



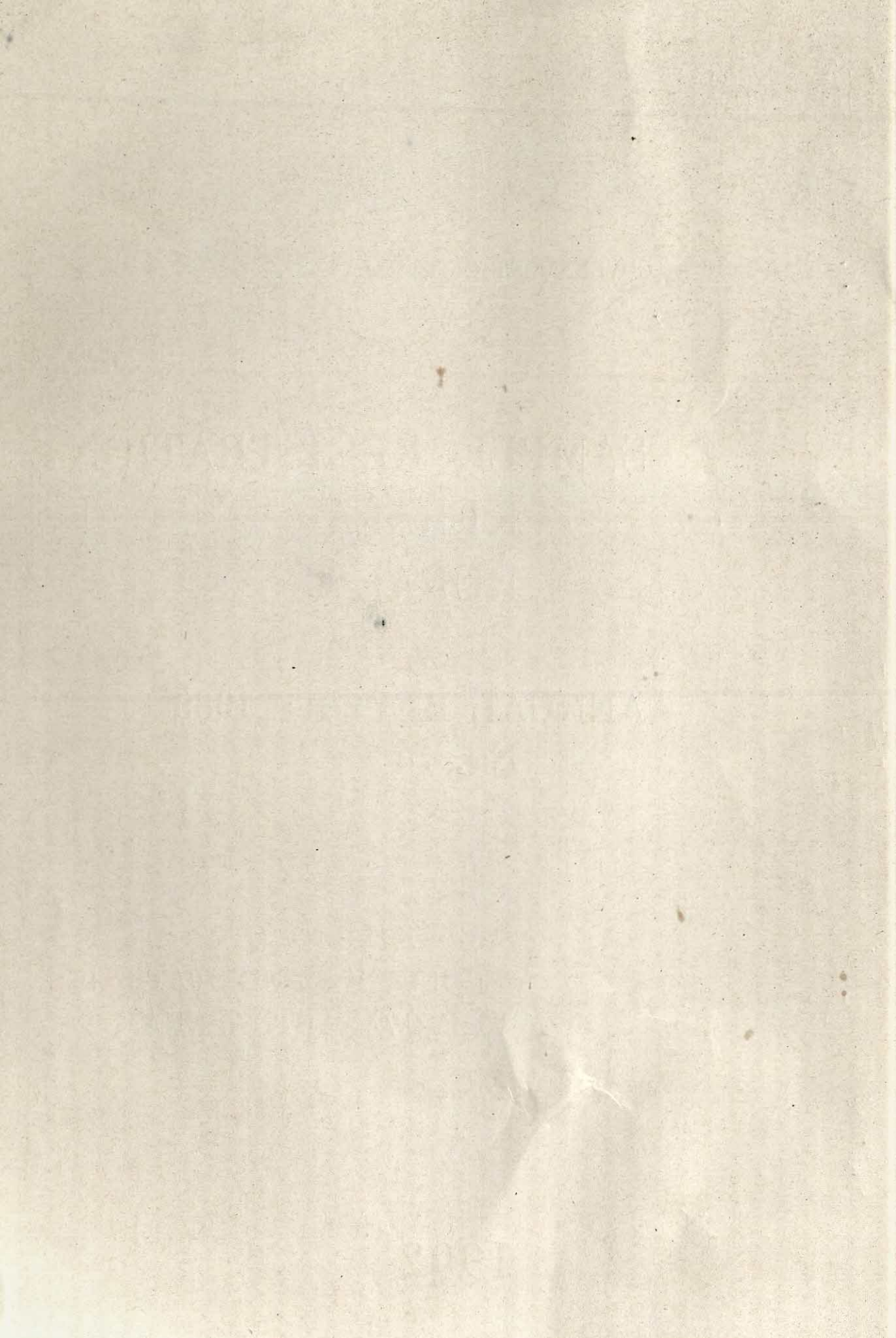
GOVERNMENT OF KERALA

**SAMPLE REGISTRATION  
KERALA  
RURAL**

**ANNUAL REPORT 1989  
No. 27**

**DEPARTMENT OF  
ECONOMICS AND STATISTICS  
THIRUVANANTHAPURAM**

**1992**





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**SAMPLE REGISTRATION  
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**DEPARTMENT OF ECONOMICS AND STATISTICS  
THIRUVANANTHAPURAM  
1989**



## **P R E F A C E**

The Sample Registration system was introduced in all the States of India under the directions of the Registrar General of India with the objective of obtaining quick and reliable estimates of vital rates in the country regularly.

The report presents the results of the study in rural areas of Kerala State for the year 1989. The estimates of vital rates viz:- crude birth and death rates, infant mortality rates, etc. and also the details of marriages obtained through the study are included in this report.

This report was prepared by the Sample Registration Unit of the Directorate of Economics and Statistics.

Thiruvananthapuram,  
4.12.1991.

**S. Retnabal Ammal,**  
Director of Economics &  
Statistics.



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# SAMPLE REGISTRATION OF BIRTHS AND DEATHS IN KERALA RURAL - 1989

## Chapter 1 - Introduction

Sample Registration system has been recognised as a unique technique for obtaining quick and reliable data on vital rates, since the statutory registration system fails to record complete births and deaths. The agency for the study in the rural areas of the State is the Department of Economics and Statistics and in the urban areas, the Census Department, as per the directions of the Registrar General of India. This report is based on the findings of the study in 150 samples selected from the rural areas of the State for the year 1989.

The Sample Registration System, basically a Sample Survey designed to obtain quick and reliable data on vital rates, was introduced in the State as 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 upto 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 new samples were selected after stratifying the census villages into four types, according to the population of 1981 census viz. below 500, 500 to 999, 1000 to 1999 and 2000 and above under the two regions, namely northern region consisting of the northern districts of the State beyond Thrissur and Southern Region consists of the remaining southern districts from Thiruvananthapuram to Thrissur and allocating samples in different Strata in proportion to the population of each Strata to the total population. The number and population of the samples selected for the study and the total number and population of census villages in each stratum are given in table - 32, appended to this report.

### 1.2 Staff

One hundred and fifty part time Enumerators were engaged in regular field work for registering the births and deaths occurred in each sample and for reporting the details to this office during each month and 16 Statistical Assistants/Computers deputed from Census Department for conducting half yearly surveys in all the 150 samples selected in the State. The supervision of field work and the reverification of the unmatched and partially matched events were done by the Additional District Officers of this Department in each District. A Regional Officer, one Research Assistant, one Computer from Census Department and one Compiler attended the work relating to Sample Registration System at the State Head Quarters.

### 1.3 Field work

Originally a base line survey was conducted in all the sample units selected for fixing the resident population. The details of births and deaths occurring in these units for the resident population were registered by part-time Enumerators appointed for this work on a regular basis through Informants and house visits and the details reported to the Districts and State Headquarters every month. The Statistical Assistants/Computer supervisors conducted half yearly surveys during each half year for updating the population and for collecting the details of births and deaths. The data collected independantly by both the Enumerators and Supervisors were matched at the District Headquarters and the reverification of the unmatched and partially matched events was done by the Additional District Officers concerned and the finalised results of the Survey furnished to the State Headquarters. On a further scrutiny of the results at the Headquarters a copy of the details of births, deaths and population statement were forwarded to the office of the Registrar General of India for computation of vital rates.

### 1.4 Overlapping Survey

During each half yearly survey the data relating to the previous half year were also collected, in order to list out the events missed if any, by both the Enumerator and Supervisor during the previous half year. By this 144 births and 38 deaths were detected during the year as the events of the extended reference period.

### 1.5 Intensive Enquiry

An intensive enquiry in all the households of the sample was conducted in 19 sample identified as deficient units for the year by the Additional District Officers of this Department through which 63 births, one spruous birth and 9 deaths were additionally detected

## Chapter 2 - Population and its growth

The estimated population of Kerala (rural) was 22834221 as on 1.7.89 and 22946333 as on 1.1.90, recording an increase of 0.49 percent during the second half of 1989 as against 0.47 percent recorded for the corresponding period of the previous year. The increase in population during the period in northern region was 0.64 percent as against 0.76 percent and in the southern region 0.38 percent as against 0.25% of the corresponding period of the previous year, respectively. The mid year population has shown an increase of 1.01 percent over the previous year.

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

The sex ratio and percentage distribution of population for different age groups for the year 1971, 1988 and 1989 are presented in table - 5 appended to this report. The sex-ratio remains the same ie. 1056 as in the year 1988. Children below the age of 14 has come down to 31.0 percent of the total population from 31.4 percent recorded for the year 1988.

