



GOVERNMENT OF KERALA

THE
ANNUAL REPORT ON
SAMPLE REGISTRATION SYSTEM
IN KERALA (RURAL)
1991

DEPARTMENT OF ECONOMICS & STATISTICS
THIRUVANANTHAPURAM



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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 1991. The estimates of vital rates viz:- crude birth and death rates, infant mortality rate etc. and also the details of marriages obtained through the study are included in the report.

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

Thiruvananthapuram,
2nd November, 1995.

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C O N T E N T S

- Chapter 1 - Introduction
- Chapter 2 - Population and its growth
- Chapter 3 - Measures of fertility
- Chapter 4 - Mortality measures
- Appendix - Table 1 to 36

CONTENTS

Introduction	1
Chapter I	10
Chapter II	25
Chapter III	40
Chapter IV	55
Chapter V	70
Chapter VI	85
Chapter VII	100
Chapter VIII	115
Chapter IX	130
Chapter X	145
Chapter XI	160
Chapter XII	175
Chapter XIII	190
Chapter XIV	205
Chapter XV	220
Chapter XVI	235
Chapter XVII	250
Chapter XVIII	265
Chapter XIX	280
Chapter XX	295
Chapter XXI	310
Chapter XXII	325
Chapter XXIII	340
Chapter XXIV	355
Chapter XXV	370
Chapter XXVI	385
Chapter XXVII	400
Chapter XXVIII	415
Chapter XXIX	430
Chapter XXX	445

A P P E N D I X

LIST OF TABLES - 1991

Sl. No.	Page No.
1. Mid-year estimated population, birth, death and vital rates - 1991.	15
2. Sample population and estimated population for each stratum.	16
3. Stratum-wise population according to sex.	16
4. Mid-year sample population and estimated population according to to age and sex.	17
5. Sex ratio and percentage distribution of population by age group (years 1989, 1990, 1991)	17
6. Religion-wise sample population and estimated population for each stratum.	18
7. Stratum-wise live births observed in samples and estimated according to sex.	18
8. Estimated number of total women and live births in different age groups.	19
9. Distribution of currently married women observed according to age of mother religion and number of children ever born.	20
10. Distribution of currently married women observed in samples according to age of mother religion and number of surviving children in 1991.	21
11. Distribution of currently married women observed in samples according to age of mother and age of the last child.	21
12. Age specific fertility rate, age specific marital fertility rate, GFR, TFR & GRR.	22
13. Live births observed in samples classified by month of occurrence.	22
14. Live birth observed in samples by type of medical attention at delivery.	23
15. Percentage distribution of births by age of mother and order of birth of child.	23
16. Distribution of samples according to birth rate of each samples.	24
17. Still births observed in samples and estimated according to sex and still birth rates.	24
18. Estimated number of Religion-wise population, births, deaths and birth and death rates.	25
19. Religion-wise birth and death rates.	25

Sl. No.		Page No.
20.	Stratum-wise deaths observed in samples and estimated according to sex.	26
21(a)	Distribution of deaths observed in samples according to age and sex.	26
21(b)	Distribution of estimated death according to age and sex.	27
22.	Age specific death rates based on estimated values.	27
23.	Deaths observed in samples classified by month of occurrence.	28
24.	Deaths classified by type of medical attention.	28
25.	Distribution of samples according to death rates of each sample.	29
26.	Infant deaths observed and estimated according to sex and infant mortality rate.	29
27.	Number of infant deaths observed in samples of children born during the corrent year and previous year.	30
28.	Estimated number of infant deaths for the year 1991 of children born during the current year and previous year.	31
29.	Estimated number of perinatal, neonatal and infant deaths according to sex.	32
30.	Births and deaths detected through overlapping survey and intensive enquiry classified according to place and type of births and deaths.	32
31.	Distribution of births and deaths recorded by Enumerators Supervisor, detected through overlapping survey and intensive enquiry.	33
32.	Distribution of rate of marriage per thousand population and percentage distribution of marriages according to age and sex.	34
33.	Life table of males based on age specific death rates for the years 1989, 1990 and 1991.	35
34.	Life table of females based on age specific death rates for the years 1989, 1990 and 1991.	36
35.	Life table of persons based on age specific death rates for the years 1989, 1990 and 1991.	37
36.	Number of units and population in the universe and the samples.	38

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SAMPLE REGISTRATION OF BIRTHS AND DEATHS IN KERALA (RURAL) 1991

CHAPTER - I

Introduction

The Sample Registration System was introduced in the State in the year 1964-65 as a pilot project to obtain quick and reliable data on vital rates since the statutory registration system fails to cover all births and deaths. At the outset 20 rural and 5 urban samples were selected for the sample survey. The full fledged scheme was introduced on 1st 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 the 150 samples, 75 samples were replaced during the year 1982 and the remaining 75 samples were replaced during 1983. Stratified sampling method was used for the selection of new samples. The census villages were grouped into four strata 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 from Kasaragod to Palakkad and southern region consisting of the southern districts from Thrissur to Thiruvananthapuram and allocating samples in different strata in proportion to the population of each stratum to 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-36 appended to this report.

The Agency for the study in the rural areas of the State in the Department of Economics & Statistics and in urban areas the Census Department as per the Directions of the Registrar General of India. The finding of the study in the 150 selected rural samples conducted in the year 1991 are furnished in the report.

1.2 Staff engaged in the Survey

The births and deaths occurred in each selected sample are regularly registered by the 150 part-time enumerators appointed for the purpose. The half yearly surveys in all the 150 samples were conducted by 16 Statistical Assistants/Computers deputed from the Census Department. 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 with the assistance of compilers. In the State Head Quarters the work relating to Sample Registration System was attended by the S.R.S. unit consisting of one Regional Officer, one Research Assistant, one Computer from the Census Department and a Compiler.

1.3 Field Work

A base line survey was conducted in all these selected samples at the outset and obtained the usual resident population. The details of births and deaths occurring in these units were registered by the part-time Enumerators on a regular basis through informants and house

visits and the details reported to the District Office and State Head Quarters 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 independently by both the Enumerators and Supervisors were matched at the District Head Quarters and the reverification of the unmatched and partially matched events was conducted by the Additional District Officers concerned and the finalised results of the survey furnished to the State Headquarters. These results were further scrutinised at the Headquarters and a copy of the details of births, deaths, population statement and details of marriages were forwarded to the office of the Registrar General of India for computation of vital rates.

1.4 Overlapping Survey

The data relating to the previous half year were also collected during each half yearly survey to list out the missing vital events, if any, both by the enumerators and the supervisor during the previous half year. Through this enquiry 93 births and 25 deaths were detected during the year as the events of the extended reference period.

1.5 Intensive Enquiry

An Intensive enquiry was conducted by the Additional District Officers in all the households of 32 sample units labelled as aberrant where the number of vital events recorded for the year 1991 showed variation either above or below 25% of the average number of events for the previous 4 years. Thorough this enquiry 10 births and 3 deaths were detected additionally.

CHAPTER - II

Population and its Growth

The rural population of Kerala was estimated as 2,33,62,612 as on 1-7-1991 and as 2,33,01,720 on 1-1-1992 recording a decrease of 0.26% in the second half of 1991 where as in the previous year the population showed an increase of 0.4% for the corresponding period. In the northern region the population in the 2nd half of 1991 showed a decrease of 0.43% as against an increase of 0.88% and in the southern region a decrease of 0.13% as against an increase of 0.05% of the corresponding period of 1990. The mid year population showed an increase of 0.97% over that of the previous year. The corresponding increase between 1989 and 1990 was 1.33%.

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 1989, 1990 and 1991 are presented in table-5. Unlike in the previous year the sex ratio is seen increased from 1055 in 1990 to 1057 in 1991. In the southern retion the sex

ratio was 1052 which is lower than the northern region where the ratio was 1064. Children below the age of 14 comes 30% of the rural population in the year 1991 whereas in the previous year the corresponding percentage was 30.8.

