	6861	7235	14096
45-49	6055	6125	12180
50-54	4428	4900	9328
55-59	3904	4209	8113
60-64	3393	3767	7160
65-69	2640	3115	5755
70-74	1695	2071	3766
75-79	982	1260	2242
80-84	531	739	1270
85+	335	451	786
All Ages	114516	122972	237488

Table - 5

## Sex Ratio

F1	Age group	SexRatio98	%Population
1	0 to 4	952	9.47
3	5 - 9	940	9.03
4	10 - 14	955	10.02
5	15 - 19	1061	10.65
6	20 - 24	1150	9.83
7	25 - 29	1214	9.10
8	30 - 34	1149	7.53
9	35 - 39	1190	7.12
10	40 - 44	1055	5.94
11	45 - 49	1012	5.13
13	50 - 54	1107	3.93
14	55 - 59	1078	3.42
15	60 - 64	1110	3.01
16	65 - 69	1180	2.42
18	70 and Above	1276	3.40
21	All Ages	1074	100.00

**Table 6**  
**Religion wise Population -Sample and Estimated**

District	Sample				Estimated			
	Hindu	Chris- tian	Mus- lim	Total	Hindu	Christian	Muslim	Total
Kasargod	6837	475	4318	11630	630840	43828	398416	1073084
Kannur	5084	2700	4808	12592	499084	265053	471990	1236127
Wayanad	5063	1541	2260	8864	457962	139388	204423	801773
Kozhikode	11179	349	6141	17669	1142110	35656	627400	1805166
Malappuram	15132	866	29489	45487	1044667	59785	2035830	3140282
Palakkad	15598	829	6178	22605	1487741	79070	589259	2156070
Thrissur	13563	2775	2725	19063	1488296	304506	299020	2091822
Ernakulam	4711	4642	3219	12572	605246	596381	413561	1615188
Idukki	5248	4395	1117	10760	543962	455548	115779	1115289
Kottayam	7236	6049	891	14176	841086	703113	103567	1647766
Alappuzha	8371	3532	975	12878	1017303	429234	118489	1565026
Pathanamthitta	4903	4332	200	9435	578604	511221	23602	1113427
Kollam	14668	1800	2538	19006	1646827	202093	284950	2133870
Thiruvanan- thapuram	14278	3599	2874	20751	1484966	374309	298907	2158182
State	131871	37884	67733	237488	13468694	4199185	5985193	23653072

**Table 7**  
**District wise live Births Observed in Samples**

District	Male	Female	Total	Sex Ratio	EM	EF	E Tot
Kasargod	113	109	222	103.67	10426	10058	20484
Kannur	139	102	241	136.27	13645	10013	23658
Kozhikode	149	139	288	107.19	15223	14201	29424
Wayanad	89	72	161	123.61	8050	6513	14563
Malappuram	534	590	1124	90.51	36866	40731	77597
Palakkad	213	205	418	103.90	20316	19553	39869
Thrissur	162	134	296	120.90	17777	14704	32481
Ernakulam	100	96	196	104.17	12848	12333	25181
Idukki	107	83	190	128.92	11091	8603	19694
Kottayam	120	108	228	111.11	13948	12554	26502
Alappuzha	94	91	185	103.30	11424	11059	22483
Pathanamthitta	40	38	78	105.26	4720	4485	9205
Kollam	169	142	311	119.01	18974	15943	34917
Thiruvananthap	161	175	336	92.00	16745	18200	34945
	2190	2084	4274	105.09	212053	198950	411003

**Table 8A****Observed number of Total Women in different age Group**

Dist	Age Group of Women							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Kasargod	657	681	546	390	406	277	284	3241
Kannur	806	652	614	468	485	362	296	3683
Wayanad	517	507	446	392	328	269	184	2643
Kozhikode	969	896	964	590	749	440	520	5128
Malappuram	3056	2511	2027	1779	1604	1304	958	13239
Palakkad	1361	1216	1125	880	765	601	565	6513
Thrissur	969	888	991	821	806	665	514	5654
Ernakulam	598	641	675	534	527	413	317	3705
Idukki	527	572	593	482	449	389	307	3319
Kottayam	592	671	690	556	548	427	389	3873
Alappuzha	573	685	682	552	499	471	377	3839
Pathanamthitta	454	474	515	435	409	322	309	2918
Kollam	947	1021	929	790	732	598	567	5584
Thiruvananthapuram	995	1065	1057	889	888	697	538	6129
<b>State</b>	<b>13021</b>	<b>12480</b>	<b>11854</b>	<b>9558</b>	<b>9195</b>	<b>7235</b>	<b>6125</b>	<b>69468</b>

**Table 8A****Estimated number of Total Women in different age Group**

Dist	Age Group of Women							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Kasargod	60620	62835	50379	35985	37461	25558	26204	299042
Kannur	79123	64005	60275	45942	47611	35537	29058	361551
Wayanad	98999	91540	98488	60278	76522	44953	53126	523906
Kozhikode	46764	45860	40342	35457	29668	24332	16643	239066
Malappuram	210977	173352	139938	122818	110737	90024	66138	913984
Palakkad	129812	115982	107303	83935	72966	57324	53890	621212
Thrissur	106330	97442	108744	90090	88444	72972	56402	620424
Ernakulam	76828	82352	86721	68606	67706	53060	40727	476000
Idukki	54624	59289	61465	49960	46539	40320	31821	344018
Kottayam	68812	77995	80203	64627	63698	49633	45216	450184
Alappuzha	69635	83246	82881	67083	60642	57239	45816	466542
Pathanamthitta	53577	55937	60775	51334	48266	37999	36465	344353
Kollam	106323	114631	104302	88696	82184	67140	63659	626935
Thiruvananthapuram	103484	110764	109932	92459	92355	72491	55954	637439
<b>State</b>	<b>1265908</b>	<b>1235230</b>	<b>1191748</b>	<b>957270</b>	<b>924799</b>	<b>728582</b>	<b>621119</b>	<b>6924656</b>