## 2.3 Religion-wise population (Mid-Year)

Percentage of estimated population for Hindus, Muslims and Christians for the year were 57.6, 20.7 and 21.7 percent respectively where as the percentage were 57.3, 21.1 and 21.6 respectively during the previous year.

## Chapter 3 - Measures of Fertility

### Crude Birth Rate

The crude birth rate is the most common measure of fertility. It is defined as the number of live births per 1000 mid-year population. The births to the usual residents in the area only were taken into account for calculation of vital rates.

The crude birth rate for Kerala - rural for the year 1989 was estimated as 20.19 which is 0.29 higher than that of the previous year. Birth rate in northern region is seen always higher than that of the southern region. Birth rates in northern and southern region were 22.7 and 18.4 respectively during 1989. While rates were 23.2 and 17.6 respectively during the previous year. Birth rates for Kerala rural and India rural for the years 1983 to 1989 are given in Table A1.

Table A1 - Crude birth rate for Kerala Rural and India Rural for the years 1983 to 1989

Years	Kerala - Rural			India
	Northern Region	Southern region	Total	Rural
1	2	3	4	5
1983	29.3	19.5	23.5	35.3
1984	28.5	20.3	23.7	35.3
1985	27.2	20.4	23.2	34.4
1986	27.0	19.4	22.6	34.2
1987	24.6	19.2	21.5	33.7
1988	23.2	17.6	19.9	32.8
1989	22.7	18.4	20.2	*32.0

\* Provisional.



From Table A1 it can be seen that while the birth rate in northern region decreased by 0.5, in the southern region it increased by 0.8.

### 3.2 Birth rates of neighbouring States

The birth rates for rural alone and rural and urban together estimated provisionally for the year 1989 by the Registrar General of India in respect of Kerala and neighbouring States and all India are given in Table A2.

Table A2 - Birth rates of neighbouring States and All India for 1989\*

State	Rural	Rural and urban combined
1	2	3
1. Andhra Pradesh	26.0	25.6
2. Karnataka	28.9	27.9
3. Tamil Nadu	23.5	23.1
4. Kerala	19.7	19.8
All India	32.0	30.5

\* Provisional.

Comparing the birth rates in rural areas, Kerala recorded the lowest birth rate 19.7 as in the previous year. Karnataka recorded the highest birth rate 28.9. During the year Andhra Pradesh stands second and Tamil Nadu third.

### 3.3 Birth rates by religion

The birth rates among the three religions Hindus, Muslims and Christians in rural areas of the State for the year 1989 estimated separately for northern and southern regions are given in Table 15 appended.

Among the three religions in the State, Muslims recorded the highest birth rate 29.1 as against 26.7 in the previous year. Christians recorded the lowest birth rate 17.4 as against 18.2 of the previous year and Hindus 18.0 as against 18.1 of the previous year.

The Muslims in the northern region, who form 34.1 percent of the total population in the area and 70 percent of the total Muslim

population in the State recorded the highest birth rate 31.0 as against 30.2 during the previous year. The lowest birth rate 17.4 is recorded by Hindus in the southern region who constitute 57.6 percent of the total population in the region and 57.6 percent of the total Hindu population in the State. During the previous year, Christians in the northern region recorded the lowest birth rate 19.2.

### 3.4 Distribution of Sample Villages under different birth rates

The distribution of Sample Villages by crude birth rate for the year 1989 and previous two years are presented in Table - 13 appended. The birth rate for the State 20.2 during the year found place in the group '20 and less than 24' whereas the birth rate for the State 19.9 during the previous year 1988 found place in the immediate higher group '16 and less than 20'. It is seen that 25 samples (41%) in the northern region and 58 samples (65.2%) in the southern region were having birth rate below 20.

The highest birth rates have been recorded by 3 samples, in the northern region which fall in the group 36 to 40. Again the next highest birth rates fall in the group 32 to 36 covering 4 samples, i.e. 4 in the northern region. The lowest birth rates i.e. less than 12 have been recorded by 2 samples in the northern and 4 samples in the southern regions.

### 3.5 Age specific fertility rate

Age specific fertility rate can be defined as the number of live births in an year to 1000 women of the a specific age-group. Age specific fertility rates for the year 1989 are given separately for the two regions in table 9 appended. Age specific fertility rates for the year 1983 to 1989 are given in Table A3 for comparing the rates.

Table A3 - Age specific fertility rate in Kerala - rural  
for the year 1983 - 1989

Age group	1983	1984	1985	1986	1987	1988	1989
1	2	3	4	5	6	7	8
15-19	34.9	34.5	33.7	36.7	31.3	28.1	26.8
20-24	172.7	179.2	177.0	166.1	171.6	153.1	156.3
25-29	161.0	168.0	155.4	147.1	140.0	128.2	134.9
30-34	87.5	74.6	73.0	67.5	55.1	57.2	54.1
35-39	42.5	35.8	29.6	27.4	24.4	24.1	19.9
40-44	13.6	14.1	14.2	11.2	7.2	6.3	6.6
45-49	3.1	4.0	1.8	2.9	2.1	3.0	1.9

### 3.6 Age specific marital fertility rate

Age-specific marital fertility rate can be defined as the number of live births in an year to 1000 married women of specific age group. Age specific marital fertility rate for the year 1989 also is given in Table 9. Age group 20 to 24 recorded the highest marital fertility rate 300.7 during the year as against 293.6 recorded as highest marital fertility rate in the same age group during the previous year.

### 3.7 General Fertility Rate (G.F.R.)

General fertility rate is the number of live births in an year to 1000 women in the reproductive age-group 15 to 49. General fertility rates for the two regions separately are given below.

Northern region	-	83.6
Southern region	-	64.2
State	-	72.2

G.F.R. for the years 1983 to 1989 are shown below.

G.F.R.	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
	87.1	87.5	84.4	81.0	77.4	71.5	72.2

### 3.8 Total Fertility Rate (T.F.R.)

Total fertility rate denotes the average number of 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 rates of the year. The total fertility rates for the two regions are given below separately.

Northern region	-	2.37
Southern region	-	1.74
State	-	2.00

Total fertility rate of Kerala rural for the years 1983 to 1989 are given below.

T.F.R.	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
	2.6	2.6	2.4	2.3	2.2	2.0	2.0

### 3.9 Gross Reproduction Rate (G.R.R.)

Gross reproduction rate is 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 rural for the years 1983 to 1989 are given below.

G.R.R.	1983	1984	1985	1986	1987	1988	1989
	1.2	1.3	1.2	1.1	1.1	1.0	0.95

### 3.10 Net Reproduction Rate (N.R.R)

Net reproduction rate is the average number of female children that would be born to a woman during her life time conforming to the age specific fertility rate of the child bearing age-groups by corresponding proportion of survivors as per life table for female (Lx/lx) and then repeating the process as in gross reproduction rate. Net reproduction rate for the years 1983 to 1989 are given below.

N.R.R.	1983	1984	1985	1986	1987	1988	1989
	1.15	1.26	1.20	1.09	1.05	1.00	0.95

### 3.11 Still Birth Rate (S.B.R)

Still birth rate is the number of still births to 1000 births (both live births and still births). The still birth rate was estimated as 10.6 for the year as against 11.7 for the previous year. Still birth rates for northern and southern region were estimated as 14.7 and 6.8 respectively. Still birth rates for males and females were estimated as 10.5 and 10.6 respectively for the State.

### 3.12 Order of birth by age of mother

The percentage distribution of births by age of mother and order of birth of child is given in Table - 12 appended. 90.1 percent of the births come under first three orders of birth as against 88.5 percent of the previous year. The birth under seventh order and above during the year was 1.8 percent as against 2.2 percent of the previous year.

### 3.13 Birth by type of medical attention received

The percentage distribution of births by type of medical attention received during the year 1983 to 1989 are given in table No.A4.

Table A4 - Percentage distribution of births by type of medical attention received<sup>8</sup> during the year 1983-1989

Year	Instit- tional	Trained profes- sional	Untrained profes- sional	Non- profes- sional	Not stated
1	2	3	4	5	6
1983	68.9	16.1	13.1	1.9	-
1984	73.3	9.2	13.6	3.7	0.2
1985	76.5	8.2	12.8	2.2	0.3
1986	80.2	6.3	9.7	3.7	0.1

(Contd.)

(Table A4 contd.)