2.3 Religion wise population (Mid-year)

The population when classified according to the three major religion showed that 57.4% was Hindus, 21.1% was Muslims and 21.5% was Christians. In the previous year the corresponding percentages were 57.4, 20.9 and 21.7 respectively. The estimated religion wise population is given in table-6.

CHAPTER - III

Measures of Fertility

3.1 Crude Birth rate

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

The crude birth rate of Kerala (Rural) was estimated as 18.37 for the year 1991 which was less by 1.18% than the previous year. When comparing the birth rates of northern and southern region the birth rate of northern region is higher than that of south by 3.93%. The birth rates of the two regions are estimated as 20.62 in the north and 16.69 in the south. In the previous year ie. in 1990 these rates were 21.97 and 17.76 respectively for north and south. The birth rate among rural population of Kerala and India for the years 1983 to 1991 are given below in table-A1.

TABLE - A1

Crude birth rate for Kerala (Rural) and India (Rural)
for the years 1983 to 1991

Year	Kerala (Rural)		Total	India (Rural)
	Northern Region	Southern Region		
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	34.3
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	33.1
1989	22.7	18.4	20.2	32.2
1990	22.0	17.9	19.6	31.7
1991	20.6	16.7	18.4	30.9

As in the previous years the birth rate showed a decreasing trend. The birth rate for the year 1991 was lower by 1.2% than the previous year. The region wise figure showed 1.4% and 1.2% decrease over the previous year for northern and southern regions respectively.

3.2 Birth rates of neighbouring States

The estimated birth rates for the rural area and the combined estimate for rural and urban areas of Kerala and its neighbouring States and all India for the year 1991 are given in table-A2.

TABLE - A2

Birth rates of neighbouring States and all India for 1991

Sl. No.	State	Rural	Rural and Urban combined
1	2	3	4
1.	Andhra Pradesh	26.5	26.0
2.	Karnataka	27.9	26.9
3.	Tamil Nadu	20.8	20.8
4.	Kerala	18.4	18.3
	All India	30.9	29.5

Source - Registrar General of India.

Comparing the birth rates in rural areas Kerala recorded the lowest birth rate (18.4) where as the highest birth rate is recorded in Karnataka (27.9). The birth rate in all these States and in India showed a decreasing trend.

3.3 Birth rates by Religion

The birth rates among the three major religions in the State viz Hindus, Muslims and Christians in rural areas of the State for the year 1991 seperately estimated for northern and southern Regions are given in table-19 appended.

When compared to previous year the birth rate among all the three religions showed a decreasing trend during the year under report. The estimated birth rates were 16.4, 25.6 and 16.6 for Hindus, Muslims and Christians respectively where as the corresponding rates for 1990 were 17.5, 27.4 and 17.4. The birth rate was highest in the Muslim community (25.6) which forms 21.1% of the total rural population. The Hindus formed 57.4% and the christians formed 21.5% of the total population. In the southern region the highest birth rate recorded as 19.6 was among Muslims and the lowest among Hindus (16.1). In the northern region also the highest birth rate was recorded among Muslims as 28.2 where as the lowest birth rate was recorded as 15.6 among Christians. The estimated number of religion-wise and region-wise births and deaths are given in table-18 appended.

3.4 Distribution of Sample Villages under different rates

The distribution of sample villages by crude birth rate for the years 1989, 1990 and 1991 are presented in Table-16 appended. The birth rate for the State (18.4) found place in the group for which the birth rate is between 16 and less than 20, as in the previous year. In the northern region 33 (54%) samples and in southern region 68 (76%) samples had birth rate below 20. On analysing the sample wise birth rate. The highest birth rate of 34.6% was recorded in one sample in the northern region and the lowest birth rate of 7.8 was recorded in one sample of southern region. The birth rates in the rural samples of region were comparatively higher than those of the southern region. It was seen that 11 samples of southern region had birth rate below 12% where as the birth rates of all the samples of northern region were above 12%. The birth rates of all samples in the northern region ranged from 12 to 38, where as in the southern region of it ranged from 7 to 33.

3.5 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. Age specific fertility rate for the year 1991 are given seperately for the two regions in table-12 appended. With a view for comparism the age specific fertility rates for the last 10 years are furnished below in table-A3.

TABLE - A3

Age specific fertility rate in Kerala (Rural) for the year 1983 to 1991

Age group	1983	1984	1985	1986	1987	1988	1989	1990	1991
1	2	3	4	5	6	7	8	9	10
15-19	34.9	34.5	33.7	36.7	31.3	28.1	26.8	26.37	25.15
20-24	172.7	179.2	177.0	166.1	171.6	153.1	156.3	151.93	141.59
25-29	161.0	168.0	155.4	147.1	140.0	128.2	134.9	134.24	125.21
30-34	87.5	74.6	73.0	67.5	55.1	57.2	54.1	50.10	47.47
35-39	42.5	35.8	29.6	27.4	24.4	24.1	19.9	14.71	15.08
40-44	13.6	14.1	14.2	11.2	7.2	6.3	6.6	5.78	4.67
45-49	3.1	4.0	1.8	2.9	2.1	3.0	1.9	1.02	0.49

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. Table-12 appended gives the age specific marital fertility rate for the year 1991. The age group of 20-24 recorded the highest marital fertility rate (272.1). In the previous year also the same age group recorded the highest marital fertility rate (291.7).

3.7 Number of surviving children and children ever born in different age group

The religion wise number of ever born and surviving children to currently married women in different age group from 15-19 to 45-49 is given in table-9 and 10 appended. Table No.11 gives the distribution of currently married women observed in sample according to age of mother and age of last child. It is observed that 7% of the mothers come under the age group 15-19 and 91% of these mothers have at least one child surviving. In the age group of 15-44 0.8% mothers have 7 children are more alive. When distributed according to religion 56.8% mothers are muslims, 36.6% are hindus and 6.6% are christians in the age group 15-19.

3.8 General Fertility Rate (GFR)

The number of live births in an year to 1000 women in the reproductive age group 15 to 49 is defined as the General Fertility Rate.

The General fertility rate for the two regions separately for the year 1990 and 1991 are given below:

Region	1991	1990
Northern region	74.8	80.9
Southern region	57.8	62.1
State	64.8	69.8

Age specific fertility rate in Kerala (Rural) for the year G.F.R. for the years 1983 to 1991 are shown below:

GFR	1983	1984	1985	1986	1987	1988	1989	1990	1991
	87.1	87.5	84.4	81.0	77.4	71.5	72.2	69.8	64.8

3.9 Total Fertility Rate

Total fertility rate denotes the average number of children that would be born to a women during her life time; if she was to pass thorough her child-bearing years conforming the age specific fertility rates of the year. The total fertility rate for the two regions for 1990 and 1991 are given below separately.

Region	1990	1991
Northern region	2.26	2.09
Southern region	1.68	1.58
State	1.92	1.79

The total fertility rate of Kerala showed a decreasing trend for the period from 1983 to 1991. The rates are given below:

TFR	1983	1984	1985	1986	1987	1988	1989	1990	1991
	2.6	2.6	2.4	2.3	2.2	2.0	2.0	1.9	1.8

3.19 Gross Reproduction Rate (GRR)

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 1983 to 1991 are given below:

GRR	1983	1984	1985	1986	1987	1988	1989	1990	1991
	1.2	1.3	1.2	1.1	1.1	1.0	0.95	0.92	0.92

3.11 Net Reproduction Rate (NRR)

Net reproduction rate is the average number of female children that would be born to a women during her life time conforming to the age groups by corresponding proportion of survivors as per life table for female (LX/lx) and then repeating the process as in gross production rate. Net reproduction rate for the years 1983 to 1991 are given below:

NRR	1983	1984	1985	1986	1987	1988	1989	1990	1991
	1.15	1.26	1.20	1.09	1.05	1.00	0.95	0.91	0.91

3.12 Still Birth Rate (SBR)

Still birth rate in the number of still births to 1000 births (both live births and still births). The still birth rate was estimated as 9.9 for the year as against 8.6 for the previous year. Still birth rates for northern and southern regions were estimated as 11.6 and 8.5 respectively. The still births rate was higher by 1.3% than that of the previous year.