**Table - 8B****Observed number of Married Women in different age Group**

Dist	Age Group of Women							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Kasargod	93	395	461	340	340	217	226	2072
Kannur	98	399	540	422	431	300	219	2409
Wayanad	101	338	401	347	299	232	142	1860
Kozhikode	187	665	887	523	678	355	416	3711
Malappuram	728	1766	1694	1554	1388	1084	742	8946
Palakkad	263	729	925	754	672	504	433	4280
Thrissur	44	394	847	747	724	580	422	3758
Ernakulam	7	295	534	477	497	381	269	2460
Idukki	34	274	511	449	405	351	255	2279
Kottayam	57	354	590	511	507	382	337	2738
Alappuzha	8	210	551	522	456	420	327	2494
Pathanamthitta	12	243	420	405	393	302	295	2070
Kollam	42	573	789	716	665	536	475	3796
Thiruvananthapuram	63	559	873	807	809	602	442	4065
State	1737	7194	10023	8574	8264	6246	5000	46938

**Table - 8B****Estimated number of Married Women in different age Group**

Dist	Age Group of Women							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Kasargod	8581	36446	42536	31371	31371	20022	20853	191180
Kannur	9620	39169	53011	41427	42310	29450	21499	236486
Wayanad	19105	67940	90621	53433	69268	36269	42501	379137
Kozhikode	9136	30573	36272	31387	27045	20985	12844	168242
Malappuram	50259	121919	116949	107283	95823	74836	51225	618294
Palakkad	25085	69532	88227	71917	64096	48072	41300	408229
Thrissur	4828	43234	92943	81970	79446	63645	46307	412373
Ernakulam	899	37900	68606	61283	63852	48949	34560	316049
Idukki	3524	28400	52966	46539	41979	36382	26431	236221
Kottayam	6625	41148	68579	59397	58932	44402	39172	318255
Alappuzha	972	25521	66961	63437	55416	51041	39739	303087
Pathanamthitta	1416	28676	49564	47794	46378	35639	34813	244280
Kollam	4715	64333	88584	80388	74662	60179	53330	426191
Thiruvananthapuram	6552	58138	90795	83931	84139	62610	45970	432135
State	151317	692929	1006614	861557	834717	632481	510544	4690159

**Table - 8C**  
**Observed number of Live Births in different age Group**

Dist	Age Group of Women							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Kasargod	19	84	83	29	5	2		222
Kannur	25	99	83	26	8			241
Wayanad	25	76	40	17	3			161
Kozhikode	21	141	93	29	4			288
Malappuram	169	488	293	133	33	7	1	1124
Palakkad	61	195	119	37	5	1		418
Thrissur	11	137	118	26	4			296
Ernakulam	5	62	97	23	9			196
Idukki	12	81	74	19	4			190
Kottayam	2	60	109	45	11	1		228
Alappuzha	6	61	83	31	4			185
Pathanamthitta	1	26	29	16	5	1		78
Kollam	7	164	109	29	2			311
Thiruvananthapuram	7	170	116	39	1	3		336
<b>State</b>	<b>371</b>	<b>1844</b>	<b>1446</b>	<b>499</b>	<b>98</b>	<b>15</b>	<b>1</b>	<b>4274</b>

**Table -8C**  
**Estimated number of Live Births in different age Group**

Dist	Age Group of Women							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
Kasargod	1753	7751	7658	2676	461	185	0	20484
Kannur	2454	9719	8148	2552	785	0	0	23658
Wayanad	2145	14405	9501	2963	410	0	0	29424
Kozhikode	2261	6875	3618	1538	271	0	0	14563
Malappuram	11667	33690	20228	9182	2278	483	69	77597
Palakkad	5818	18600	11350	3529	477	95	0	39869
Thrissur	1207	15034	12948	2853	439	0	0	32481
Ernakulam	642	7966	12462	2955	1156	0	0	25181
Idukki	1244	8396	7670	1969	415	0	0	19694
Kottayam	232	6974	12670	5231	1279	116	0	26502
Alappuzha	729	7413	10088	3767	486	0	0	22483
Pathanamthitta	118	3068	3423	1888	590	118	0	9205
Kollam	786	18413	12237	3256	225	0	0	34917
Thiruvananthapuram	728	17681	12064	4056	104	312	0	34945
<b>State</b>	<b>31784</b>	<b>175985</b>	<b>144065</b>	<b>48415</b>	<b>9376</b>	<b>1309</b>	<b>69</b>	<b>411003</b>



Table - 9

## Age Specific Fertility Rate

District	15-19	20-24	25-29	30-34	35-39	40-44	45-49	GFR	TFR
Kasargod	28.92	123.35	152.01	74.36	12.31	7.24	0.00	68.50	1.99
Kannur	31.02	151.85	135.18	55.55	16.49	0.00	0.00	65.43	1.95
Kozhikode	21.67	157.36	96.47	49.16	5.34	0.00	0.00	56.16	1.65
Wayanad	48.35	149.89	89.68	43.38	9.13	0.00	0.00	60.92	1.70
Malappuram	55.30	194.34	144.55	74.76	20.57	5.37	1.04	84.90	2.48
Palakkad	44.82	160.36	105.78	42.04	6.54	1.66	0.00	64.18	1.81
Thrissur	11.35	154.28	119.07	31.67	4.96	0.00	0.00	52.35	1.61
Ernakulam	8.36	96.72	143.70	43.07	17.07	0.00	0.00	52.90	1.54
Idukki	22.77	141.61	124.79	39.41	8.92	0.00	0.00	57.25	1.69
Kottayam	3.37	89.42	157.97	80.94	20.08	2.34	0.00	58.87	1.77
Alappuzha	10.47	89.05	121.70	56.15	8.01	0.00	0.00	48.19	1.43
Pathanamthitta	2.20	54.85	56.31	36.78	12.22	3.11	0.00	26.73	0.83
Kollam	7.39	160.63	117.33	36.71	2.74	0.00	0.00	55.69	1.62
Thiruvananthapuram	7.03	159.63	109.74	43.87	1.13	4.30	0.00	54.82	1.63
State(avg)	25.11	142.47	120.88	50.58	10.14	1.80	0.11	59.35	1.76
Female	13.25	72.28	58.64	22.42	6.02	1.02	0.26	29.44	0.87