1	2	3	4	5	6
1987	82.5	7.7	9.2	0.6	-
1988	83.1	6.8	7.9	2.0	0.2
1989	86.0	5.6	6.8	1.5	0.1

It has been observed that the percentage of population utilising the institutional facilities provided for maternal and child health increase steadily year by year. The distribution of number of births by various medical attention received is given in table 11 appended. It is seen that institutional medical facilities availed during the year in northern region and southern region were 74.4 and 96.9 percent respectively as against 70.3 and 95.8 percent respectively during the previous year. The services of untrained professional utilised during the year in northern and southern regions were 12.6 and 1.4 percent respectively as against 14.3 and 1.5 percent respectively during the previous year.

### 3.14 Sex ratio at birth

Sex ratio at birth is defined as the number of male children born to 100 female children. Sex ratio at birth for the year 1983 to 1989 are given.

	1983	1984	1985	1986	1987	1988	1989
Sex ratio	<u>108.7</u>	<u>100.8</u>	<u>100.2</u>	<u>110.7</u>	<u>104.2</u>	<u>99.3</u>	<u>111.3</u>

Sex ratio at birth in northern region and southern region were 107.4 and 115.0 respectively as against 96.8 and 101.7 respectively during the previous year.

### 3.15 Child - Woman ratio (C.W.R)

Child woman ratio is defined as the estimated number of children in the age group 0 to 4 years per 1000 women in the reproductive age group 15 to 49.

Estimated number of children with }  
age group 0 to 4 } 23,52,009

Estimated number of women in the }  
age group 15 to 49 } 63,89,474

Child woman ratio for the years 1983 to 1989 are given below.

	1983	1984	1985	1986	1987	1988	1989
C.W.R.	<u>400</u>	<u>390</u>	<u>377</u>	<u>378</u>	<u>383</u>	<u>376</u>	<u>368</u>



### 3.16 Comparison of vital rates under sample registration system and Civil Registration System

Civil Registration System is a statutory system of recording the details of all births and deaths occurring in the State. A comparative study of vital rates under sample registration and civil registration system reveals that a considerable number of births and deaths are left unregistered under civil registration system. The birth rates and still birth rates arrived from the data collected through sample registration system and Civil Registration System for the year 1983 to 1989 are given in table A5. The vital rates calculated from the data on Civil Registration system show that the rates were very high in urban areas compared to the rural areas of the State. A good number of births and deaths of the resident population in rural areas are seen registered in urban areas of the State in Civil Registration system.

Table A5 Vital rates under Civil Registration System and Sample Registration System in Kerala rural for the years 1983 to 1989

Year	Birth rate		Still birth rate	
	Civil Registration	Sample registration	Civil Registration	Sample Registration
1	2	3	4	5
1983	14.3	23.5	3.9	13.5
1984	13.8	23.7	4.9	10.5
1985	14.7	23.2	3.9	13.3
1986	13.5	22.6	2.9	14.0
1987	13.2	21.5	2.9	11.1
1988	*12.5	19.9	*2.9	11.7
1989	*10.5	20.2	*3.1	10.6

\*Provisional.

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

The rate of marriages and re-marriages per 1000 population and percentage distribution of marriages according to age and sex are given in table - 28 appended. The highest rate of first marriage to 1000 female population during the year was 67.8 in the age group 20 to 24 as against 66.1 on the same age group during the previous year. In the case of males the highest rate was 64.8 in the age group 25 - 29 as against 67.3 in the same age group recorded during the previous year. The rate of marriage of females in the age group 15 to 19 has been decreased by 2.9 from the previous year. Of the total marriages 3.4 percent were re-marriages while it was 3.2 percent during the previous year.

The mean ages at marriage for males and females were seen as 27.2 and 22.4 respectively. Whereas, the mean ages at marriage during the previous year were seen as 27.3 and 22.1 respectively.

## Chapter 4 - Mortality Measures

### 4.1 Crude death rate

The crude death rate is defined as the number of deaths per 1000 of mid year population. As in the case of birth rate, deaths occurred to usually resident members only were considered for calculating the death rate. The crude death rate for the year in Kerala rural is seen as 6.1 as against 6.3 during the previous year. The death rates in northern region and southern region were 6.0 and 6.1 respectively. The crude death rate for Kerala rural and All India rural for the year 1983 to 1989 are given in Table B1 below.

Table B1 Crude death rates in Kerala Rural and All India rural for the year 1983 to 1989

Year	Northern region	Southern region	Combined	All India rural
1	2	3	4	5
1983	7.2	6.2	6.6	13.1
1984	6.9	6.0	6.4	13.8
1985	6.8	6.4	6.6	13.0
1986	6.0	6.1	6.0	12.2
1987	6.1	6.1	6.1	12.0
1988	6.2	6.3	6.3	11.8
1989	6.0	6.1	6.1	*11.1

\*Provisional.

### 4.2 Death rates of neighbouring states

The death rates in rural area and rural and urban areas combined estimated provisionally for the year 1989 by the Registrar General of India in respect of the neighbouring States and All India are given below in Table - B2.

Table B2 Death rates of neighbouring States and All India\*

State	Rural	Rural & Urban combined
1	2	3
1. Andhra Pradesh	10.0	9.3
2. Karnataka	9.5	8.7
3. Tamil Nadu	9.7	8.6
4. Kerala	5.9	5.9
All India	11.1	10.2

\*Provisional.

Comparing the death rates in rural areas of the neighbouring States, Andhra Pradesh recorded the highest death rate 10.0 while Kerala recorded the lowest death rate (5.9) during the year according to the provisional estimate.

#### 4.3 Death rate among religions

The death rates among the three religions i.e. Hindus, Muslims and Christians are given in Table 15 appended. The highest death rate 6.5 was recorded among Hindus in northern region as in the previous year. The lowest death rate 3.9 was recorded among Christians in the same region as before. At State level, the highest death rate 6.4 was among Hindus and the lowest death rate 5.5 was among Muslims. It is seen that the death rates of Hindus and Christians decreased and that of Muslims increased during the year.

#### 4.4 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. The age specific death rates for different age group according to region and sex are given in Table - 18 appended. The highest death rate, 83.4 was recorded in the age group 70 and above as against 91.0 during the previous year. The lowest death rate was 0.40 as recorded in the age group 10 to 14 as against 0.6 recorded in the age group of 15-19 during the previous year. The age specific death rate for the age group 70 and above in northern region and southern region were 95.4 and 77.9 respectively as against 105.2 and 84.5 respectively during the previous year. Similarly the age specific death rates of males and females on the age group of 70 and above have been decreased to 93.3 and 75.7 from 100.7 and 83.3 respectively during the previous year. The difference between the age specific death rates of males and females in the age group of 70 and above was 17.6 during the year while it was 17.4 during the previous year. The gap between the death rate of males and females in the age group of 70 and above has been increased during the year. The death rates for the males and females in Kerala rural for the year 1989 were seen as 7.0 and 5.2 respectively whereas the rates were 7.3 and 5.3 during the previous year; showing a decrease of 0.3 for males and 0.1 for females.

#### 4.5 Infant mortality rates

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 estimated number of infant deaths and infant mortality rates in Kerala rural according to sex and region are given in Table - 22 appended. The infant mortality rates of Kerala Rural for the year 1983 to 1989 are given below.

## Infant mortality rate

1983	1984	1985	1986	1987	1988	1989
38.9	30.1	33.0	28.6	27.0	29.9	23.3

Infant mortality rate recorded in northern and southern region were 25.5 and 21.4 respectively as against 29.0 and 30.9 during the previous year, showing a decrease of 3.5 and 9.6 respectively during the year.

## 4.6 Neo-Natal mortality rate

Neo-natal mortality rate is defined as the estimated number of deaths of infants below 28 days of age per thousand live births in an year. Neo-natal mortality rate was calculated as 15.8 during the year 1989 as against 21.3 during the previous year.

## 4.7 Peri-natal mortality rate

Peri-natal mortality rate is defined as the estimated number of deaths of infants below 7 days of age per 1000 live births in an year. The peri-natal mortality rate was calculated as 12.4 against 17.4 during the previous year.

The peri-natal, neo-natal and infant mortality rates according to sex and region are given in Table B3 below.