3.13 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-15 appended. The first and second order births form 82.8% of the total birth and 3rd order birth comes to 9.9%. The corresponding percentages for the previous year were 78.3 and 13.2 respectively. The percentage of birth under 7th order and above reduced from 1.3% to 1% in the corrent year.

3.14 Birth by type of medical attention received

The percentage distribution of births by type of medical attention received in the year 1983 to 1991 are given below in table No.A4

TABLE - A4

Percentage distribution of births by type of medical attention received for the period from 1983 to 1991

Year	Institu- tional	Trained Professional	Untrained Professional	Non Professional	Not State
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
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
1990	89.1	3.6	5.6	1.4	0.3
1991	91.1	2.7	4.9	1.2	0.1

About 91.1% of births took place in medical institutions in the year 1991 as against 89.1 in the previous year which showed that the number of people utilising the institutional facilities provided for maternal and child health increasing every year. The distribution of number of births by various medical attention received is given in table-14 appended. The institutional facilities were utilised by 99.1% of the people of southern region where as in the northern region the percentage of users was 82.7. The corresponding percentage in the previous year was 98.1 and 79.5. The services of the untrained personal were availed by 4.9% of the people which is higher than those who availed the services of trained personal (2.7). In the previous year these percentages were 5.6 and 3.6 respectively.

3.15 Sex-ratio at birth

The number of male children born to 100 female children is defined as the sex-ratio. Sex-ratio at birth for the year 1983 to 1991 are given below:

	1983	1984	1985	1986	1987	1988	1989	1990	1991
Sex-ratio	108.7	100.8	100.2	110.7	104.2	99.3	111.3	109.3	96.5

Sex ratio at birth in northern region and southern region were 103.4 and 90.6 respectively as against 112.6 and 106.4 respectively in the previous year.

3.16 Child - Women Ratio (CWR)

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

Estimated number of children in the age group (0-4) years : 2331948
 Estimated number of women in the age group (15-49) : 6621022

Child-women ratio for the years 1983 to 1991 are given below:

	1983	1984	1985	1986	1987	1988	1989	1990	1991
CWR	400	390	377	378	383	376	368	368	352

3.17 Comparison of vital rates under Sample Registration System and Civil Registration System

Civil Registration System is the statutory system of recording the details of all births and deaths occurring in the State. While comparing the vital rates obtained under these two systems it is seen that the birth rate obtained through Civil Registration System is lower than that obtained from Sample Registration System. The reason may be 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 1991 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. As in the past a good number of births and deaths of the resident population in rural areas are seen registered in urban areas of the State under Civil Registration System.

TABLE - A5

Vital rates under Civil Registration System and Sample Registration System in Kerala (Rural) for the years 1983 to 1991

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	13.0	19.9	2.4	11.7
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

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

The rate of marriages and remarriages per 1000 population and percentage distribution of marriages according to age and sex are given in table-32 appended. The highest rate of first marriage (59.3) in the case of female was in the age group 20-24 and that for males (58.9) was the age group 25-29. In the previous year the corresponding rates were 63.8 and 67.6 in the respective age groups.

In the case of females the rate of marriage in the age group 15-19 was the same as in the previous year (31.6) where as the rate was lower by 4.5 in the age group 20-24. Among males the rate of marriages showed a decreasing trend in the age group 15-34, especially for 25-29 group, where the rate decreased from 67.6 to 58.9. Out of the total marriages 2.6 percent marriages were remarriages as against 3.1 percent of the previous year. The mean age of marriage for men was 27.8 and for women 22.3. In the previous year the mean age for men and women were 27.5 and 22.4.

CHAPTER - IV

MORTALITY MEASURES

4.1 Crude death rate

The number of deaths per 1000 mid year population is taken as the crude death rate. The deaths occurred to the usual residents population were considered for calculating the death rate as was done for birth rate. The crude death rate for the year in Kerala (Rural) was 6.2 as against 6.0 during the previous year. The death rates in northern region was 5.8 and that in southern region was 6.5. The crude birth rate for Kerala (Rural) and all India (Rural) for the year 1983 to 1991 are given in table-B1 below.

TABLE - B1

Crude death rates in Kerala Rural and All India rural for the year 1983 to 1991

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	12.0
1989	6.0	6.1	6.1	11.1
1990	5.7	6.2	6.0	10.5
1991	5.8	6.5	6.2	10.6

4.2 Death rates of neighbouring States

The death rates in rural area and rural and urban combined, provisionally for the year 1991 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)	Andhra Pradesh	10.5	9.7
2)	Karnataka	9.8	9.0
3)	Tamil Nadu	9.5	8.8
4)	Kerala	6.2	6.0
	All India	10.6	9.8

Comparing the death rates in rural areas of the neighbouring states, Andhra Pradesh recorded the highest death rate (10.5) while Kerala recorded the lowest death rate 6.2 for the year.

4.3 Death rate among religions

The death rates among the three major religions viz Hindus, Muslims and Christians are given in table-19 appended.

The lowest death rate was observed among the Christians of the northern region (3.9) where as the highest death rate (7.1) was observed among the Christians of southern region for the rural areas of the State. The corresponding rates in the previous year was 3.5 and 6.2 respectively. When the state as a whole is concerned (rural) the highest birth rate was recorded among Christians (6.6) and the lowest rate was recorded among Muslims (5.2). The death rate changed from 6.5 to 6.4 among Hindus 4.7 to 5.2 among Muslims and 5.7 to 6.6 among Christians when compared with the rates of previous 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-groups according to region and sex are given in table-21(a) appended. The age-group 70 and above denotes the highest death rate (89.4) and the lowest rate (0.3) in the age group 10-14. In the previous year these rates were 86.4 and 0.4 respectively. Between the two regions the death rate in the age group (70 and above) was comparatively high in the northern region during the current year as well as in the previous year. Similarly the death rate among males (100.5) was higher than the females (80.3) in the same age group. The corresponding rates in the previous year were 91.4 and 82.3 respectively. During 1990 the age-specific death rates in the age group 70 and above for the northern and southern regions were 96.8 and 81.9. When compared with the current year's rates the death rate in the age group 70 and above increased by 10% and in the case of females it decreased by 2%. The death rate among the children below one year was 16.6 as against 16.4 in the previous year. The death rate in the same age group among males and females in the current year were 20.7 and 12.1 respectively where as in the previous year the corresponding rates were 22 and 10.5.

4.5 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 estimated number of infant deaths and infant mortality rates in Kerala (Rural) according to sex and region are given in tabl; 26 appended. The infant mortality rates of Kerala for the year 1983 to 1991 are given below.

Infant mortality rate

1983	1984	1985	1986	1987	1988	1989	1990	1991
38.9	30.1	33.0	28.6	27.0	29.9	23.3	17.1	16.6

The infant mortality rates in northern and southern regions were 20.3 and 13.3 respectively as against 17.9 and 16.3 in the previous year showing a decrease of 2.4 in the northern region and an increase of 3 in the souther region during 1991.

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 1000 live births in an year. During 1991 the Neo-natal mortality rate was 10.0 as against 12.2 of 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 7.2 as against 10.6 in the previous year. Th 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
Mortality Rate**

Region	Peri-natal			Neo-natal			Infant mortality		
	M	F	Total	M	F	Total	M	F	Total
1	2	3	4	5	6	7	8	9	10
Northern	10.5	6.0	8.3	15.5	10.2	12.9	25.5	14.8	20.3
Southern	9.1	3.7	6.3	10.7	4.5	7.4	18.1	8.9	13.3
State	9.8	4.8	7.2	13.1	7.1	10.0	21.8	11.7	16.6

4.8 Distribution of samples according to death rate of each sample

Table 25 appended given the distribution of samples according to death raes for 1991 and for the previous two years. During the year under report 43 samples units of northern region (70.5%) and 53 units of the southern region (59.5%) recorded death rate below 7 where as in the previous year the corresponding rates were 77.1% and 61.8% when all the samples of the state were taken into account 64% of them

recorded death rate below 7. The highest birth rate of 13.1 was recorded by one sample in the northern region. No death was reported from the two samples, one in northern and the other in the southern region.