Table - 9B

## Marital Fertility Rate (8c\*1000/8b)

District	Age group						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Kasargod	204	213	180	85	15	9	0
Kannur	255	248	154	62	19	0	0
Kozhikode	112	212	105	55	6	0	0
Wayanad	247	225	100	49	10	0	0
Malappuram	232	276	173	86	24	6	1
Palakkad	232	267	129	49	7	2	0
Thrissur	250	348	139	35	6	0	0
Ernakulam	714	210	182	48	18	0	0
Idukki	353	296	145	42	10	0	0
Kottayam	35	169	185	88	22	3	0
Alappuzha	750	290	151	59	9	0	0
Pathanamthitta	83	107	69	40	13	3	0
Kollam	167	286	138	41	3	0	0
Thiruvananthapuram	111	304	133	48	1	5	0
State	210	254	143	56	11	2	0

**Table - 10****Distribution of currently married women observed according to Age and number of surviving children- 1998**

Age group of mother	Number of surviving children							
	I	II	III	IV	V	VI	VII & above	Total
1	2	3	4	5	6	7	8	9
15-19	342	27	2					371
20-24	1081	615	140	6	2			1844
25-29	512	545	275	89	17	5	3	1446
30-34	101	189	109	61	25	9	5	499
35-39	16	32	19	8	6	8	9	98
40-44	4	1	4		3	2	1	15
45-49			1					1
<b>Total</b>	<b>2056</b>	<b>1409</b>	<b>550</b>	<b>164</b>	<b>53</b>	<b>24</b>	<b>18</b>	<b>4274</b>

**Table - 11****Distribution of currently married women observed in samples according to Age and number of ever born children- 1998**

Age group of mother	Number of surviving children							
	I	II	III	IV	V	VI	VII & above	Total
1	2	3	4	5	6	7	8	9
15-19	341	27	3					371
20-24	1072	622	142	6	2			1844
25-29	500	550	278	93	17	5	3	1446
30-34	101	188	111	59	26	9	5	499
35-39	12	36	19	8	7		16	98
40-44	4	1	4		3	2	1	15
45-49			1					1
<b>Total</b>	<b>2030</b>	<b>1424</b>	<b>558</b>	<b>166</b>	<b>55</b>	<b>16</b>	<b>25</b>	<b>4274</b>

**Table - 12**

**Distribution of currently married women observed in sample according to Age of mother and age of the last child – 1998**

Age of mother	Age of last child (in months)									
	0-14	15-29	30-44	45-59	60-74	75-89	90-104	105-119	120-134	Total
1	2	3	4	5	6	7	8	9	10	11
15-19	349	21	1							371
20-24	1144	333	239	79	40	8			1	1844
25-29	535	295	232	167	117	53	24	12	11	1446
30-34	114	79	69	64	67	37	29	19	21	499
35-39	19	13	17	4	17	8	5	3	12	98
40-44	4	2	1	1	1		3		3	15
45-49										1
<b>Total</b>	<b>2165</b>	<b>743</b>	<b>559</b>	<b>315</b>	<b>243</b>	<b>106</b>	<b>61</b>	<b>34</b>	<b>48</b>	<b>4274</b>

**Table - 13**

**Live Birth Observed in Samples Month wise Occurrence**

District	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Kasargod	18	14	19	16	27	22	17	18	15	20	17	19	222
Kanmur	23	17	19	11	24	21	16	19	16	22	18	35	241
Wayanad	23	16	14	17	12	12	12	14	12	14	6	9	161
Kozhikode	20	19	31	29	26	27	27	17	18	23	21	30	288
Malappu-ram	86	74	101	101	114	94	96	91	72	108	103	84	1124
Palakkad	39	44	26	35	36	31	40	37	27	43	33	27	418
Thrissur	30	23	26	34	18	26	23	29	11	25	27	24	296
Ernakulam	20	11	29	17	14	14	9	16	19	16	17	14	196
Idukki	28	12	11	18	10	23	17	12	11	7	21	20	190
Kottayam	20	26	20	16	25	15	22	18	16	24	17	9	228
Alappuzha	10	21	10	23	15	14	13	12	14	19	11	23	185
Pathanam-thitta	6	6	11	6	10	6	4	5	3	9	10	2	78
Kollam	22	18	22	29	36	28	21	29	35	29	18	24	311
Thiruvananthapuram	32	22	25	30	31	24	31	32	25	24	36	24	336
<b>Total</b>	<b>377</b>	<b>323</b>	<b>364</b>	<b>382</b>	<b>398</b>	<b>357</b>	<b>348</b>	<b>349</b>	<b>294</b>	<b>383</b>	<b>355</b>	<b>344</b>	<b>4274</b>

Table - 14

## Live Birth Observed in samples by type of Medical Attention

District	Institutional	Trained Professional	Un-Trained Professional	Non Professional	Not Stated	Total
Kasargod	209	1		12		222
Kannur	237	3	1			241
Wayanad	159		1	1		161
Kozhikode	288					288
Malappuram	1105	18		1		1124
Palakkad	412	3	3			418
Thrissur	295		1			296
Ernakulam	194		2			196
Idukki	189		1			190
Kottayam	227		1			228
Alappuzha	185					185
Pathanamthitta	78					78
Kollam	310			1		311
Thiruvananthapuram	336					336
<b>Total</b>	<b>4224</b>	<b>25</b>	<b>10</b>	<b>15</b>		<b>4274</b>

Table -15

## Percentage distribution of birth by age of mother and order of birth of child

Age group		Not Stated	1	2	3	4	5	6	7 and above	Total
15 To 19	No		339	29	2	1				371
	%		91.37	7.82	0.54	0.27				
20 To 24	No		1046	634	148	15	1			1844
	%		56.72	34.38	8.03	0.81	0.05			
25 To 29	No		478	566	283	95	18	4	2	1446
	%		33.06	39.14	19.57	6.57	1.24	0.28	0.14	
30 To 34	No		87	200	108	63	27	10	5	499
	%		17.23	40.08	21.64	12.63	5.41	2.00	1.00	
35 To 39	No		16	35	16	6	8	2	15	98
	%		16.33	35.71	16.33	6.12	8.16	2.04	15.31	
40 To 44	No		3	1	4	1	3	2	1	15
	%		20.00	6.67	26.67	6.67	20.00	13.33	6.67	
45 and above	No				1					1
	%				100.0					
<b>Total</b>	No		<b>1968</b>	<b>1465</b>	<b>562</b>	<b>181</b>	<b>57</b>	<b>18</b>	<b>23</b>	<b>4274</b>
	%		<b>46.37</b>	<b>34.04</b>	<b>13.08</b>	<b>4.24</b>	<b>1.32</b>	<b>0.42</b>	<b>0.53</b>	