Table B3 Peri-natal, Neo-natal and Infant mortality rate

Region	Mortality rates								
	Peri-natal			Neo-natal			Infant mortality		
	M	F	All	M	F	All	M	F	All
1	2	3	4	5	6	7	8	9	10
Northern	13.5	13.2	13.3	17.2	18.3	17.7	24.0	27.1	25.5
Southern	12.2	10.9	11.6	16.9	10.9	14.1	23.7	18.7	21.4
State	12.8	12.0	12.4	17.0	14.5	15.8	23.8	22.8	23.3

## 4.8 Distribution of samples according to death rate of each sample

The distribution of samples according to death rates for the year 1989 and previous two years are given in Table - 21 appended. During the year under report 41 samples (67.2 percent of the northern region and 62 samples (69.7 percent) of the southern region recorded the death rate below 7 as against 59.0 percent and 64.0 percent respectively during the previous year. At State level 103 samples (68.7 percent) have recorded the death rate less than 7 as against 93 samples, during the previous year. The highest death rate recorded by one sample in the southern

region found place in the group 13 and less than 15 and that in northern region the highest death rate recorded by two samples found place in the group 11 and less than 13.

#### 4.9 Medical attention received before death

The percentage distribution of deaths according to medical attention received before death during the year 1983 to 1989 are given in Table B4 below.

**Table B4 Percentage distribution of deaths according to type of medical attention received for the years 1983 to 1989**

Year	Institutional	Qualified	Unqualified	None
		medical pra- ctitioner	medical pra- ctitioner	
1	2	3	4	5
1983	46	26	13	15
1984	46	24	8	22
1985	49	23	11	17
1986	49	27	6	18
1987	47	28	7	18
1988	42	32	7	19
1989	43	31	6	20

The percentage of all the four types of medical facilities remained more or less the same with slight variation during the year compared with that of the previous year.

**Comparison of mortality rates under Civil Registration System and Sample Registration System for the year 1983 to 1989 of Kerala Rural**

Year	Death rate		Infant mortality rate	
	Civil Regist- ration	Sample Regi- stration	Civil Regi- stration	Sample Registration
1	2	3	4	5
1983	3.6	6.6	11.3	38.9
1984	3.6	6.4	9.1	30.1
1985	4.0	6.6	9.1	33.0
1986	3.9	6.0	8.0	28.6
1987	4.0	6.1	8.1	27.0
1988	*3.9	6.3	*3.9	29.9
1989	*3.6	6.1	*4.6	23.3

\*Provisional.



As in the case of birth rate the mortality rates, estimated under civil registration system is seen always less than that of the rates arrived through sample registration system. The main reason for the low mortality rates under civil registration system is that a considerable number of deaths of resident population in rural areas are registered in urban areas where they seek medical facilities.

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

Life tables have been constructed sex-wise and population-wise separately based on age specific death rates for the years 1987, 1988 and 1989. The details are given in Table - 29, 30 and 31 appended to this report. The expectation of life at birth for males, females and males & females together were calculated as 67.6, 73.9 and 70.6 respectively as against 67.0, 73.5 and 70.2 respectively during the previous year. Expectation of life of females is seen always higher than that of males. The difference between males and females during the year 1989 was 6.3 as against 6.5 during the previous year. The expectation of life calculated for the last 7 years are given in Table - B6 below.

Table B6 Expectation of life based on age specific death rates for the year 1983 to 1989

Age specific death rates for the years	Males	Females	Males & females together
1	2	3	4
1981, 1982, 1983	66.0	71.8	68.8
1982, 1983, 1984	66.5	73.4	69.7
1983, 1984, 1985	65.7	72.5	68.9
1984, 1985, 1986	66.9	72.8	69.7
1985, 1986, 1987	67.1	73.1	70.1
1986, 1987, 1988	67.0	73.5	70.2
1987, 1988, 1989	67.6	73.9	70.6

Table 1 - Mid-year estimated population - births, deaths &amp; vital rates 1989

Stratum	Estimated population, births and deaths					Vital rates			
	Population	Births	Deaths	Still	Infant	Birth rate	Death rate	Still	Infant
				births	deaths			birth rate	death rate
1	2	3	4	5	6	7	8	9	10
I. A	35425	756	151	-	-	21.34	4.26	-	-
B	182055	4568	891	-	223	25.09	4.89	-	48.82
C	918528	19403	5821	291	194	21.12	6.34	14.78	10.00
D	8552311	194790	51377	2977	5189	22.78	6.01	15.05	26.63
NORTHERN REGION	9688319	219517	58240	3268	5606	22.66	6.01	14.66	25.53
II. A	100770	1947	487	-	-	19.32	4.83	-	-
B	329990	6630	2380	170	170	20.09	7.21	25.00	25.64
C	1449368	27452	8482	-	456	18.94	5.85	-	16.61
D	11265774	205550	68865	1482	4533	18.25	6.11	7.16	22.05
SOUTHERN REGION	13145902	241579	80214	1652	5159	18.38	6.10	6.79	21.36
STATE	22834221	461096	138454	4920	10765	20.19	6.06	10.56	23.34

Table 2 - Sample population and estimated population for each stratum

Stratum	Observed population in samples in each stratum		Estimated population for each stratum	
	1.7. '89	1.1. '90	1.7. '89	1.1. '90
	2	3	4	5
I. A	703	708	35425	35678
B	1634	1655	182055	184395
C	9468	9447	918528	916491
D	100543	101270	8552311	8614151
NORTHERN REGION	112348	113080	9688319	9750715
II. A	828	820	100770	99796
B	1941	1925	329990	327270
C	15892	15972	1449368	1456664
D	129237	129766	11265774	11311888
SOUTHERN REGION	147898	148483	13145902	13195618
STATE	260246	261563	22834221	22946333

Table 3 - Stratum-wise population according to sex

Stratum	Observed population			Estimated population		
	Male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7
I. A	342	361	703	17234	18191	35425
B	804	830	1634	89579	92476	182055
C	4541	4927	9468	440540	477988	918528
D	48779	51764	100543	4149202	4403109	8552311
NORTHERN REGION	54466	57882	112348	4696555	4991764	9688319
II. A	423	405	828	51480	49290	100770
B	950	991	1941	161510	168480	329990
C	7712	8180	15892	703343	746025	1449368
D	63025	66212	129237	5493979	5771795	11265774
SOUTHERN REGION	72110	75738	147898	6410312	6735590	13145902
STATE	126576	133670	260246	11106867	11727354	22834221

Table 4 - Midyear sample population and estimated population according to age and sex

Stratum	Observed population			Estimated population		
	Male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7
0-1	2627	2438	5065	230565	213446	444011
1-4	11145	10672	21817	974750	933248	1907998
5-9	13288	13051	26339	1162990	1143571	2306561
10-14	14031	13690	27721	1229148	1200169	2429317
15-19	14383	14478	28861	1261810	1269314	2531124
20-24	12923	15750	28673	1134959	1381427	2516386
25-29	11445	12271	23716	1003590	1077177	2081167
30-34	9176	9940	19116	804992	871506	1676498
35-39	7563	7864	15447	665307	690305	1355612
40-44	6247	6875	13122	548790	603584	1152374
45-49	5299	5649	10948	465735	496161	961896
50-54	4972	5415	10387	437775	476128	913903
55-59	4065	4507	8572	357907	396643	754550
60-64	3405	3726	7131	299995	327909	627904
65-69	2609	2966	5575	229814	261590	491404
70+	3378	4378	7756	298340	385176	683516
Total	126576	133670	260246	11106867	11727354	22834221

Table 5 - Sex ratio and percentage distribution of population by age group  
(years 1971, 1988, 1989)

Age group	1971		1988		1989	
	Sex rates	Percentage population	Sex rates	Percentage population	Sex rates	Percentage population
1	2	3	4	5	6	7
0-4	980	13.5	973	10.5	951	10.3
5-9	974	13.6	981	10.2	983	10.1
10-14	983	13.5	973	10.7	976	10.6
(0-14)	(976)	(40.6)	(976)	(31.4)	(970)	(31.0)
15-19	1078	10.9	1009	11.3	1006	11.1
20-24	1046	9.2	1197	11.0	1217	11.0
25-29	1103	6.4	1102	9.0	1073	9.1
30-34	1030	5.6	1088	7.3	1083	7.3
35-39	1080	6.0	1049	5.8	1038	5.9
40-44	1005	4.6	1096	5.0	1100	5.1
45-49	941	4.5	1066	4.1	1065	4.2
50-54	969	3.2	1084	4.1	1088	4.0
55-59	982	2.7	1082	3.2	1108	3.3
60-64	1044	2.3	1092	2.7	1093	2.8
65-69	1086	1.6	1097	2.1	1138	2.2
70+	1116	2.4	1259	3.0	1291	3.0
All	1020	100.0	1056	100.0	1056	100.0

Table 6 - Religion-wise sample population and estimated population  
for each stratum