4.9 Medical attention received before death

The percentage distribution of deaths according to medical attention received before death during the year 1983 to 1991 are given in table-B4 below:

TABLE - B4

Percentage distribution of deaths recording to type of medical attention received for the years 1983 to 1991

Year	Institu- tional	Qualified medical practioner	Unqualified medical practioner	None
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
1990	47	36	7	10
1991	45	35	5	15

It can be seen that about 85% of the persons were received some kind of attention before death in the current year where as the corresponding percentage was 90 during the previous year.

4.10 Comparison of mortality rates under Civil Registration System and Sample Registration System for the years from 1983 to 1991

Year	Death Rate		Infant Mortality Rate	
	Civil Registration	Sample Registration	Civil Registration	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	4.1	6.3	7.3	29.9
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

As in the previous years the vital rates ie death rate and infant mortality rate - estimated under civil registration system are seen 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 brths and deaths of the resident population in rural areas are registered in urban areas where they seek better medical facilities.

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

Expectation of life in different age group is calculated in the life tables - Table No.33, 34 and 35 appended to this report. The life tables were prepared sex-wise and population wise separately based on age specific death rates for the years 1989, 1990 and 1991. The expectation of life at birth for males, females and for both sex together were calculated as 68.1, 74.7 and 71.3 as against 67.9, 74.7 and 71.1 respectively in the previous year. Expectation of life of females is seen always higher than that of males. The difference in expectation of life between male and female was 6.6 in the current year and 6.8 in the previous year. The expectation of life calculated for the last nine years are given in table-B6 below:

TABLE - B6

Expectation of life based on age specific death rates for the years 1983 to 1991

Age specific death rates for the years	Males	Females	Males and 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
1988, 1989, 1990	67.9	74.7	71.1
1989, 1990, 1991	68.1	74.7	71.3

Method adopted for calculation of life tables

$$m_x = \frac{\text{Total of age specific death rates for the last 3 years}}{3 \times 1000}$$

$q_0 = \frac{D1}{B1} + \frac{D2}{B2}$ Where D1 is the number of deaths of children born during the previous year and died during the current year and D2 is that of the children born and died during the current year. B1 and B2 denote the total number of births occurred during the previous year and current year respectively.

$$q_x = \frac{2 \times c_x \times m_x}{2 + c_x \times m_x} \text{ where 'c' is the class interval}$$

Let l_0 be 100000

$$l_x = l_0 - d_0$$

$$d_x = l_x \times q_x$$

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

$$L_0 = f \times l_0 + (1 - f) \times l_1 \text{ where } f = \frac{D_1}{D_1 + D_2}$$

$$L_x = \frac{l_x + l_{x+1}}{2} \times C$$

$$L_{70} = \frac{d_{70}}{m_{70}}$$

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

Mid-year Estimated Population, Births, Deaths and Vital Rates - 1991

STRATUM	Estimated population, births & 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	35123	756	151	-	50	21.52	4.30	-	66.14
I-B	195202	3900	1560	111	223	19.98	8.00	27.67	57.18
I-C	932207	21925	4753	-	485	23.52	5.10	-	22.12
I-D	8793205	178714	51462	2297	3402	20.32	5.85	12.69	19.04
Northern Region	9955737	205295	57926	2408	4160	20.62	5.82	11.59	20.26
II-A	109898	2799	122	-	-	25.47	1.11	-	-
II-B	335091	4930	2380	170	-	14.71	7.10	33.33	-
II-C	1462318	26266	9758	91	91	17.96	6.67	3.45	3.46
II-D	11499568	189772	74444	1656	2877	16.50	6.47	8.65	15.16
Southern Region	13406875	223767	86204	1917	2968	16.69	6.47	8.49	13.26
STATE	23362612	429062	144630	4325	7128	18.37	6.19	9.98	16.61

TABLE - 2

Sample Population and Estimated Population for each Stratum

STRATUM	Observed population in samples in each stratum		Estimated population for each stratum	
	1-7-91	1-1-92	1-7-91	1-1-92
1	2	3	4	5
I-A	697	698	35123	35174
I-B	1752	1723	195202	191971
I-C	9609	9628	932207	934050
I-D	103375	102883	8793205	8751354
Northern Region	115433	114932	9955737	9912549
II-A	903	914	109898	111236
II-B	1971	1985	335091	337471
II-C	16034	16018	1462318	1460859
II-D	131919	131690	11499568	11479605
Southern Region	150827	150607	13406875	13389171
STATE	266260	265539	23362612	23301720

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	355	697	17234	17889	35123
I-B	850	902	1752	94704	100498	195202
I-C	4610	4999	9609	447234	484973	932207
I-D	50127	53248	103375	4263865	4529340	8793205
Northern Region	55929	59504	115433	4823037	5132700	9955737
II-A	457	446	903	55619	54279	109898
II-B	954	1017	1971	162190	172901	335091
II-C	7807	8227	16034	712006	750312	1462318
II-D	64280	67639	131919	5603380	5896188	11499568
Southern Region	73498	77329	150827	6533195	6873680	13406875
STATE	129427	136833	266260	11356232	12006380	23362612

TABLE - 4

Mid-year Sample Population and Estimated Population according to 1991

Stratum Age group	Observed population			Estimated population		
	Male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7
0 - 1	2520	2386	4906	221182	209632	430814
1 - 4	11028	10708	21736	964188	936946	1901134
5 - 9	13049	12950	25999	1142892	1132648	2275540
10 - 14	13842	13324	27166	1212658	1167834	2380492
15 - 19	13888	13906	27794	1216159	1218581	2434740
20 - 24	13162	15864	29026	1156240	1390842	2547082
25 - 29	11737	12983	24720	1031237	1139400	2170637
30 - 34	10058	10610	20668	882654	931386	1814040
35 - 39	8382	8792	17174	734569	771509	1506078
40 - 44	6858	7365	14223	603301	647917	1251218
45 - 49	5640	5940	11580	496164	521387	1017551
50 - 54	4932	5420	10352	433518	477837	911355
55 - 59	4301	4914	9215	378221	431737	809958
60 - 64	3521	3816	7337	310248	336001	646249
65 - 69	2662	3194	5856	233930	281223	515153
70 & above	3847	4661	8508	339071	411500	750571
TOTAL	129427	136833	266260	11356232	12006380	23362612

TABLE - 5

Sex ratio and percentage distribution of population by age group
(years 1989, 1990, 1991)

Age group	1989		1990		1991	
	Sex ratio	%age population	Sex ratio	%age population	Sex ratio	%age population
1	2	3	4	5	6	7
0 - 4	951	10.3	956	10.3	967	10.0
5 - 9	983	10.1	989	10.0	991	9.7
10 - 14	976	10.6	972	10.5	963	10.2
(0 - 14)	(970)	(31.0)	(972)	(30.8)	(974)	(30.0)
15 - 19	1006	11.1	997	10.8	1002	10.4
20 - 24	1217	11.0	1207	11.0	1203	10.9
25 - 29	1073	9.1	1086	9.2	1105	9.3
30 - 34	1083	7.3	1070	7.5	1055	7.8
35 - 39	1038	5.9	1050	6.1	1050	6.4
40 - 44	1100	5.1	1087	5.1	1074	5.4
45 - 49	1065	4.2	1059	4.2	1051	4.3
50 - 54	1088	4.0	1100	4.0	1102	3.9
55 - 59	1108	3.3	1110	3.4	1142	3.5
60 - 64	1093	2.8	1077	2.7	1083	2.8
65 - 69	1138	2.2	1169	2.2	1202	2.2
70 & above	1291	3.0	1256	3.0	1214	3.2
All	1056	100.0	1055	100.0	1057	100.0