Table - 16  
Percentage distribution of Samples according to birthrate

Age Group	Districts											Total			
	Kasargod	Kannur	Wayanad	Kozhikode	Malappuram	Palakkad	Thrissur	Ernakulam	Idukki	Kottayam	Alappuzha		Pathanamthitta	Kollam	Thiruvananthapuram
Less than 12	No	1		3			2	2				6	1	2	20
	%	12.5		27.2			15.3	25.0				00.00	8.33	15.3	
12 & Less than 16	No	2	1	3	1	4	5	3	2	3	2		6	7	41
	%	28.5	25.0	27.2	3.5	26.6	38.4	37.5	28.5	33.3	25.0		50.0	53.8	
16 & Less than 20	No	3	1	3	2	8	4	2	3	3	4		2	2	40
	%	42.8	12.5	60.0	18.1	53.3	30.7	25.0	42.8	33.3	50.0		16.6	15.3	
20 & Less than 24	No	1	2		2	2	2		2	2			3	1	27
	%	14.2	25.0		18.1	13.3	15.3		28.5	22.2			25.0	7.69	
24 & Less than 28	No	1	1	1	1	1		1						1	16
	%	14.2	12.5	20.0		6.67		12.5						7.69	
28 & Less than 32	No		1		1	3									5
	%		12.5		9.09	10.7									
32 & Less than 36	No				1										1
	%				3.57										
Total	No	7	8	5	11	28	13	8	7	9	8	6	12	13	150

Table - 17

Distribution of Still birth observed in samples and estimated according to sex

District	Male	Female	Total	Male	Female	Total	ELB+ESB	SB Rate
Kasargod		2	2		185	185	20669	8.95
Kannur	4	3	7	392	295	687	24345	28.22
Wayanad						0	14563	0.00
Kozhikode		2	2		204	204	29628	6.89
Malappuram	4	3	7	276	207	483	78080	6.19
Palakkad	2	2	4	191	191	382	40251	9.49
Thrissur						0	32481	0.00
Ernakulam	1		1	128		128	25309	5.06
Idukki	2		2	207		207	19901	10.40
Kottayam	2		2	232		232	26734	8.68
Alappuzha						0	22483	0.00
Pathanamthitta						0	9205	0.00
Kollam		1	1		112	112	35029	3.20
Thiruvananthapuram		1	1		104	104	35049	2.97
<b>Total</b>	<b>15</b>	<b>14</b>	<b>29</b>	<b>1426</b>	<b>1298</b>	<b>2724</b>	<b>413727</b>	<b>6.58</b>

Table - 18 A

## Distribution of Death Estimated in Samples according to Age and Sex

District	All Group	Below 1	1 - 4	5 - 9	10 -	15 -	20 -24	25 -29	30 -34	35 -39	40 -44	45 -49	50 -54	55 -59	60 -64	65 -	>=70
Kasaragod	Male	92	0	0	0	0	0	185	0	0	185	185	185	92	461	646	1569
	Female	92	0	0	185	0	0	92	92	92	0	0	185	185	461	369	1292
	Total	184	0	0	185	0	0	277	92	92	185	185	370	277	922	1015	2861
Kannur	Male	98	98	0	0	0	0	0	98	196	98	0	0	295	491	589	1571
	Female	0	98	0	0	0	98	0	0	0	0	0	0	98	589	0	1669
	Total	98	196	0	0	0	98	0	98	196	98	0	0	393	1080	589	3240
Wayanad	Male	271	0	90	0	0	0	0	271	271	181	362	90	362	543	271	814
	Female	0	0	0	0	0	181	90	0	0	0	0	90	90	181	362	181
	Total	271	0	90	0	0	181	90	271	271	181	362	180	452	724	633	995
Kozhikode	Male	204	0	0	204	102	0	306	102	102	306	204	409	511	919	817	2350
	Female	0	102	0	0	0	102	204	102	0	0	102	102	0	511	409	3167
	Total	204	102	0	204	102	102	510	204	102	306	306	511	511	1430	1226	5517
Malappuram	Male	897	207	69	0	0	207	207	69	276	138	483	621	276	897	690	3521
	Female	552	138	0	69	138	0	138	138	138	207	414	207	276	897	690	3521
	Total	1449	345	69	69	138	207	345	207	414	345	897	828	621	2140	2140	7180
Palakkad	Male	477	95	0	0	191	95	95	95	382	191	286	477	572	1526	1049	3720
	Female	286	0	0	95	0	95	191	0	0	95	286	382	0	286	1335	4578
	Total	763	95	0	95	191	190	286	95	382	286	572	859	572	1812	2384	8298
Thirissur	Male	110	0	0	110	110	0	110	219	0	110	329	219	768	549	658	3841
	Female	0	0	0	0	0	0	110	329	0	219	0	219	110	549	439	4170
	Total	110	0	0	110	110	0	220	548	0	329	329	438	878	1098	1097	8011

Table - 18 A Distribution of Death Estimated in Samples according to Age and Sex (Contd..)