Stratum	Observed population				Estimated population			
	Hindu	Muslim	Christian	Total	Hindu	Muslim	Christian	Total
1	2	3	4	5	6	7	8	9
I. A	381	130	192	703	19199	6551	9675	35425
B	1187	443	4	1634	132252	49358	445	182055
C	4790	4217	461	9468	464697	409108	44723	918528
D	58293	33373	8877	100543	4958474	2838748	755089	8552311
NORTHERN REGION	64651	38163	9534	112348	5574622	3303765	809932	9688319
II. A	99	8	721	828	12048	974	87748	100770
B	1091	-	850	1941	185481	-	144509	329990
C	8228	1286	6378	15892	750403	117285	581680	1449368
D	76067	14902	38268	129237	6630869	1299029	3335876	11265774
SOUTHERN REGION	85485	16196	46217	147898	7578801	1417288	4149813	13145902
State	150136	54359	55751	260246	13153423	4721053	4959745	22834221

Table 7 - Stratum-wise live births observed in samples & estimated according to sex

Stratum	Observed in samples			Estimated		
	Male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7
I. A	6	9	15	302	454	756
B	21	20	41	2340	2228	4568
C	110	90	200	10672	8731	19403
D	1180	1110	2290	100372	94418	194790
<b>NORTHERN REGION</b>	<b>1317</b>	<b>1229</b>	<b>2546</b>	<b>113686</b>	<b>105831</b>	<b>219517</b>
II. A	7	9	16	852	1095	1947
B	22	17	39	3740	2890	6630
C	167	134	301	15231	12221	27452
D	1255	1103	2358	109400	96150	205550
<b>SOUTHERN REGION</b>	<b>1451</b>	<b>1263</b>	<b>2714</b>	<b>129223</b>	<b>112356</b>	<b>241579</b>
<b>State</b>	<b>2768</b>	<b>2492</b>	<b>5260</b>	<b>242909</b>	<b>218187</b>	<b>461096</b>

Table 8 - Estimated number of total women and live births in different reproductive age groups

Region	Age group of women							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
<b>A. Estimated no. of Total women</b>								
I. Northern region	547937	556924	436579	349694	285206	253132	198372	2627844
II. Southern region	721377	824503	640598	521812	405099	350452	297789	3761630
<b>State</b>	<b>1269314</b>	<b>1381427</b>	<b>1077177</b>	<b>871506</b>	<b>690305</b>	<b>603584</b>	<b>496161</b>	<b>6389474</b>
<b>B. Estimated no. of married women</b>								
I. Northern region	93011	351967	349010	298975	242305	206494	145444	1687206
II. Southern region	47026	366454	492229	445087	347306	290135	230923	2219160
<b>State</b>	<b>140037</b>	<b>718421</b>	<b>841239</b>	<b>744062</b>	<b>589611</b>	<b>496629</b>	<b>376367</b>	<b>3906366</b>
<b>C. Estimated no. of live births</b>								
I. Northern region	24140	99756	58665	24196	9138	2772	850	219517
II. Southern region	9812	116220	86682	22963	4591	1224	87	241579
<b>State (all births)</b>	<b>33952</b>	<b>215976</b>	<b>145347</b>	<b>47159</b>	<b>13729</b>	<b>3996</b>	<b>937</b>	<b>461096</b>
<b>State (Female births)</b>	<b>16528</b>	<b>100396</b>	<b>69673</b>	<b>22597</b>	<b>5940</b>	<b>2456</b>	<b>597</b>	<b>218187</b>

Table 9 - Age specific fertility rate, age specific marital fertility rate  
G.F.R, T.F.R, AND G.R.R.

	Age group of women							
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
	1	2	3	4	5	6	7	8
<b>A. Age specific fertility rate</b>								
I. Northern region		44.06	179.12	134.37	69.19	32.04	10.95	4.28
II. Southern region		13.60	140.96	135.31	44.01	11.33	3.49	0.29
State (all births)		26.75	156.34	134.93	54.11	19.89	6.62	1.89
State (female births)		13.02	72.67	64.68	25.93	8.60	4.07	1.20
<b>B. Age specific marital fertility rate</b>								
I. Northern region		259.54	283.67	168.09	80.93	37.71	13.42	5.84
II. Southern region		208.65	317.15	176.10	51.59	13.22	4.22	0.38
State (all births)		242.45	300.74	172.78	63.38	23.28	8.05	2.49
		I. Northern Region				II. Southern Region		State
		G.F.R. 83.54				64.22		72.16
		T.F.R. 2.37				1.74		2.00
		G.R.R. -				-		0.95

Table 10 - Live births observed in samples classified by month of occurrence

Stratum	No. of live births reported from samples												Total	
	Janu-ary	Febru-ary	March	April	May	June	July	Aug-ust	Sept-ember	Octo-ber	Nov-ember	Dec-ember		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I. A	1	1	-	2	2	3	2	-	1	-	-	3	15	
B	1	4	4	3	3	9	2	3	3	3	5	1	41	
C	16	19	29	18	15	11	11	16	12	14	17	22	200	
D	192	196	203	228	179	179	191	210	147	189	187	189	2290	
<b>NORTHERN REGION</b>	<b>210</b>	<b>220</b>	<b>236</b>	<b>251</b>	<b>199</b>	<b>202</b>	<b>206</b>	<b>229</b>	<b>163</b>	<b>206</b>	<b>209</b>	<b>215</b>	<b>2546</b>	
II. A	1	4	-	-	3	1	-	-	2	2	2	1	16	
B	5	4	4	2	3	6	1	-	2	7	4	1	39	
C	16	30	29	26	26	24	34	24	16	27	24	25	301	
D	184	185	210	199	208	185	209	157	202	204	217	198	2358	
<b>SOUTHERN REGION</b>	<b>206</b>	<b>223</b>	<b>243</b>	<b>227</b>	<b>240</b>	<b>216</b>	<b>244</b>	<b>181</b>	<b>222</b>	<b>240</b>	<b>247</b>	<b>225</b>	<b>2714</b>	
Kerala	416	443	479	478	439	418	450	410	385	446	456	440	5260	

Table 11 - Live births observed in samples by type of medical attention at delivery

Stratum	Type of medical attention					Total
	Institutional	Trained professional	Untrained professional	Non-professional	Not stated	
1	2	3	4	5	6	7
I. A	15	-	-	-	-	15
B	28	10	2	1	-	41
C	156	27	10	7	-	200
D	1696	217	308	63	6	2290
NORTHERN REGION	1895	254	320	71	6	2546
II. A	16	-	-	-	-	16
B	39	-	-	-	-	39
C	301	-	-	-	-	301
D	2273	39	37	8	1	2358
SOUTHERN REGION	2629	39	37	8	1	2714
State	4524	293	357	79	7	5260

Table 12 - Percentage distribution of births by age of mother and order of birth of child

Age group	Order of births										Total	
	1	2	3	4	5	6	7	8	9	10		
1	2	3	4	5	6	7	8	9	10	11	12	
15-19	91.9	8.1	-	-	-	-	-	-	-	-	-	100.0
20-24	55.2	34.2	9.3	1.2	0.1	-	-	-	-	-	-	100.0
25-29	27.7	41.2	20.3	6.8	3.0	0.7	0.2	0.1	-	-	-	100.0
30-34	11.4	31.9	24.3	14.6	6.6	5.7	3.8	0.6	0.9	0.2	-	100.0
35-39	10.5	17.0	15.7	16.3	9.8	9.8	9.8	5.2	2.0	3.9	-	100.0
40-44	2.3	4.5	4.5	4.6	11.4	22.7	18.2	15.9	9.1	6.8	-	100.0
45-49	-	-	10.0	10.0	10.0	10.0	10.0	10.0	20.0	20.0	-	100.0
All ages	43.1	33.3	13.7	4.7	2.1	1.3	0.9	0.4	0.3	0.2	-	100.0

Table 13 - Distribution of samples according to birth rate of each sample

Birth rate	Northern Region		Southern Region		State					
					1989		1988		1987	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	2	3	4	5	6	7	8	9	10	11
Less than 12	2	3.3	4	4.5	6	4.0	7	4.7	-	-
12 & less than 16	5	8.2	19	21.4	24	16.0	32	21.3	26	17.4
16 & less than 20	18	29.5	35	39.3	53	35.3	46	30.7	46	30.7
20 & less than 24	13	21.3	21	23.6	34	22.7	35	23.3	41	27.4
24 & less than 28	8	13.1	9	10.1	17	11.3	15	10.0	17	11.3
28 & less than 32	8	13.1	1	1.1	9	6.0	11	7.3	8	5.3
32 & less than 36	4	6.6	-	-	4	2.7	3	2.0	8	5.3
36 & less than 40	3	4.9	-	-	3	2.0	1	0.7	2	1.3
40 & less than 44	-	-	-	-	-	-	-	-	2	1.3
44 & above	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>61</b>	<b>100.0</b>	<b>89</b>	<b>100.0</b>	<b>150</b>	<b>100.0</b>	<b>150</b>	<b>100.0</b>	<b>150</b>	<b>100.0</b>