TABLE - 6

Region-wise Sample Population and Estimated Population for each Stratum - 1991

STRATUM	Observed population				Estimated population			
	Hindu	Muslim	Christian	Total	Hindu	Muslim	Christian	Total
1	2	3	4	5	6	7	8	9
I-A	389	118	190	697	19603	5946	9574	35123
I-B	1293	447	12	1752	144062	49803	1337	195202
I-C	4824	4354	431	9609	467995	422399	41813	932207
I-D	59461	34851	9063	103375	5057826	2964469	770910	8793205
Northern Region	65967	39770	9696	115433	5689486	3442617	823634	9955737
II-A	116	11	776	903	14118	1339	94441	109898
II-B	1124	-	847	1971	191092	-	143999	335091
II-C	8221	1259	6554	16034	749764	114822	597732	1462318
II-D	77572	15748	38599	131919	6762062	1372776	3364730	11499568
Southern Region	87033	17018	46776	150827	7717036	1488937	4200902	13406875
STATE	153000	56788	56472	266260	13406522	4931554	5024536	23362612

TABLE - 7

Stratum-wise Live Births observed in Samples and estimated according to Sex - 1991

STRATUM	Observed in samples			Estimated		
	Male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7
I-A	11	4	15	554	202	756
I-B	16	19	35	1783	2117	3900
I-C	119	107	226	11545	10380	21925
I-D	1064	1037	2101	90505	88209	178714
Northern region	1210	1167	2377	104387	100908	205295
II-A	8	15	23	974	1825	2799
II-B	10	19	29	1700	3230	4930
II-C	141	147	288	12859	13407	26266
II-D	1042	1135	2177	90832	98940	189772
Southern Region	1201	1316	2517	106365	117402	223767
STATE	2411	2483	4894	210752	218310	429062

TABLE - 8

Estimated number of total Women and Live Births in different age groups - 1991

Religion	Age group of women							Total
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	
1	2	3	4	5	6	7	8	9
A. Estimated No. of Total women								
1. Northern Region	559063	578218	455190	375392	308493	254425	215569	2746350
2. Southern Region	659518	812624	684210	555994	463016	393492	305818	3874672
STATE	1218581	1390842	1139400	931386	771509	647917	521387	6621022
B. Estimated No. of married women								
1. Northern Region	90223	356304	368960	316532	259106	202281	155000	1748406
2. Southern Region	28992	367488	533415	492497	409813	338795	248593	2419593
STATE	119215	723792	902375	809029	668919	541076	403593	4167999
C. Estimated No. of live births								
1. Northern Region	22696	93811	59236	19453	7608	2236	255	205295
2. Southern Region	7946	103108	83423	24478	4027	785	-	223767
STATE (All births)	30642	196919	142659	43931	11635	3021	255	429062
STATE (Female births)	15054	98325	74509	22375	6226	1821	-	218310

TABLE - 10

Distribution of currently married women observed according to age of mother, religion and number of children surviving - 1991

Age group	Religion	Number of children surviving							Total	
		1	2	3	4	5	6	7 and above		
1	2	3	4	5	6	7	8	9	10	
15-19	H	129	10	-						139
	M	178	20	2						200
	C	12	1	-						13
20-24	H	786	376	63	8					1233
	M	266	256	97	27	2				648
	C	251	89	11	1					352
25-29	H	298	374	139	24	5	2	-		842
	M	47	98	135	57	23	11	3		374
	C	175	193	46	3	-	-	-		417
30-34	H	61	101	45	17	4	-	1		229
	M	22	12	23	37	23	13	17		147
	C	26	55	45	2					128
35-39	H	8	14	11	4	2	2	1		42
	M	11	11	5	6	11	10	16		70
	C	7	8	9	-	-	-	-		24
40-44	H	6	2	-	6	2	-	1		17
	M	2	-	1	1	3	3	6		16
	C	-	-		1	-				1
45-49	H			1						1
	M		1							1
	C									

TABLE - 11

Distribution of currently married women observed in sample according to age of mother and age of the last child - 1991

	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	323	23	6							352
20-24	1213	565	290	110	51	1	3			2233
25-29	527	442	342	177	96	29	9	3	8	1633
30-34	116	103	81	71	37	37	36	10	13	504
35-39	17	19	28	22	8	15	11	4	13	137
40-44	5	6	7	3	3	3	4	1	3	35

TABLE - 12

Age specific fertility rate, age specific marital fertility rate, GFR, TFR & GRR - 1991

1	Age group of women						
	15-19	20-24	25-29	30-34	35-39	40-44	45-49
	2	3	4	5	6	7	8
(A) Age specific fertility rate							
I. Northern Region	40.60	162.24	130.13	51.82	24.66	8.79	1.18
II. Southern Region	12.85	126.89	121.93	44.03	8.90	1.99	-
State (all births)	25.15	141.59	125.21	47.47	15.08	4.67	0.49
State (Female births)	12.35	70.69	65.39	24.02	8.07	2.81	-
(B) Age specific marital fertility rate							
I. Northern Region	251.56	263.29	160.55	61.46	29.37	11.0	1.65
II. Southern Region	274.08	280.58	156.40	49.71	9.83	2.32	-
State (all births)	257.04	272.07	158.10	54.30	17.40	5.59	0.64
	<u>I. NORTHERN REGION</u>		<u>II. SOUTHERN REGION</u>			<u>STATE</u>	
G.F.R.	74.8		57.8			64.8	
T.F.R.	2.09		1.58			1.79	
G.R.R.						0.92	

TABLE - 13

Live births observed in samples classified by month of occurrence - 1991

Stratum	Number of live births reported from samples												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
	2	3	4	5	6	7	8	9	10	11	12	13	14
I-A	2	3	-	1	-	1	1	1	-	2	2	2	15
I-B	3	2	6	3	5	4	2	2	2	1	4	1	35
I-C	18	16	24	32	18	15	21	20	15	14	19	14	226
I-D	170	182	194	168	183	188	198	184	152	146	175	161	2101
Northern Region	193	203	224	204	206	208	222	207	169	163	200	178	2377
II-A	2	-	4	2	2	3	1	-	2	2	2	3	23
II-B	4	2	3	2	4	2	4	4	2	1	1	-	29
II-C	24	14	22	26	28	33	15	24	31	22	34	15	288
II-D	195	162	204	198	233	179	177	182	185	140	158	174	2177
Southern Region	225	178	233	228	257	217	197	210	220	165	195	192	2517
KERALA	418	381	457	432	463	425	419	417	389	328	395	370	4894

TABLE - 14

Live births observed in samples by type of medical attention at delivery - 1991

Stratum	Type of medical attention					Total
	Institu- tional	Trained profes- sional	Untrained profes- sional	Non-pro- fessional	Not stated	
1	2	3	4	5	6	7
I-A	15	-	-	-	-	15
I-B	26	-	5	4	-	35
I-C	179	33	11	3	-	226
I-D	1745	86	216	48	6	2101
Northern Region	1965	119	232	55	6	2377
II-A	23	-	-	-	-	23
II-B	29	-	-	-	-	29
II-C	279	9	-	-	-	288
II-D	2164	5	6	2	-	2177
Southern Region	2495	14	6	2	-	2517
State	4460	133	238	57	6	4894

TABLE - 15

Percentage distribution of births by age of mother and order of birth of child - 1991

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	87.5	12.5	-	-	-	-	-	-	-	-	100
20-24	53.1	38.4	7.0	1.3	0.2	-	-	-	-	-	100
25-29	34.0	45.4	12.4	5.3	1.7	0.8	0.4	-	-	-	100
30-34	18.0	37.8	19.8	12.2	5.4	3.3	1.5	2.0	-	-	100
35-39	13.9	29.0	16.5	7.8	7.8	11.3	6.0	3.5	3.4	0.8	100
40-44	21.2	15.1	15.1	12.1	9.0	6.0	9.0	-	9.0	3.5	100
45-49	20.0	20.0	-	-	20.0	-	-	20.0	-	20.0	100
All Ages	44.4	38.4	9.9	3.9	1.5	0.9	0.4	0.3	0.2	0.1	100