District	All Group	Below 1	1-4	5-9	10-	15-	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	>=70
Ernakulam	Male	0	0	0	0	0	257	0	385	257	257	128	514	257	1156	385	3212
	Female	0	0	0	0	0	0	0	0	128	0	0	128	257	257	642	2441
	Total	0	0	0	0	0	257	0	385	385	257	128	642	514	1413	1027	5653
Idukki	Male	104	0	0	104	0	104	0	0	0	311	207	311	311	311	207	1037
	Female	0	104	0	0	104	0	207	104	0	0	0	104	207	518	311	1762
	Total	104	104	0	104	104	104	207	104	0	311	207	415	518	829	518	2799
Kottayam	Male	232	0	0	0	116	0	349	0	116	116	232	232	465	581	697	3487
	Female	116	0	0	232	0	0	0	116	0	0	0	465	116	0	0	465
	Total	348	0	0	232	116	0	349	116	116	116	232	697	581	581	1162	6044
Alappuzha	Male	243	0	0	0	243	122	243	0	243	365	243	243	0	851	365	3767
	Female	122	0	0	0	0	243	243	0	0	0	0	0	243	608	122	3646
	Total	365	0	0	0	243	365	486	0	243	365	243	243	243	1459	487	7413
Pathanamthitta	Male	0	0	118	0	0	0	118	0	0	118	236	354	236	236	472	3422
	Female	0	118	0	0	118	118	0	0	118	118	0	472	354	354	236	2950
	Total	0	118	118	0	118	118	118	0	118	236	236	826	590	590	708	6372
Kollam	Male	112	0	225	112	0	225	0	0	225	112	337	674	561	898	786	3368
	Female	112	0	112	0	0	0	112	225	112	112	112	337	225	225	561	4379
	Total	224	0	337	112	0	225	112	225	337	224	449	1011	786	1123	1347	7747
Thiruvananthapuram	Male	416	0	0	0	0	0	104	312	416	416	312	208	416	728	1664	2496
	Female	208	104	0	0	104	208	104	0	0	104	416	0	104	520	520	2080
	Total	624	104	0	0	104	208	208	312	416	520	728	208	520	1248	2184	4576
State	Male	3256	400	502	530	762	1010	1717	1551	2484	2904	3544	4537	5191	10493	10056	38313
	Female	1488	664	112	685	464	1045	1491	1106	588	855	1330	2691	2265	5956	6461	38393
	Total	4744	1064	614	1215	1226	2055	3208	2657	3072	3759	4874	7228	7456	16449	16517	76706



Table - 18b

## District wise Death Observed and Estimated

District	Observed			Estimated		
	Male	Female	Total	Male	Female	Total
Kasargod	39	33	72	3599	3046	6645
Kannur	36	26	62	3534	2552	6086
Kozhikode	64	47	111	6537	4800	11337
Wayanad	39	13	52	3526	1175	4701
Malappuram	143	109	252	9871	7523	17394
Palakkad	97	80	177	9251	7629	16880
Thrissur	65	56	121	7133	6145	13278
Ernakulam	53	30	83	6808	3853	10661
Idukki	29	34	63	3007	3525	6532
Kottayam	57	35	92	6623	4067	10690
Alappuzha	57	43	100	6928	5227	12155
Pathanamthitta	45	42	87	5310	4956	10266
Kollam	68	59	127	7635	6624	14259
Thiruvananthapuram	72	43	115	7488	4472	11960
<b>Total</b>	<b>864</b>	<b>650</b>	<b>1514</b>	<b>87250</b>	<b>65594</b>	<b>152844</b>

Table - 19

## Age Specific Death Rate of State 1998

Age Group	Deaths			Population			Age Specific Death Rate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Below1	3256	1488	4744	235821	224253	460074	13.81	6.64	10.31
1-4	400	664	1064	884628	843658	1728285	0.45	0.79	0.62
5-9	502	112	614	1075588	1007066	2082653	0.47	0.11	0.29
10-14	530	685	1215	1186286	1133574	2319859	0.45	0.60	0.52
15-19	762	464	1226	1199537	1265909	2465445	0.64	0.37	0.50
20-24	1010	1045	2055	1078341	1235230	2313571	0.94	0.85	0.89
25-29	1717	1491	3208	982510	1191748	2174258	1.75	1.25	1.48
30-34	1551	1106	2657	839439	957270	1796709	1.85	1.16	1.48
35-39	2484	588	3072	781940	924799	1706739	3.18	0.64	1.80
40-44	2904	855	3759	697910	728581	1426492	4.16	1.17	2.64
45-49	3544	1330	4874	614170	621118	1235289	5.77	2.14	3.95
50-54	4537	2691	7228	449468	497422	946890	10.09	5.41	7.63
55-59	5191	2265	7456	399712	428372	828084	12.99	5.29	9.00
60-64	10493	5956	16449	347255	384211	731465	30.22	15.50	22.49
65-69	10056	6461	16517	272382	321945	594327	36.92	20.07	27.79
Above70	38313	38393	76706	370717	472213	842931	103.35	81.30	91.00

**Table -20**

**Distribution of Death observed in Samples classified by month of Occurrence**

District	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Kasargod	5	9	6	5	9	5	7	8	5	4	4	5	72
Kannur	5	2	1	6	9	8	9	7	6	5		4	62
Wayanad	3	3	5	5		6	2	2	11	6	1	8	52
Kozhikode	3	10	13	5	10	7	9	13	10	12	8	11	111
Malappuram	10	17	22	26	34	18	21	17	24	23	20	20	252
Palakkad	10	9	20	9	20	17	18	21	11	19	14	9	177
Thrissur	14	7	7	10	12	10	9	10	13	10	11	8	121
Ernakulam	8	7	8	8	4	6	7	6	8	5	8	8	83
Idukki	3	3	5	6	6	5	8	3	7	7	2	8	63
Kottayam	4	8	3	12	6	10	3	7	11	6	14	8	92
Alappuzha	10	10	6	10	14	12	2	5	9	6	7	9	100
Pathanamthitta	1	3	6	11	9	8	8	13	4	6	4	14	87
Kollam	6	10	9	13	11	9	13	14	10	13	13	6	127
Thiruvananthapuram	10	9	6	8	9	4	11	14	12	12	7	13	115
<b>Total</b>	<b>92</b>	<b>107</b>	<b>117</b>	<b>134</b>	<b>153</b>	<b>125</b>	<b>127</b>	<b>140</b>	<b>141</b>	<b>134</b>	<b>113</b>	<b>131</b>	<b>1514</b>