Table 14 - Still births observed in samples and estimated according to sex and still birth rates

Stratum	Still births observed			Still births estimated			Total estimated number of live births & still births	Still birth rate
	Male	Female	Total	Male	Female	Total		
	1	2	3	4	5	6		
I. A	-	-	-	-	-	-	756	-
B	-	-	-	-	-	-	4568	-
C	2	1	3	194	97	291	19694	14.78
D	19	16	35	1616	1361	2977	197767	15.05
<b>NORTHERN REGION</b>	<b>21</b>	<b>17</b>	<b>38</b>	<b>1810</b>	<b>1458</b>	<b>3268</b>	<b>222785</b>	<b>14.67</b>
II. A	-	-	-	-	-	-	1947	-
B	1	-	1	170	-	170	6800	25.00
C	-	-	-	-	-	-	27452	-
D	7	10	17	610	872	1482	207032	7.16
<b>SOUTHERN REGION</b>	<b>8</b>	<b>10</b>	<b>18</b>	<b>780</b>	<b>872</b>	<b>1652</b>	<b>243231</b>	<b>6.79</b>
<b>State</b>	<b>29</b>	<b>27</b>	<b>56</b>	<b>2590</b>	<b>2330</b>	<b>4920</b>	<b>466016</b>	<b>10.56</b>



Table 15 - Religion-wise birth and death rates

Stratum	Birth rate			Death rate		
	Northern Region	Southern Region	State	Northern Region	Southern Region	State
1	2	3	4	5	6	7
Hindu	18.92	17.38	18.03	6.51	6.37	6.43
Muslim	31.01	24.75	29.13	5.70	5.12	5.52
Christian	14.33	18.02	17.42	3.86	5.95	5.61
<b>Total</b>	<b>22.66</b>	<b>18.38</b>	<b>20.19</b>	<b>6.01</b>	<b>6.10</b>	<b>6.06</b>

Table 16 - Stratum-wise deaths observed in samples and estimated according to sex

Stratum	Deaths observed in samples			Estimated number of deaths		
	Male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7
I. A	-	3	3	-	151	151
B	3	5	8	334	557	891
C	32	28	60	3105	2716	5821
D	319	285	604	27135	24242	51377
<b>NORTHERN REGION</b>	<b>354</b>	<b>321</b>	<b>675</b>	<b>30574</b>	<b>27666</b>	<b>58240</b>
II. A	1	3	4	122	365	487
B	13	1	14	2210	170	2380
C	46	47	93	4195	4287	8482
D	467	323	790	40709	28156	68865
<b>SOUTHERN REGION</b>	<b>527</b>	<b>374</b>	<b>901</b>	<b>47236</b>	<b>32978</b>	<b>80214</b>
<b>State</b>	<b>881</b>	<b>695</b>	<b>1576</b>	<b>77810</b>	<b>60644</b>	<b>138454</b>

Table 17(a) - Distribution of deaths observed in samples according to age and sex

Age Group	Northern Region			Southern Region			State		
	Male	Female	Total	male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7	8	9	10
Below 1	32	33	65	34	24	58	66	57	123
1-4	8	21	29	8	9	17	16	30	46
5-9	2	6	8	5	1	6	7	7	14
10-14	4	6	10	1	-	1	5	6	11
15-19	7	7	14	6	8	14	13	15	28
20-24	10	14	24	16	9	25	26	23	49
25-29	9	6	15	6	7	13	15	13	28
30-34	7	5	12	11	4	15	18	9	27
35-39	14	5	19	10	4	14	24	9	33
40-44	7	7	14	12	8	20	19	15	34
45-49	19	8	27	22	6	28	41	14	55
50-54	25	3	28	38	9	47	63	12	75
55-59	21	14	35	46	18	64	67	32	99
60-64	46	19	65	48	21	69	94	40	134
65-69	37	38	75	58	42	100	95	80	175
70 & above	106	129	235	206	204	410	312	333	645
All	354	321	675	527	374	901	881	695	1576

Table 17(b) - Distribution of estimated deaths according to age and sex

Age group	Northern Region			Southern Region			State		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7	8	9	10
Less than									
1	2733	2872	5605	3059	2099	5158	5792	4971	10763
1-4	693	1810	2503	697	787	1484	1390	2597	3987
5-9	170	510	680	436	87	523	606	597	1203
10-14	340	487	827	87	-	87	427	487	914
15-19	607	595	1202	531	697	1228	1138	1292	2430
20-24	863	1239	2102	1411	785	2196	2274	2024	4298
25-29	766	522	1288	606	614	1220	1372	1136	2508
30-34	619	425	1044	963	349	1312	1582	774	2356
35-39	1191	437	1628	954	349	1303	2145	786	2931
40-44	596	596	1192	1050	732	1782	1646	1328	2974
45-49	1653	681	2334	1922	527	2449	3575	1208	4783
50-54	2215	255	2470	3408	819	4227	5623	1074	6697
55-59	1810	1215	3025	4025	1573	5598	5835	2788	8623
60-64	3987	1640	5627	4280	1834	6114	8267	3474	11741
65-69	3171	3257	6428	5147	3701	8848	8318	6958	15276
70 & above	9160	11125	20285	18660	18025	36685	27820	29150	56970
All	30574	27666	58240	47236	32978	80214	77810	60644	138454

Table 18 - Age specific death rates based on estimated values

Age group	Northern Region	Southern Region	State		
			Total	Male	Female
1	2	3	4	5	6
Less than 1	27.51	21.47	24.24	25.12	23.29
1-4	2.57	1.59	2.09	1.43	2.78
5-9	0.61	0.44	0.52	0.52	0.52
10-14	0.72	0.07	0.38	0.35	0.41
15-19	1.11	0.85	0.96	0.90	1.02
20-24	2.04	1.48	1.71	2.00	1.47
25-29	1.54	0.98	1.21	1.37	1.05
30-34	1.58	1.29	1.41	1.97	0.89
35-39	2.99	1.60	2.16	3.22	1.14
40-44	2.56	2.60	2.58	3.00	2.20
45-49	6.08	4.24	4.97	7.68	2.43
50-54	7.07	7.49	7.33	12.84	2.26
55-59	10.84	11.78	11.43	16.30	7.03
60-64	25.60	14.98	18.70	27.56	10.59
65-69	36.90	27.89	31.09	36.19	26.60
70 and above	95.41	77.90	83.35	93.25	75.68
All ages	6.01	6.10	6.06	7.01	5.17

Table 19 - Deaths observed in samples classified by month of occurrence

Stratum	Janu- ary	Febru- ary	March	April	May	June	July	Aug- ust	Septem- ber	Octo- ber	Novem- ber	Decem- ber	Total
	2	3	4	5	6	7	8	9	10	11	12	13	14
I.													
A	-	1	-	1	-	-	-	-	1	-	-	-	3
B	-	2	-	1	1	1	2	-	-	-	1	-	8
C	3	3	4	3	7	7	2	9	7	3	5	7	60
D	55	45	58	43	49	48	52	65	47	37	43	62	604
NORTHERN REGION	58	51	62	48	57	56	56	74	55	40	49	69	675
II.													
A	-	-	-	-	-	-	-	1	1	-	1	1	4
B	1	2	2	-	-	3	-	2	1	1	-	2	14
C	12	4	4	9	3	6	13	8	14	6	8	6	93
D	58	58	54	50	60	59	63	84	72	77	77	78	790
SOUTHERN REGION	71	64	60	59	63	68	76	95	88	84	86	87	901
STATE	129	115	122	107	120	124	132	169	143	124	135	156	1576

Table 20 - Deaths classified by type of medical attention

Stratum	Type of medical attention				Total
	Institu- tional	Qualified medical practi- tioner	Unqualified medical practi- tioner	No treatment	
1	2	3	4	5	6
I. A	2	-	-	1	3
B	3	2	3	-	8
C	28	19	5	8	60
D	206	203	47	148	604
<b>NORTHERN REGION</b>	<b>239</b>	<b>224</b>	<b>55</b>	<b>157</b>	<b>675</b>
II. A	2	1	-	1	4
B	7	7	-	-	14
C	47	19	3	24	93
D	383	231	35	141	790
<b>SOUTHERN REGION</b>	<b>439</b>	<b>258</b>	<b>38</b>	<b>166</b>	<b>901</b>
<b>STATE</b>	<b>678</b>	<b>482</b>	<b>93</b>	<b>323</b>	<b>1576</b>