TABLE - 16

Distribution of samples according to birth rate of each sample

Birth rate	Northern Region		Southern Region		STATE					
					1991		1990		1989	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	2	3	4	5	6	7	8	9	10	11
Less than 12	-	-	11	12.4	11	7.4	5	3.3	6	4.0
12 & less than 16	15	24.6	28	31.5	43	28.7	30	20.0	24	16.0
16 & less than 20	18	29.5	29	32.6	47	31.3	55	36.7	53	35.3
20 & less than 24	10	16.4	19	21.3	29	19.3	38	25.3	34	22.7
24 & less than 28	8	13.1	1	1.1	9	6.0	14	9.3	17	11.3
28 & less than 32	5	8.2	-	-	5	3.3	4	2.7	9	6.0
32 & less than 36	5	8.2	1	1.1	6	4.0	3	2.0	4	2.7
36 & less than 40	-	-	-	-	-	-	1	0.7	3	2.0
40 & less than 44	-	-	-	-	-	-	-	-	-	-
44 and above	-	-	-	-	-	-	-	-	-	-
Total	61	100.0	89	100.0	150	100.0	150	100.0	150	100.0

TABLE -17

Still births observed in samples and estimated according to sex and still birth rates - 1991

Stratum	Still births observed			Still births estimated			Total estimated No. of live births and still births	Still birth rate
	Male	Female	Total	Male	Female	Total		
	2	3	4	5	6	7		
1	2	3	4	5	6	7	8	9
I-A	-	-	-	-	-	-	756	-
I-B	-	1	1	-	111	111	4011	27.67
I-C	-	-	-	-	-	-	-	-
I-D	12	15	27	1021	1276	2297	181011	12.69
Northern Region	12	16	28	1021	1387	2408	207703	11.59
II-A	-	-	-	-	-	-	2799	-
II-B	1	-	1	170	-	170	5100	33.33
II-C	1	-	1	91	-	91	26357	3.45
II-D	7	12	19	610	1046	1656	191428	8.65
Southern Region	9	12	21	871	1046	1917	225684	8.49
State	21	28	49	1892	2433	4325	433387	9.98

TABLE - 18

Estimated number of Religion-wise Population, Births, Deaths and Birth and Death rates - 1991

	Hindu	Muslim	Christian	Total
1	2	3	4	5
I. Estimated population				
Northern Region	5689486	3442617	823634	9955737
Southern Region	7717036	1488937	4200902	13406875
State	13406522	4931554	5024536	23362612
II. Estimated births				
Northern Region	93379	983341	13159	205295
Southern Region	124239	29648	70317	223767
State	217618	127989	83476	429062
III. Estimated deaths				
Northern Region	36768	17573	3499	57926
Southern Region	48772	8123	29897	86704
State	85540	25696	33396	144630
Birth rate				
Northern Region	16.75	28.22	15.58	20.62
Southern Region	16.11	19.56	16.74	16.69
State	16.38	25.60	16.55	18.37
Death rate				
Northern Region	6.52	5.10	3.94	5.82
Southern Region	6.34	5.28	7.12	6.47
State	6.42	5.15	6.60	6.19

TABLE - 19

Religion-wise Birth and Death rate - 1991

Stratum	Birth rate			Death rate		
	Northern Region	Southern Region	State	Northern Region	Southern Region	State
1	2	3	4	5	6	7
Hindu	16.75	16.11	16.38	6.52	6.34	6.42
Muslim	28.22	19.56	25.60	5.10	5.28	5.15
Christian	15.58	16.74	16.55	3.94	7.12	6.60
Total	20.62	16.69	18.37	5.82	6.47	6.19

TABLE - 20

Stratum-wise Deaths observed in samples and estimated according to Sex - 1991

Stratum	Death observed in samples			Estimated No. of death		
	Male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7
I-A	2	1	3	101	50	151
I-B	9	5	14	1003	557	1560
I-C	28	21	49	2716	2037	4753
I-D	362	243	605	30792	20670	51462
Northern Region	401	270	671	34612	23314	57926
II-A	1	-	1	122	-	122
II-B	8	6	14	1360	1020	2380
II-C	54	53	107	4925	4833	9758
II-D	466	388	854	40622	33822	74444
Southern Region	529	447	976	47029	39675	86704
State	930	717	1647	81641	62989	144630

TABLE - 21(a)

Distribution of death observed in samples according to age and sex - 1991

Age group	Northern region			Southern region			State		
	Male	Fe- male	Total	Male	Fe- male	Total	Male	Fe- male	Total
1	2	3	4	5	6	7	8	9	10
Below 1	31	17	48	22	12	34	53	29	82
1 - 4	15	3	18	9	8	17	24	11	35
5 - 9	6	2	8	4	2	6	10	4	14
10 - 14	3	3	6	0	3	3	3	6	9
15 - 19	9	5	14	7	6	13	16	11	27
20 - 24	7	9	16	11	5	16	18	14	32
25 - 29	10	5	15	9	9	18	19	14	33
30 - 34	10	10	20	9	9	18	19	19	38
35 - 39	6	4	10	8	16	24	14	20	34
40 - 44	12	6	18	13	8	21	25	14	39
45 - 49	16	8	24	20	10	30	36	18	54
50 - 54	27	11	38	30	17	47	57	28	85
55 - 59	35	15	50	49	19	68	84	34	118
60 - 64	24	30	54	52	18	70	76	48	124
65 - 69	43	31	75	47	41	88	90	72	162
70 & above	148	110	258	239	264	503	387	374	761
Total	402	269	671	529	447	976	931	716	1647

TABLE - 21(b)

Distribution of estimated deaths according to age and sex - 1991

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	2665	1497	4162	1922	1046	2968	4587	2543	7130
1 - 4	1288	255	1543	784	706	1490	2072	961	3033
5 - 9	510	182	692	349	174	523	859	356	1215
10 - 14	281	255	536	-	265	265	281	520	801
15 - 19	804	425	1229	610	523	1133	1414	948	2362
20 - 24	595	790	1385	963	440	1403	1558	1230	2788
25 - 29	929	437	1366	785	788	1573	1714	1225	2939
30 - 34	863	851	1714	788	788	1576	1651	1639	3290
35 - 39	488	340	828	697	1399	2096	1185	1739	2924
40 - 44	1033	522	1555	1137	697	1834	2170	1219	3389
45 - 49	1373	693	2066	1751	962	2713	3124	1655	4779
50 - 54	2309	936	3245	2706	1490	4196	5015	2426	7441
55 - 59	3001	1276	4277	4367	1664	6031	7368	2940	10308
60 - 64	2104	2623	4727	4645	1589	6234	6749	4212	10961
65 - 69	3705	2640	6345	4192	3607	7799	7897	6247	14144
70 & above	12749	9507	22256	21333	23537	44870	34082	33044	67126
All	34697	23229	57926	47029	39675	86704	81726	62904	144630

TABLE - 22

Age specific death rates based on estimated values - 1991

Age group	Northern Region	Southern Region	Total	State	
				Male	Female
1	2	3	4	5	6
Less than 1	20.96	12.78	16.55	20.74	12.13
1 - 4	1.62	1.57	1.60	2.15	1.03
5 - 9	0.61	0.46	0.53	0.75	0.31
10 - 14	0.47	0.21	0.34	0.23	0.45
15 - 19	1.11	0.86	0.97	1.16	0.78
20 - 24	1.30	0.95	1.09	1.35	0.88
25 - 29	1.57	1.21	1.35	1.66	1.08
30 - 34	2.40	1.43	1.81	1.87	1.76
35 - 39	1.41	2.28	1.94	1.61	2.25
40 - 44	3.18	2.41	2.71	3.60	1.88
45 - 49	5.08	4.44	4.70	6.30	3.17
50 - 54	9.26	7.48	8.16	11.57	5.08
55 - 59	14.10	11.91	12.73	19.48	6.81
60 - 64	20.48	15.01	16.96	21.75	12.54
65 - 69	35.19	23.29	27.46	33.76	22.21
70 & above	99.05	85.32	89.43	100.52	80.30
All ages	5.82	6.47	6.19	7.20	5.24