**Table - 21**

**Distribution of Death observed in Samples classified by Type of**

District	Institutional	Qualified Medical Practitioner	Un-Qualified Medical Practitioner	No Treatment	Total
Kasargod	29	31		12	72
Kannur	24	10		28	62
Wayanad	40	3	1	8	52
Kozhikode	105	1		5	111
Malappuram	130	90	30	2	252
Palakkad	49	43	58	27	177
Thrissur	32	85		4	121
Ernakulam	34	45	1	3	83
Idukki	21	15		27	63
Kottayam	33	55		4	92
Alappuzha	41	57		2	100
Pathanamthitta	69	12		6	87
Kollam	116	6	1	4	127
Thiruvananthapuram	111	2		2	115
<b>State</b>	<b>834</b>	<b>455</b>	<b>91</b>	<b>134</b>	<b>1514</b>

Table - 22

## Distribution of Samples according to Death Rate in Samples

Age Group	Total		Kasaragod	Kannur	Wayanad	Kozhikode	Malappuram	Palakkad	Thrissur	Ernakulam	Idukki	Kottayam	Alappuzha	Pathanamthitta	Kollam	Thiruvananthapuram
	No.	%														
1 & L.T 3	No.	8			2	1	2	1			1				1	
	%	5.33			40.00	9.09	7.14	6.67			14.29				8.33	
3 & L.T 5	No.	37	1	6	1	1	10		3	1	2	1	2	1	3	5
	%	24.67	14.29	75.00	20.00	9.09	35.71		23.08	12.50	28.57	11.11	25.00	16.67	25.00	38.46
5 & L.T 7	No.	47	4	1		7	10	2	5	3	1	4	1	1	2	6
	%	31.33	57.14	12.50		63.64	35.71	13.33	38.46	37.50	14.29	44.44	12.50	16.67	16.67	46.15
7 & L.T 9	No.	40	1			2	5	9	4	4	3	4	2	1	4	1
	%	26.67	14.29			18.18	17.86	60.00	30.77	50.00	42.86	44.44	25.00	16.67	33.33	7.69
9 & L.T 11	No.	13	1	1	2		1	2	1				2		2	1
	%	8.67	14.29	12.50	40.00		3.57	13.33	7.69				25.00		16.67	7.69
11 & L.T 13	No.	5						1					1	3		
	%	3.33						6.67					12.50	50.00		
All		150	7	8	5	11	28	15	13	8	7	9	8	6	12	13

Table - 23

District wise Infant Death Observed in Samples

Estimated according to Sex and Infant Mortality Rate

Dist	Infant Death			Estimated Infant Death			Estimated Live Births			Infant Mortality Rate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Kasargod	1	1	2	92	92	184	10426	10057	20483	8.82	9.15	8.98
Kannur	1		1	98	0	98	13645	10013	23658	7.18	0.00	4.14
Wayanad	3		3	271	0	271	8050	6513	14563	33.66	0.00	18.61
Kozhikode	2		2	204	0	204	15223	14201	29424	13.40	0.00	6.93
Malappuram	13	8	21	897	552	1449	36866	40732	77598	24.33	13.55	18.67
Palakkad	5	3	8	477	286	763	20316	19553	39869	23.48	14.63	19.14
Thrissur	1		1	110	0	110	17777	14704	32481	6.19	0.00	3.39
Ernakulam				0	0	0	12848	12334	25182	0.00	0.00	0.00
Idukki	1		1	104	0	104	11091	8603	19694	9.38	0.00	5.28
Kottayam	2	1	3	232	116	348	13948	12554	26502	16.63	9.24	13.13
Alappuzha	2	1	3	243	122	365	11424	11059	22483	21.27	11.03	16.23
Pathanamthitt				0	0	0	4720	4484	9204	0.00	0.00	0.00
Kollam	1	1	2	112	112	224	18974	15943	34917	5.90	7.03	6.42
Thiruvananth	4	2	6	416	208	624	16745	18201	34946	24.84	11.43	17.86
State	36	17	53	3256	1488	4744	212053	198951	411004	15.35	7.48	11.54

## No of Infant Death Observed in Samples Born in Previous Year and Current Year

District	1997						1998											
	<7days		<28days		<1Year		Total		<7days		<28days		<1Year		Total			
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female		
Kasargod					1								1	0	1	0	1	1
Kannur								1						1	0	1	0	1
Wayanad					1									1	0	2	0	2
Kozhikode								2						2	0	2	0	2
Malappuram								10	5	12	7			13	8			21
Palakkad								3		4	1			5	3			8
Thrissur								1		1	0			1	0			1
Ernakulam										0	0			0	0			
Idukki								1		1	0			1	0			1
Kottayam								2		2	0			2	1			3
Alappuzha								1	1	1	1			2	1			3
Pathanamthitta										0	0			0	0			
Kollam								1	1	1	1			1	1			2
Thiruvananthapuram								2	1	2	1			4	1			5
State								25	9	28	12			34	16			50

**Table - 25**  
**No of Infant Death Estimated in Samples Born in Previous Year and Current Year**

District	1997										1998					
	< days		<28days		<1Year		Total	<7days		<28days		<1Year		Total		
	Male	Female	Male	Female	Male	Female		Male	Female	Male	Female	Male	Female			
Kasargod					92	0	92	0	92	0	92	0	92	0	92	
Kannur					0	0	0	98	0	98	0	98	0	98		
Wayanad					90	0	90	90	0	90	0	181	0	181		
Kozhikode					0	0	0	204	0	204	0	204	0	204		
Malappuram					0	0	0	690	345	828	483	897	552	1449		
Palakkad					0	0	0	286	0	382	95	477	286	763		
Thrissur					0	0	0	110	0	110	0	110	0	110		
Ernakulam					0	0	0	0	0	0	0	0	0	0		
Idukki					0	0	0	104	0	104	0	104	0	104		
Kottayam					0	0	0	232	0	232	0	232	116	348		
Alappuzha					0	0	0	122	122	122	122	243	122	365		
Pathanamthitta					0	0	0	0	0	0	0	0	0	0		
Kollam					0	0	0	112	112	112	112	112	112	224		
Thiruvananthapuram					0	104	104	208	104	208	104	416	104	520		
State					183	104	287	2257	775	2491	1009	3075	1385	4460		