Table 21 - Distribution of samples according to death rate of each sample

Death Rate	Northern Region		Southern Region		S t a t e					
					1989		1988		1987	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	2	3	4	5	6	7	8	9	10	11
Less than 1	-	-	-	-	-	-	1	0.7	-	-
1 & less than 3	3	4.9	3	3.4	6	4.0	10	6.7	11	7.4
3 & less than 5	8	13.1	13	14.6	21	14.0	34	22.7	33	22.0
5 & less than 7	30	49.2	46	51.7	76	50.7	48	32.0	57	38.0
7 & less than 9	13	21.3	17	19.1	30	20.0	41	27.3	37	24.6
9 & less than 11	5	8.2	7	7.9	12	8.0	14	9.3	8	5.3
11 & less than 13	2	3.3	2	2.2	4	2.7	2	1.3	4	2.7
13 & less than 15	-	-	1	1.1	1	0.6	-	-	-	-
15 & above	-	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>61</b>	<b>100.0</b>	<b>89</b>	<b>100.0</b>	<b>150</b>	<b>100.0</b>	<b>150</b>	<b>100.0</b>	<b>150</b>	<b>100.0</b>

Table 22 - Infant deaths observed and estimated according to sex and infant mortality rate

Stratum	Infant deaths observed				Infant deaths estimated				Estimated live births				Infant mortality rate			
	Male		Female		Male		Female		Male		Female		Male		Female	
	2	3	4	Total	5	6	7	Total	8	9	10	Total	11	12	Total	
I.																
A	-	-	-	-	-	-	-	-	302	454	756	-	-	-	-	-
B	-	2	2	223	-	223	223	2340	2228	4568	4568	-	-	100.09	48.82	-
C	1	1	2	194	97	97	194	10672	8731	19403	19403	9.09	11.11	10.00	10.00	10.00
D	31	30	61	5188	2636	2552	5188	100372	94418	194790	194790	26.25	27.03	26.63	26.63	26.63
NORTHERN REGION	32	33	65	5605	2733	2872	5605	113686	105831	219517	219517	24.04	27.14	25.53	25.53	25.53
II.																
A	-	-	-	-	-	-	-	852	1095	1947	1947	-	-	-	-	-
B	1	-	1	170	170	-	170	3740	2890	6630	6630	45.45	-	25.64	25.64	25.64
C	3	2	5	456	274	182	456	15231	12221	27452	27452	17.99	14.89	16.61	16.61	16.61
D	30	22	52	4533	2615	1918	4533	109400	96150	205550	205550	23.90	19.95	22.05	22.05	22.05
SOUTHERN REGION	34	24	58	5159	3059	2100	5159	129223	112356	241579	241579	23.67	18.69	21.36	21.36	21.36
State	66	57	123	10764	5792	4972	10764	242909	218187	461096	461096	23.84	22.79	23.34	23.34	23.34

Table 23 - Number of infant deaths observed in samples of children born during the current year and previous year

Stratum	Born in 1988												Born in 1989											
	Less than 7 days				Less than 28 days				Less than one year				Less than 7 days				Less than 28 days				Less than one year			
	M		F		T		M		F		T		M		F		T		M		F		T	
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
I.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
D	-	-	-	-	-	-	5	2	7	18	14	32	23	19	42	26	28	54	-	-	-	-	-	
NORTHERN REGION	-	-	-	-	-	-	5	2	7	18	16	34	23	22	45	27	31	58	-	-	-	-	-	
II.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
D	-	-	-	-	-	-	-	2	2	14	13	27	21	13	34	30	20	50	-	-	-	-	-	
SOUTHERN REGION	-	-	-	-	-	-	-	2	2	17	14	31	24	14	38	34	22	56	-	-	-	-	-	
State	-	-	-	-	-	-	5	4	9	35	30	55	47	36	83	61	53	114	-	-	-	-	-	

Table 24 - Estimated number of infant deaths for the year 1989 of children born during the current year and previous year

Stratum	Born in 1988							Born in 1989										
	Less than 7 days			Less than 28 days			Less than one year			Less than 7 days			Less than 28 days			Less than one year		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
I. A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B	-	-	-	-	-	-	-	-	-	-	111	111	-	223	223	-	223	223
C	-	-	-	-	-	-	-	-	-	-	97	97	-	97	97	97	97	194
D	-	-	-	-	-	-	425	170	595	1531	1191	2722	1956	1616	3572	2211	2382	4593
<b>NORTHERN REGION</b>	-	-	-	-	-	-	425	170	595	1531	1399	2930	1956	1936	3892	2308	2702	5010
II. A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B	-	-	-	-	-	-	-	-	-	170	-	170	170	-	170	170	-	170
C	-	-	-	-	-	-	-	-	-	182	91	273	182	91	273	274	182	456
D	-	-	-	-	-	-	-	174	174	1220	1133	2353	1831	1133	2954	2615	1744	4359
<b>SOUTHERN REGION</b>	-	-	-	-	-	-	-	174	174	1572	1224	2796	2183	1224	3407	3059	1926	4985
<b>State</b>	-	-	-	-	-	-	425	344	769	3103	2623	5726	4139	3160	7299	5367	4628	9995

Table 25 - Estimated number of perinatal, neo-natal and infant deaths according to sex

Stratum	Estimated number of infant deaths														
	Less than 7 days					Less than 28 days					Less than one year				
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total			
I	2	3	4	5	6	7	8	9	10						
I.	1531	1399	2930	1956	1936	3892	2733	2872	5605						
II.	1572	1224	2796	2183	1224	3407	3059	2100	5159						
<b>Total</b>	3103	2623	5726	4139	3160	7299	5792	4972	10764						



Table 26 - Births and deaths detected through overlapping survey and intensive enquiry classified according to place and type of birth & deaths

Stratum	Birth											Death				
	Total		Place		Kind		Live births		Still births		Total	Place		Kind		
	In	Out	In	Out	Live births	Still births	In	Out	In	Out		Infant births	Other deaths			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
I. A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B	1	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-
C	6	-	6	6	6	-	-	-	-	1	-	1	-	-	1	-
D	84	19	65	65	83	1	12	7	4	19	4	15	4	15	15	15
NORTHERN REGION	91	19	72	72	90	1	13	7	4	20	4	16	4	16	16	16
II. A	2	-	2	2	2	-	-	-	-	-	-	-	-	-	-	-
B	1	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-
C	11	1	10	10	11	-	2	1	-	3	-	3	-	-	3	-
D	103	1	102	102	103	-	10	14	3	24	3	21	3	21	21	21
SOUTHERN REGION	117	2	115	115	117	-	12	15	3	27	3	24	3	24	24	24
State	208	21	187	187	207	1	25	22	7	47	7	40	7	40	40	40

Table 27 - Distribution of births and deaths recorded by Enumerator, Supervisor detected through overlapping survey & intensive enquiry

Items	Births				Deaths		
	Northern Region		Southern Region		Northern Region		State
	2	3	4	5	6	7	
1. Common to Enumerator & Supervisor	1995	1969	3964	568	721	1283	
2. Registered by Enumerator (No)	2069	2100	4169	581	784	1365	
%	81.23	77.38	79.24	86.07	87.01	86.61	
3. Listed by Supervisor (No)	2370	2452	4822	631	810	1441	
%	93.05	90.35	91.66	93.48	89.90	91.43	
4. Total netted by Enumerator & Supervisor	2444	2583	5027	650	873	1523	
5. Detected by others	12	14	26	5	1	6	
6. Overlapping Survey	51	93	144	14	24	38	
7. Intensive enquiry	39	24	63	6	3	9	
<b>Total</b>	<b>2546</b>	<b>2714</b>	<b>5260</b>	<b>675</b>	<b>901</b>	<b>1576</b>	



Table 29 - Life table of males based on age specific death rates for the years: 1987, 1988 and 1989