TABLE - 23

Deaths observed in samples classified by month of occurrence - 1991

Stratum	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-A	-	-	-	-	-	2	1	-	-	-	-	-	3
I-B	2	-	2	1	2	1	1	-	2	1	1	1	14
I-C	2	2	4	2	11	3	4	3	5	6	7	-	49
I-D	58	34	50	50	57	60	52	56	43	34	45	66	605
Northern Region	62	36	56	53	70	66	58	59	50	41	53	67	671
II-A	1	-	-	-	-	-	-	-	-	-	-	-	1
II-B	-	1	2	2	1	1	-	-	2	2	1	2	14
II-C	7	5	3	4	11	12	10	9	7	9	13	17	107
II-D	64	55	74	62	59	83	89	85	71	60	85	67	854
Southern Region	72	61	79	68	71	96	99	94	80	71	99	86	976
State	134	97	135	121	141	162	157	153	130	112	152	153	1647

TABLE - 24

Deaths classified by type of medical attention - 1991

Stratum	Type of Medical attention				Total
	Insti- tutio- nal	Qualified medical practitioner	Unqualified medical practitioner	No treat- ment	
1	2	3	4	5	6
I-A	1	-	2	-	3
I-B	5	7	-	2	14
I-C	15	18	13	3	49
I-D	231	203	27	144	605
Northern Region	252	228	42	149	671
II-A	-	1	-	-	1
II-B	5	8	-	1	14
II-C	43	46	5	13	107
II-D	439	291	28	96	854
Southern Region	487	346	33	110	976
State	739	574	75	259	1647

TABLE - 25

Distribution of samples according to death rate of each sample

Death rate	Northern Region		Southern Region		State					
					1991		1990		1989	
	No.	%	No.	%	No.	%	No.	%	No.	%
1	2	3	4	5	6	7	8	9	10	11
Less than 1	1	1.6	1	1.1	2	1.3	-	-	-	-
1 & less than 3	3	4.9	7	7.9	10	6.7	15	10.0	6	4.0
3 & less than 5	21	34.5	15	16.8	36	24.0	37	24.7	21	14.0
5 & less than 7	18	29.5	30	33.7	48	32.0	50	33.3	76	50.7
7 & less than 9	12	19.7	24	27.0	36	24.0	32	21.3	30	20.0
9 & less than 11	4	6.6	12	13.5	16	10.6	12	8.0	12	8.0
11 & less than 13	1	1.6	-	-	1	0.7	2	1.3	4	2.7
13 & less than 15	1	1.6	-	-	1	0.7	1	0.7	1	0.6
15 and above	-	-	-	-	-	-	1	0.7	-	-
Total	61	100.0	89	100.0	150	100.0	150	100.0	150	100.0

TABLE - 26

Infant deaths observed and estimated according to sex and infant mortality rate - 1991

Stratum	Infant deaths observed			Infant deaths estimated			Estimated live births			Infant mortality rate				
	Fe-		To-	Fe-		Total	Male		Female	Total	Male		Female	Total
	Male	male	tal	Male	male	Total	Male	Female	Total	Male	Female	Total		
1	2	3	4	5	6	7	8	9	10	11	12	13		
I-A	1	-	1	50	-	50	554	202	756	90.25	-	66.14		
I-B	1	1	2	111	112	223	1783	2117	3900	62.25	52.90	57.18		
I-C	3	2	5	291	194	485	11642	10283	21925	25.00	18.87	22.12		
I-D	26	14	40	2211	1191	3402	90505	88209	178714	24.43	13.50	19.04		
Northern Region	31	17	48	2663	1497	4160	104484	100811	205295	25.49	14.85	20.26		
II-A	-	-	-	-	-	-	974	1825	2799	-	-	-		
II-B	-	-	-	-	-	-	1700	3230	4930	-	-	-		
II-C	1	-	1	91	-	91	12859	13407	26266	7.07	-	3.46		
II-D	21	12	33	1831	1046	2877	90832	98940	189772	20.16	10.57	15.16		
Southern Region	22	12	34	1922	1046	2968	106365	117402	223767	18.07	8.91	13.26		
State	53	29	82	4585	2543	7128	210849	218213	429062	21.75	11.65	16.61		

TABLE - 28

Estimated number of Infant death for the year 1991 of children born during the current year and previous year

Stratum	Born in 1990												Born in 1991											
	Less than 7 days			Less than 28 days			Less than 1 year			Less than 7 days			Less than 28 days			Less than 1 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	-	-	-	-	-	-	-	-	-	50	-	50	50	-	50	-	-	50						
I-B	-	-	-	-	-	-	112	112	224	-	-	-	-	-	-	-	-	-						
I-C	-	-	-	97	-	97	97	-	97	194	97	291	194	97	291	194	194	388						
I-D	-	-	-	-	-	-	170	85	255	851	510	1361	1276	936	2212	2041	1106	3147						
Northern Region	-	-	-	97	-	97	379	197	576	1095	607	1702	1520	1033	2553	2285	1300	3585						
II-A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
II-B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
II-C	-	-	-	-	-	-	-	-	-	91	-	91	91	-	91	91	-	91						
II-D	-	-	-	-	-	-	349	262	611	872	436	1308	1046	523	1569	1482	785	2267						
Southern Region	-	-	-	-	-	-	349	262	611	963	436	1399	1137	523	1660	1573	785	2358						
State	-	-	-	97	-	97	728	459	1187	2058	1043	3101	2667	1556	4213	3858	2085	5943						

TABLE - 29

Estimated number of Perinatal, Neonatal and Infant deaths according to sex - 1991

Stratum	Estimated number of infant deaths								
	Less than 7 days			Less than 28 days			Less than 1 year		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	2	3	4	5	6	7	8	9	10
I	1095	607	1702	1617	1033	2650	2664	1497	4161
II	963	436	1399	1137	523	1660	1922	1047	2969
Total	2058	1043	3101	2754	1556	4310	4586	2544	7130

TABLE - 30

Births and Deaths detected through overlapping survey and intensive enquiry classified according to place and type of births and deaths - 1991

Stratum	Birth					Deaths					
	To- tal	Place		Kind		To- tal	Place		Kind		
		In	Out	Live birth	Still birth		In	Out	Infant death	Others death	
1	2	3	4	5	6	7	8	9	10	11	
I-A	1	-	1	1	-	2	1	1			2
I-B	1	-	1	1	-	-	-	-	1		
I-C	6	-	6	6	-	1	-	1	1		
I-D	57	7	50	57	-	12	8	4	4		8
Northern Region	65	7	58	65	-	15	9	6	5		10
II-A	-	-	-	-	-	-	-	-			
II-B	-	-	-	-	-	-	-	-			
II-C	2	1	1	2	-	-	-	-			
II-D	36	8	28	36	-	13	9	4	2		11
Southern Region	38	9	29	38	-	13	9	4	2		11
State	103	16	87	103	-	28	18	10	7		21

TABLE - 31

Distribution of births and deaths recorded by enumerator and supervisor detected through overlapping survey and intensive enquiry - 1991

Items	Births		Deaths			
	Northern Region	Southern Region	Northern Region	Southern Region		
1	2	3	4	5	6	7
Common to enumerator and supervisor	1796	1770	3566	537	782	1319
Registered by enumerator (No.)	80	106	186	20	52	72
Percentage	4.5	6.0	5.2	3.7	6.6	5.5
Listed by supervisor (No.)	436	603	1039	96	130	226
Percentage						
Total netted by enumerator & supervisor	2309	2475	4784	653	962	1615
Detected by others	3	4	7	3	1	4
Overlapping survey	62	31	93	14	11	25
Intensive enquiry	3	7	10	1	2	3
Total	2377	2517	4894	671	976	1647