Table - 26

## Distribution of Prenatal neonatal and Infant death according to sex

District	Less than 7			Less than 28			Less than 1 year		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Kasargod	0	92	92	0	92	92	92	92	184
Kannur	98	0	98	98	0	98	98	0	98
Kozhikode	204	0	204	204	0	204	204	0	204
Wayanad	90	0	90	90	0	90	271	0	271
Malappuram	690	345	1035	828	483	1311	897	552	1449
Palakkad	286	0	286	381	95	476	476	286	762
Thrissur	110	0	110	110	0	110	110	0	110
Idukki	104	0	104	104	0	104	104	0	104
Kottayam	232	0	232	232	0	232	232	116	348
Alappuzha	122	122	244	122	122	244	244	122	366
Kollam	112	112	224	112	112	224	112	112	224
Thiruvananthapuram	208	104	312	208	104	312	416	208	624
<b>Total</b>	<b>2256</b>	<b>775</b>	<b>3031</b>	<b>2489</b>	<b>1008</b>	<b>3497</b>	<b>3256</b>	<b>1488</b>	<b>4744</b>

Table - 27

Births and Deaths detected through overlapping and intensive enquiry classified  
According to place and type of Birth and Deaths - 1998

District	Birth					Death				
	Total	Place		Kind		Total	Place		Kind	
		In	Out	Live Birth	Still Birth		In	Out	Infant Death	Other Death
Kasargod						5		5		5
Kannur	5		5	5						
Wayanad	2		2	2		3		3		3
Kozhikode										
Malappuram	22	3	19	22		1		1		1
Palakkad	15	2	13	15		6	1	5		6
Thrissur										
Idukki	7		7	7		1		1		1
Kottayam	2		2	2						
Alappuzha	16	1	15	16		6	1	5		6
Pathanamthitta										
Kollam	5		5	5						
Thiruvananthapuram										
<b>State(Total)</b>	<b>90</b>	<b>8</b>	<b>82</b>	<b>90</b>		<b>23</b>	<b>2</b>	<b>21</b>		<b>23</b>

Table - 28 A

Distribution of deaths recorded by enumerators and supervisors detected through overlapping survey and intensive enquiry 1998

Birth

	Kasaragod	Kannur	Wayanad	Kozhikkode	Malappuram	Palakkad	Thirissur	Ernakulam	Idukki	Kottayam	Alappuzha	Pathanamthitta	Kollam	Thiruvananthapuram	State Total
Common to Enumerator and Supervisor	71	140	93	234	733	284	235	106	108	164	117	53	176	203	2717
Registered by Enumerator	81	140	101	252	767	296	249	107	113	168	118	58	176	212	2838
	36.49	58.09	62.73	87.50	68.24	70.81	84.12	54.59	59.47	73.68	63.78	74.35	56.59	63.10	66.40
Listed by Supervisor	212	235	150	270	1068	391	278	179	174	222	167	73	306	327	4052
	95.50	97.51	93.17	93.75	95.02	93.54	93.92	91.33	91.58	97.37	90.27	93.59	98.39	97.32	94.81
Total Omitted by enumerator & supervisor	222	235	158	288	1102	403	292	180	179	226	168	78	306	336	4173
Detected by others		1	1				4		4		1				11
Overlapping survey		5	2		22	15		16	7	2	16		5		90
Intensive enquiry															
<b>Total</b>	<b>222</b>	<b>241</b>	<b>161</b>	<b>288</b>	<b>1124</b>	<b>418</b>	<b>296</b>	<b>196</b>	<b>190</b>	<b>228</b>	<b>185</b>	<b>78</b>	<b>311</b>	<b>336</b>	<b>4274</b>



## Distribution of births recorded by enumerators and supervisors detected through overlapping survey and intensive enquiry 1998

## Death

	Kasaragod	Kannur	Wayanad	Kozhikkode	Malappuram	Palakkad	Thirissur	Ernakulam	Idukki	Kottayam	Alappuzha	Pathanamthitta	Kollam	Thiruvananthapuram	State Total
Common to Enumerator and Supervisor	32	33	35	92	175	144	99	62	47	74	83	60	101	82	119
Registered by Enumerator%	No	34	37	98	188	149	108	65	47	77	86	63	101	86	1177
	52.78	54.83	71.15	88.29	74.60	84.18	89.26	78.31	74.60	83.70	86.00	72.41	79.53	74.78	77.74
Listed by Supervisor	61	61	47	105	237	166	112	79	62	89	91	84	127	111	1432
	84.72	98.39	90.38	74.59	94.05	93.79	92.56	95.18	98.41	96.74	91.00	96.55	100.00	96.52	94.58
Total Omitted by enumerator & supervisor	67	62	49	111	250	171	121	82	62	92	94	87	127	115	1490
Detected by others															1
Overlapping survey	5		3		1	6		1	1		6				23
Intensive enquiry															
Total	72	62	52	111	252	177	121	83	63	92	100	87	127	115	1514



Table - 30

## Life Tables of Males based on Age specific Death rates for the year 1998

Age Group	Age specific Death rate			Mean age specific Death rate( $m_x$ )	Probability of person aged X Dying before age $x+1$ ( $q_x$ )	No. Surviving to age out of 100000 born alive ( $l_x$ )	Year of life lived between $x$ & $x+n$ ( $L_x$ )	Year of life between $x$ and above $x$ ( $T_x$ )	Expectation of life in year (Ex)	Beginning Age $x$
	1996	1997	1998							
1	2	3	4	5	6	8	9	10	11	12
below1	17.33	18.47	13.81	0.01654	0.01531	100000	98555	6901639	69.02	0
1to4	0.9	0.69	0.45	0.00068	0.00272	98469	393340	6803084	69.09	1
5to9	0.86	0.56	0.47	0.00063	0.00315	98201	490233	6409744	65.27	5
10to14	0.21	0.35	0.45	0.00034	0.00170	97892	489045	5919511	60.47	10
15to19	0.73	0.59	0.64	0.00065	0.00324	97726	487838	5430466	55.57	15
20to24	1.93	1.22	0.94	0.00136	0.00678	97409	485395	4942628	50.74	20
25to29	1.84	2.46	1.75	0.00202	0.01005	96749	481315	4457233	46.07	25
30to34	1.85	1.76	1.85	0.00182	0.00906	95777	476715	3975918	41.51	30
35to39	2.44	2.09	3.18	0.00257	0.01277	94909	471515	3499203	36.87	35
40to44	4.63	4.7	4.16	0.00450	0.02225	93697	463273	3027688	32.31	40
45to49	5.83	6.47	5.77	0.00602	0.02965	91612	451270	2564415	27.99	45
50to54	7.33	10.16	10.09	0.00919	0.04492	88896	434498	2113145	23.77	50
55to59	15.71	10.44	12.99	0.01305	0.06319	84903	411103	1678647	19.77	55
60to64	27.46	24.87	30.22	0.02752	0.12874	79538	372090	1267544	15.94	60
65to69	37.37	37.76	36.92	0.03735	0.17080	69298	316900	895454	12.92	65
70& above	99.67	94.95	103.35	0.09932	1.00000	57462	578554	578554	10.07	70