Age x to x + n	Age specific death rates			Mean age specific death rate (nm <sub>x</sub> )	Probabi- lity of a person aged x dying be- fore age x + n (g <sub>x</sub> )	Number of deaths (d <sub>x</sub> )	Number surviving to age x out of 100000 born a- live (l <sub>x</sub> )	Year of life li- ved bet- ween x & x + 'n (L <sub>x</sub> )	Year of life li- fe bet- ween x & above x (T <sub>x</sub> )	Expecta- tion of life in years (Ex)	Begin- ning age (x)
	1987	1988	1989								
Less than 1	26.97	32.60	25.12	0.02823	0.02395	2399	100000	97777	6761196	67.61	0
1-4	3.01	1.68	1.43	0.00204	0.00813	793	97601	388818	6663419	68.27	1
5-9	1.09	0.70	0.52	0.00077	0.00384	372	96808	483110	6274601	64.81	5
10-14	0.49	0.77	0.35	0.00054	0.00270	260	96436	481530	5791491	60.06	10
15-19	1.04	0.92	0.90	0.00095	0.00474	456	96176	479740	5309961	55.21	15
20-24	0.93	1.08	2.00	0.00134	0.00668	639	95720	477003	4830221	50.46	20
25-29	1.45	2.06	1.37	0.00163	0.00812	772	95081	473475	4353218	45.78	25
30-34	3.65	2.46	1.97	0.00269	0.01336	1260	94309	468395	3879743	41.14	30
35-39	3.36	3.35	3.22	0.00331	0.01641	1527	93049	461428	3411348	36.66	35
40-44	4.33	5.05	3.00	0.00413	0.02044	1871	91522	452933	2949920	32.23	40
45-49	9.79	7.89	7.68	0.00845	0.04138	3710	89651	438980	2496987	27.85	45
50-54	10.60	8.65	12.84	0.01070	0.05211	4478	85941	418510	2058007	23.95	50
55-59	13.18	14.97	16.30	0.01482	0.07145	5821	81463	392763	1639497	20.13	55
60-64	18.00	22.25	27.56	0.02260	0.10696	8091	75642	357983	1246734	16.48	60
65-69	39.09	38.97	36.19	0.03808	0.17385	11744	67551	308395	888751	13.16	65
70 & above	94.57	100.66	93.25	0.09616	1.00000	55807	55807	580356	580356	10.40	70

Table 30 - Life table of females based on age specific death rates for the years: 1987, 1988 and 1989

Age x to x + n	Age specific death rates			Mean age specific death rate (mx)	Probabi- lity of a person aged x dying be- fore age x + n (qx)	Number of deaths (dx)	Number surviving to age x out of 100000 born al- ive (lx)	Year of life li- ved bet- ween x & x + n (Lx)		Year of life li- fe bet- ween x & above x (Tx)		Expecta- tion of life in years (Ex)	Begin- ning age (x)
	1987	1988	1989					9	10	11	12		
Less than 1	26.65	26.26	23.29	0.02540	0.02273	2273	100000	97884	7385643	73.86	0		
1-4	2.04	2.12	2.78	0.00231	0.00920	899	97727	389110	7287759	74.57	1		
5-9	0.90	0.38	0.52	0.00060	0.00300	290	96828	483415	6898649	71.25	5		
10-14	0.50	0.59	0.41	0.00050	0.00250	241	96538	482088	6415234	66.45	10		
15-19	0.54	0.27	1.02	0.00067	0.00305	294	96297	480750	5933146	61.61	15		
20-24	1.28	0.77	1.47	0.00117	0.00583	560	96003	478615	5452396	56.79	20		
25-29	1.23	0.59	1.05	0.00096	0.00479	457	95443	476073	4973781	52.11	25		
30-34	1.29	1.24	0.89	0.00114	0.00568	540	94986	473580	4497708	47.35	30		
35-39	1.16	1.66	1.14	0.00132	0.00658	621	94446	470678	4024128	42.61	35		
40-44	1.57	3.22	2.20	0.00233	0.01158	1086	93825	466410	3553450	37.87	40		
45-49	3.11	2.90	2.43	0.00281	0.01395	1294	92739	460460	3087040	33.29	45		
50-54	3.39	3.79	2.26	0.00315	0.01563	1429	91445	453653	2626580	28.72	50		
55-59	8.59	9.02	7.03	0.00821	0.04022	3620	90016	441030	2172927	24.14	55		
60-64	10.25	10.15	10.59	0.01033	0.05035	4350	86396	421105	1731897	20.05	60		
65-69	23.45	19.50	26.60	0.02318	0.10955	8988	82046	387760	1310792	15.98	65		
70 & above	78.42	83.34	75.68	0.07915	1.00000	73058	73058	923032	923032	12.63	70		

Table 31 - Life table of persons based on age specific death rates for the years: 1987, 1988 and 1989

Age x to x + n	Age specific death rates				Mean age specific death rate ( $nm_x$ )	Probabi- lity of a person aged x dying be- fore age x + n ( $q_x$ )	Number of deaths ( $dx$ )	Number surviving to age x out of 100000 born al- ive ( $lx$ )	Year of life li- ved bet- ween x & x + n ( $L_x$ )	Year of life li- fe bet- ween x & above x ( $T_x$ )	Expecta- tion of life in years ( $Ex$ )	Begin- ning age ( $x$ )
	1987	1988	1989									
	2	3	4	5	6	7	8	9	10	11	12	
Less than 1	26.82	29.43	24.24	0.02583	0.02338	2338	100000	97829	7064114	70.64	0	
1-4	2.54	1.90	2.09	0.00218	0.00868	848	97662	388952	5966285	71.33	1	
5-9	0.99	0.54	0.52	0.00068	0.00339	328	96814	483250	5577333	67.94	5	
10-14	0.49	0.68	0.38	0.00052	0.00260	251	96486	481803	6094083	63.16	10	
15-19	0.78	0.59	0.96	0.00078	0.00389	374	96235	480240	5612280	58.32	15	
20-24	1.12	0.91	1.71	0.00125	0.00623	597	95861	477813	5132040	53.54	25	
25-29	1.33	1.29	1.21	0.00128	0.00638	608	95264	474800	4654227	48.86	30	
30-34	2.42	1.82	1.41	0.00188	0.00936	886	94656	471065	4179427	44.15	30	
35-39	2.23	2.49	2.16	0.00229	0.01138	1067	93770	466183	3708362	39.55	35	
40-44	2.89	4.09	2.58	0.00319	0.01592	1467	92703	459848	3242179	34.97	40	
45-49	6.33	5.32	4.97	0.00554	0.02732	2493	91236	449948	2782331	30.50	45	
50-54	6.81	6.12	7.33	0.00675	0.03319	2945	88743	436353	2332383	26.28	50	
55-59	10.79	11.88	11.43	0.01137	0.05528	4743	85798	417133	1896030	22.10	55	
60-64	13.94	15.93	18.70	0.01619	0.07780	6306	81055	389519	1478897	18.25	60	
65-69	30.78	28.79	31.09	0.03022	0.14049	10501	74749	347493	1089387	14.57	65	
70 & above	85.44	91.01	83.35	0.08660	1.00000	64248	64248	743894	741894	11.55	70	

Table 32 - Number of units and population in the universe and the samples

Stratum	Universe			Samples		Percentage of sample population	Raising factor for stratum estimates P/p
	No. of census villages	Population (1981)p	No. of units selected	Population (1981)p			
1	2	3	4	5	6	7	
I.							
A	73	33158	2	658	1.98	50.39210	
B	217	171582	2	1540	0.90	111.41688	
C	519	773395	6	7972	1.03	97.01392	
D	1265	7421252	51	87246	1.17	85.06123	
Northern Region	2074	8399387	61	97416	1.16	-	
II.							
A	260	87991	2	723	0.82	121.70263	
B	415	325570	3	1915	0.59	170.01044	
C	894	1353880	10	14845	1.09	91.20108	
D	2134	10515577	74	120631	1.15	87.17143	
Southern Region	3703	12283018	89	138114	1.12	-	
State	5777	20682405	150	235530	1.14	-	

Table 33 - 1989 Religion-wise birth and death rates

	Hindu	Muslim	Christian	Total
1	2	3	4	5
<b>I. Estimated population</b>				
N.R.	5574622	3303765	809932	9688319
S.R	7578801	1417288	4149813	13145902
State	13153423	4721053	4959745	22834221
<b>II. Estimated births</b>				
N.R.	105455	102454	11608	219517
S.R	131721	35077	74781	241579
State	237176	137531	86389	461096
<b>III. Estimated deaths</b>				
N.R.	36288	18828	3124	58240
S.R	48257	7255	24702	80214
State	84545	26083	27826	138454
<b>Birth rate</b>				
N.R	18.92	31.01	14.33	22.66
S.R.	17.38	24.75	18.02	18.38
State	18.03	29.13	17.42	20.19
<b>Death rate</b>				
N.R.	6.51	5.70	3.86	6.01
S.R.	6.37	5.12	5.95	6.10
State	6.43	5.52	5.61	6.06





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