TABLE - 33

Life table of Males based on age specific death rates for the year 1991

Age x to x + n	Age specific death rate				Mean age specific death rate	Probability of a person aged x dying before age x + x (gx)	Number of deaths (dx)	Number surviving to age x out of 100000 born alive (lx)	Year of life lived between x and x + n (Lx)	Year of life lived between x and above x (Tx)	Expectation of life in years (Ex)				
	1989	1990	1991	1991							10	11	12		
Less than 1	25.12	22.04	20.74	0.02263	0.02139	2139	100000	98201	6805621	68.06	0				
1 - 4	1.43	2.05	2.15	0.00188	0.00749	733	97861	389978	6707420	68.54	1				
5 - 9	0.52	0.93	0.75	0.00073	0.00364	354	97128	484755	6317442	65.04	5				
10 - 14	0.35	0.56	0.23	0.00038	0.00190	184	96774	483410	5832687	60.27	10				
15 - 19	0.90	1.00	1.16	0.00102	0.00509	492	96590	481720	5349277	55.38	15				
20 - 24	2.00	0.98	1.35	0.00144	0.00717	689	96098	478768	4867557	50.65	20				
25 - 29	1.37	2.13	1.66	0.00172	0.00856	817	95409	475003	4388789	46.00	25				
30 - 34	1.97	2.15	1.87	0.00200	0.00995	941	94592	470608	3913786	41.38	30				
35 - 39	3.22	3.52	1.61	0.00278	0.01380	1292	93651	465025	3443178	36.77	35				
40 - 44	3.00	5.02	3.60	0.00387	0.01916	1770	92359	457370	2978153	32.25	40				
45 - 49	7.68	5.65	6.30	0.00654	0.03217	2914	90589	445660	2520783	27.83	45				
50 - 54	12.84	11.35	11.57	0.01192	0.05788	5075	87675	425688	2075123	23.67	50				
55 - 59	16.30	16.79	19.48	0.01752	0.08392	6932	82600	395670	1649435	19.97	55				
60 - 64	27.56	25.43	21.75	0.02491	0.11725	8872	75668	356160	1253765	16.57	60				
65 - 69	36.19	34.27	33.76	0.03474	0.15982	10675	66796	307293	897605	13.44	65				
70 & above	93.25	91.44	100.52	0.09507	1.00000	56121	56121	590312	590312	10.52	70				

TABLE - 34

Life table of Females based on age specific death rates for the year 1991

Age x to x + n	Age specific death rate		Mean specific death rate n mx	Probability of a person aged x dy- ing before age x + x (gx)	Number of deaths (dx)	Number surviving to age x out of 100000 born at age (lx)	Year of life lived bet- ween x and x + n (Lx)	Year of life lived bet- ween x and above x (Tx)	Expectation of life in years (Ex)	Beginning age (x)	
	1989	1991									
1	2	3	4	5	6	7	8	9	10	11	12
Less than 1	23.23	10.54	12.13	0.01532	0.01167	1167	100000	99046	7472771	74.73	0
1 - 4	2.78	2.12	1.03	0.00198	0.00789	780	98833	393772	7373725	74.61	1
5 - 9	0.52	0.44	0.31	0.00042	0.00210	206	98053	489750	6979953	71.19	5
10 - 14	0.41	0.29	0.45	0.00038	0.00190	186	97847	488770	6490203	66.33	10
15 - 19	1.02	0.56	0.78	0.00079	0.00394	385	97661	487343	6001433	61.45	15
20 - 24	1.47	1.05	0.88	0.00113	0.00563	548	97276	485010	5514090	56.68	20
25 - 29	1.05	1.02	1.08	0.00105	0.00524	507	96728	482373	5029080	51.99	25
30 - 34	0.89	1.44	1.76	0.00136	0.00678	652	96221	479475	4546707	47.25	30
35 - 39	1.14	1.10	2.25	0.00150	0.00747	714	95569	476060	4067232	42.56	35
40 - 44	2.20	2.13	1.88	0.00207	0.01030	977	94855	471833	3591172	37.86	40
45 - 49	2.43	3.68	3.17	0.00309	0.01533	1439	93878	465793	3119339	33.23	45
50 - 54	2.26	3.92	5.08	0.00375	0.01858	1718	92439	457900	2653546	28.71	50
55 - 59	7.03	7.48	6.81	0.00711	0.03493	3169	90721	445683	2195646	24.20	55
60 - 64	10.59	9.99	12.54	0.01104	0.05372	4703	87552	425003	1749963	19.99	60
65 - 69	26.60	18.73	22.21	0.02251	0.10655	8828	82849	392175	1323960	15.98	65
70 & above	75.58	82.33	80.30	0.07944	1.00000	74021	74021	931785	931785	12.59	70

TABLE - 35

Life table of Persons based on age specific death rates for the year 1991

Age x + 0 x + n	Age specific death rate			Mean age specific death rate nm _x	Probability of a person aged x dying before age (gx)	Number of deaths (dx)	Number surviving to age x out of 100000 born alive (lx)	Year of life lived between x + n (Lx)	Year of life lived between x and above x (Tx)	Expectation of life in years (Ex)	Beginning age (x)
	1989	1990	1991								
1	24.24	16.41	16.55	0.01907	0.01647	1647	100000	98627	7130269	71.30	0
Less than 1											
1 - 4	2.09	2.08	1.60	0.00192	0.00765	752	98353	391908	7031642	71.49	1
5 - 9	0.52	0.69	0.53	0.00058	0.00290	283	97601	487298	6639734	68.03	5
10 - 14	0.38	0.43	0.34	0.00038	0.00190	185	97318	486128	6152436	63.22	10
15 - 19	0.96	0.78	0.97	0.00090	0.00449	436	97133	484575	5666308	58.34	15
20 - 24	1.71	1.02	1.09	0.00127	0.00633	612	96697	481955	5181733	53.59	20
25 - 29	1.21	1.55	1.35	0.00137	0.00683	656	96085	478785	4699778	48.91	25
30 - 34	1.41	1.78	1.81	0.00167	0.00832	794	95429	475160	4220993	44.23	30
35 - 39	2.16	2.28	1.94	0.00213	0.01059	1002	94635	470670	3745833	39.58	35
40 - 44	2.58	3.51	2.71	0.00293	0.01454	1361	93633	464763	3275163	34.98	40
45 - 49	4.97	4.64	4.70	0.00477	0.02357	2175	92272	455923	2810400	30.46	45
50 - 54	7.33	7.46	8.16	0.00765	0.03753	3381	90097	442033	2354477	26.13	50
55 - 59	11.43	11.89	12.73	0.01202	0.05835	5060	86716	420930	1912444	22.05	55
60 - 64	18.70	17.43	16.96	0.01770	0.08475	6920	81656	390980	1491514	18.27	60
65 - 69	31.09	25.89	27.46	0.02815	0.13150	9828	74736	349110	1100534	14.73	65
70 & above	83.35	86.36	89.43	0.08638	1.00000	64908	64908	751424	751424	11.58	70

TABLE - 36

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 village	Population (1991)P	No. of units selected	Population (1991)P			
1	2	3	4	5	6	7	
I-A	73	33158	2	658	1.98	50.39210	
I-B	217	171582	2	1540	0.90	111.41688	
I-C	519	773395	6	7972	1.03	97.01392	
I-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	
II-B	415	325570	3	1915	0.59	170.01044	
II-C	894	1353880	10	14845	1.09	91.20108	
II-D	2134	10515577	74	120631	1.15	87.17143	
Southern Region	3703	12283018	89	138114	1.12	-	
State	5777	20682405	150	235530	1.14	-	

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