**Table-31**  
**Life Tables of Females based on Age specific Death rates for the year 1998**

Age Group	Age specific Death rate		Mean age specific Death rate(nmx)	Probability of person aged X Dying before age x+1 (qx)	No of death (dx)	No. Surviving to age x out of 100000 born alive (lx)	Year of life lived between x&x+n(Lx)	Year of life between x and above x (Tx)	Expectation of life in year (Ex)	Beginning Age x
	1996	1997								
1	2	3	4	6	7	8	9	10	11	12
below1	18.46	18.52	6.64	0.00745	745	100000	99307	7676502	76.77	0
1to4	0.54	0.54	0.79	0.00248	246	99255	396528	7577195	76.34	1
5to9	0.58	0.42	0.11	0.00185	183	99009	494588	7180667	72.53	5
10to14	0.24	0.27	0.6	0.00185	183	98826	493673	6686079	67.66	10
15to19	0.54	1.05	0.37	0.00324	320	98643	492415	6192406	62.78	15
20to24	0.50	1.35	0.85	0.00449	441	98323	490513	5699991	57.97	20
25to29	0.64	1.06	1.25	0.00489	479	97882	488213	5209478	53.22	25
30to34	0.86	0.95	1.16	0.00494	481	97403	485813	4721265	48.47	30
35to39	1.16	1.44	0.64	0.00539	522	96922	483305	4235452	43.70	35
40to44	1.88	1.56	1.17	0.00767	739	96400	480153	3752147	38.92	40
45to49	3.84	2.91	2.14	0.01469	1405	95661	474793	3271994	34.20	45
50to54	3.76	3.2	5.41	0.02039	1922	94256	466475	2797201	29.68	50
55to59	6.17	4.84	5.29	0.02679	2474	92334	455485	2330726	25.24	55
60to64	15.58	9.58	15.5	0.06553	5889	89860	434578	1875241	20.87	60
65to69	18.87	18.74	20.07	0.09174	7703	83971	400598	1440663	17.16	65
70& above	72.35	66.35	81.3	1.00000	76268	76268	1040065	1040065	13.64	70

**Table-32**  
**Life Tables of Persons based on Age specific Death rates for the year 1998**

Age Group	Age specific Death rate			Mean age specific Death rate (m <sub>mx</sub> )	Probability of person aged X Dying before age x+1 (q <sub>x</sub> )	No of death (d <sub>x</sub> )	No. Surviving to age out of 100000 born alive (l <sub>x</sub> )	Year of life lived between x&x+n (L <sub>x</sub> )	Year of life between x and above x (T <sub>x</sub> )	Expectation of life in year (E <sub>x</sub> )	Beginning Age x
	1996	1997	1998								
1	2	3	4	5	6	7	8	9	10	11	12
below1	17.89	18.49	10.31	0.01556	0.01151	1151	100000	98919	7264594	72.65	0
1to4	0.73	0.62	0.62	0.00066	0.00264	261	98849	394874	7165675	72.49	1
5to9	0.72	0.49	0.29	0.00050	0.00250	246	98588	492325	6770801	68.68	5
10to14	0.23	0.31	0.52	0.00035	0.00175	172	98342	491280	6278476	63.84	10
15to19	0.63	0.82	0.5	0.00065	0.00324	318	98170	490055	5787196	58.95	15
20to24	1.17	1.29	0.89	0.00112	0.00558	546	97852	487895	5297141	54.13	20
25to29	1.18	1.69	1.48	0.00145	0.00722	703	97306	484773	4809246	49.42	25
30to34	1.34	1.33	1.48	0.00138	0.00688	665	96603	481353	4324473	44.77	30
35to39	1.75	1.74	1.8	0.00176	0.00876	840	95938	477590	3843120	40.06	35
40to44	3.26	3.12	2.64	0.00301	0.01494	1421	95098	471938	3365530	35.39	40
45to49	4.84	4.69	3.95	0.00449	0.02220	2080	93677	463185	2893592	30.89	45
50to54	5.5	6.56	7.63	0.00656	0.03227	2956	91597	450595	2430407	26.53	50
55to59	10.72	7.51	9	0.00908	0.04439	3935	88641	433368	1979812	22.34	55
60to64	21.25	16.88	22.49	0.02021	0.09619	8148	84706	403160	1546444	18.26	60
65to69	27.43	27.49	27.79	0.02757	0.12896	9873	76558	358108	1143284	14.93	65
70& above	84.8	78.99	91	0.08493	1.00000	66685	66685	785176	785176	11.77	70

Table - 33

## Number of units and population in the universe and the samples

District	Universe		Samples		Raising factor for stratum estimated
	No. of census villages	Population(1991)	No. of units selected	Population(1991)	
Kasargod	116	895282	7	9703	
Kannur	78	1106251	8	11269	98.16763
Wayanad	48	649179	5	7177	90.45270
Kozhikode	87	1615444	11	15812	102.16569
Malappuram	123	2813876	28	40759	69.03692
Palakkad	155	2007658	15	21049	95.38021
Thrissur	209	2017095	13	18382	109.73207
Idukki	65	1027185	7	9910	103.65136
Kottayam	90	1507353	9	12968	116.23635
Alappuzha	75	1391607	8	11451	121.52711
Pathanamthitta	64	1033298	6	8756	118.01027
Kollam	92	1961530	12	17471	112.27348
Thiruvananthapuram	93	1948407	13	18734	104.00378
<b>Total</b>	<b>1384</b>	<b>21418224</b>	<b>150</b>	<b>214681</b>	<b>99.76767</b>



